

Ongoing Royalties in Patent Cases After *eBay*: An Empirical Assessment and Proposed Framework

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I. Introduction

The Supreme Court’s landmark decision in *eBay Inc. v. MercExchange, L.L.C.*¹ significantly changed the remedial landscape for patent owners, holding that entry of a permanent injunction would not automatically follow a finding that an asserted patent was infringed and not invalid.² As a result, a substantial number of prevailing patentees have been denied the ability to exclude future acts of infringement through the court’s contempt power for the first time.³ *eBay*’s impact is perhaps most acute for patent assertion entities (“PAEs”)—firms that own, license, and assert patents in litigation, but do not directly practice the patented technology⁴—who rarely can satisfy *eBay*’s four-factor test for injunctive relief.⁵

¹ 547 U.S. 388 (2006).

² See *id.* at 393–94 (rejecting the “‘general rule’” articulated by the U.S. Court of Appeals for the Federal Circuit “‘that a permanent injunction will issue once infringement and validity have been adjudged’” (quoting *MercExchange, L.L.C. v. eBay, Inc.*, 401 F.3d 1323, 1338 (Fed. Cir. 2005)); see also Jaideep Venkatesan, *Compulsory Licensing of Nonpracticing Patentees After eBay v. MercExchange*, 14 VA. J.L. & TECH. 26, 27 (2009) (“As is now well known, *eBay* dramatically changed the way federal courts decide whether to grant injunctive relief after a patent infringement verdict, overturning decades of Federal Circuit precedent that granted a nearly automatic right to post-verdict injunctive relief.”).

³ See FED. TRADE COMM’N, *THE EVOLVING IP MARKETPLACE: ALIGNING PATENT NOTICE AND REMEDIES WITH COMPETITION* 216 (2011) (“Surveys of post-*eBay* cases reveal that district courts have granted approximately 72%–77% of permanent injunction requests.”); Stephen M. Ullmer, Paice *Yourself: A Basic Framework for Ongoing Royalty Determinations in Patent Law*, 24 BERKELEY TECH L.J. 75, 76 (2009) (“Following *eBay*, the lower courts deny injunctive relief more frequently and will likely compensate aggrieved patent owners with prospective liability-rule relief.”).

⁴ The precise definition of a PAE is not always clear, but commentators generally use it to refer to patent owners who exploit their patents through licensing and/or litigation, rather than through the development, manufacturing, and sale of products that practice the patented technology. See, e.g., FED. TRADE COMM’N, *supra* note 3, at 8 n.5 (“This report uses the term ‘patent assertion entity’ rather than the more common ‘non-practicing entity’ (NPE) to refer to firms whose business model

In *eBay*'s wake, some patentees have turned to another form of prospective relief—an ongoing royalty.⁶ While the Federal Circuit has authorized the award of ongoing royalties as an equitable alternative to a permanent injunction,⁷ numerous questions regarding such relief remain unresolved, including when ongoing royalties should be awarded, the structure and methodology for computing an award, and possible enhancement of the royalty rate for post-judgment willful infringement.⁸ Despite lower courts' attempts to grapple with these issues, a comprehensive methodology for determining ongoing royalties has yet to emerge.

This Article seeks to fill this void in two ways. First, it empirically assesses how courts have resolved claims for ongoing royalties by prevailing patentees. It

primarily focuses on purchasing and asserting patents. Taken literally, the term NPE encompasses patent owners that primarily seek to develop and transfer technology, such as universities and semiconductor design houses. Patent assertion entities do not include this latter group.”); Collen V. Chien, *From Arms Race to Marketplace: The Complex Patent Ecosystem and Its Implications for the Patent System*, 62 HASTINGS L.J. 297, 328 (2010) (explaining that PAEs “are focused on the enforcement, rather than the active development or commercialization of their patents,” and noting that PAEs “can be further divided into several types—large-portfolio companies, small-portfolio companies, and individuals”); Robert O. Lindefjeld, *Keeping the United States on Top of Its Game*, 6 LANDSLIDE 1, 62 (2014) (“The definition of what exactly is a ‘patent assertion entity’ has evolved over time, but it is essentially a party that exploits the limitations of our nation’s laws and legal institutions to extract more monetary value from a patent than it is worth.”); see also *In re Packard*, 751 F.3d 1307, 1325 (2014) (per curiam) (Plager, J., concurring) (“Patent trolls are also known by a variety of other names: ‘patent assertion entities’ (PAEs), [and] ‘non-practicing entities’ (NPEs).”).

⁵ See Colleen V. Chien & Mark A. Lemley, *Patent Holdup, the ITC, and the Public Interest*, 98 CORNELL L. REV. 1, 10 tbl.1 (2012) (finding that district courts granted NPEs injunctions in 26% of total requests from May 2006 through August 2011); Yixin H. Tang, *The Future of Patent Enforcement After eBay v. MercExchange*, 20 HARV. J.L. & TECH. 235, 243 (2006) (“*eBay* reduced the likelihood that patent rights will be enforced through the use of permanent injunctions, especially for patent holders who do not themselves practice the patented inventions.”); see also *infra* Part II.C.

⁶ See *Mondis Tech. Ltd. v. Chimei Innolux Corp.*, 822 F. Supp. 2d 639, 644 (E.D. Tex. 2011) (“[I]t is now more common for plaintiffs . . . who do not obtain an injunction in light of *eBay*, to move the Court to set an ongoing royalty rate for post-judgment infringement of the adjudicated patents-in-suit.”); see also Michael C. Brandt, Note, *Compulsory Licenses in the Aftermath of eBay Inc. v. MercExchange, L.L.C.*, *The Courts’ Authority to Impose Prospective Compensatory Relief for Patent Infringement*, 17 FED. CIR. B.J., 699, 704 (2008) (“Since the *eBay* decision, courts have increasingly granted compulsory licenses in lieu of permanent injunctions.”).

⁷ See *Paice LLC v. Toyota Motor Corp.*, 504 F.3d 1293, 1314 (Fed. Cir. 2007) (“Under some circumstances, awarding an ongoing royalty for patent infringement in lieu of an injunction may be appropriate.”).

⁸ See THOMAS F. COTTER, *COMPARATIVE PATENT REMEDIES: A LEGAL AND ECONOMIC ANALYSIS* 62 (2013) (“The *eBay* decision [] leaves open the question of how to calculate damages for prospective infringement in a case in which a court declines to award injunctive relief”); John Golden, *Injunctions as More (or Less) than “Off Switches”: Patent-Infringement Injunctions’ Scope*, 90 TEX. L. REV. 1399, 1401 n.1 (2012) (“Denials of patent-infringement injunctions have raised question of when and how a court should award an ‘ongoing royalty’ to compensate for expected activity that the court does not enjoin.”); Ronald J. Schulz et al., *Uncharted Waters: Determining Ongoing Royalties for Victorious Patent Holders Denied an Injunction*, 11 SEDONA CONF. J. 75, 78 (2010) (“[T]he law is not clear who—the court or the jury—determines the ongoing royalty, or how the fact-finder determines an appropriate ongoing license.”).

does so by reporting the results from an original dataset of district court decisions on ongoing royalties following *eBay*. Second, based in part on insights from this empirical study, it proposes a new framework for determining ongoing royalty awards. In particular, this framework is designed to avoid over- or under-compensation of patentees by requiring consideration of actual or anticipated changes to the relevant product market as well as potential future alternatives to the patented technology in determining the amount of an ongoing royalty award.

The balance of this Article is organized as follows. Part II discusses prospective remedies in patent law prior to the *eBay* decision. It also analyzes the *eBay* decision and its impact on the availability of injunctive relief for PAEs. Part III assesses ongoing royalties as an alternative to permanent injunctive relief and evaluates several unresolved issues regarding ongoing royalty awards. Part IV describes the methodology and findings from the author's empirical study of ongoing royalty awards following *eBay*. Finally, Part V proposes a new framework for computing ongoing royalty awards in future cases.

II. Prospective Remedies in Patent Law

There are several types of prospective relief that a district court can consider in patent cases. First, and most common from a historical perspective, it can grant a permanent injunction prohibiting future infringement by the defendants, their agents and employees, and others acting in concert with them.⁹ Second, it can allow the parties to negotiate terms for future uses of the patented invention.¹⁰ Third, it can order the defendant to pay for post-judgment infringing conduct (usually selling a product or service that practices the patented invention) at a rate established by the court, which is known as an ongoing royalty.¹¹ Finally, the district court “can exercise its discretion to conclude that no forward-looking relief is appropriate in the circumstances.”¹² If the patentee is denied any prospective relief, it can elect to file

⁹ See *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388, 395 (2006) (Roberts, C.J., concurring) (“From at least the early 19th century, courts have granted injunctive relief . . . in the vast majority of patent cases.”); see also FED. R. CIV. P. 65(d) (describing the required contents of an injunction order and the persons who can be bound by it after receiving actual notice).

¹⁰ See *Telcordia Techs., Inc. v. Cisco Sys., Inc.*, 612 F.3d 1365, 1379 (Fed. Cir. 2010) (“If the district court determines that a permanent injunction is not warranted, the district court may, and is encouraged, to allow the parties to negotiate a license.”).

¹¹ See *Paice*, 504 F.3d at 1313–16 (describing ongoing royalty awards); see also *ActiveVideo Networks v. Verizon Commc'ns*, 694 F.3d 1312, 1340–41 (Fed. Cir. 2012) (finding that patentee's “loss of revenue due to [defendant]'s infringement can be adequately remedied by an ongoing royalty from [defendant] for each of its subscribers” and remanding for a determination of “an appropriate ongoing royalty rate for future infringement”).

¹² *Whitserve, LLC v. Computer Packages, Inc.*, 694 F.3d 10, 35 (Fed. Cir. 2012); see also *Paice*, 504 F.3d at 1314–15 (“[A]warding an ongoing royalty where ‘necessary’ to effectuate a remedy . . . does not justify the provision of such relief as a matter of course whenever a permanent injunction is not imposed.”).

new litigation seeking compensation for any additional acts of infringement that occurred after entry of final judgment.¹³

A. Prospective Relief in Patent Cases Before *eBay*

As previously mentioned, a permanent injunction was the most common prospective remedy for a prevailing patentee prior to *eBay*.¹⁴ While section 283 of the Patent Act provides that the district court has discretionary authority to grant or deny injunctive relief,¹⁵ historically permanent injunctions were the preferred remedy and were routinely awarded “as a matter of course” upon a finding that the asserted patent was infringed and not invalid.¹⁶

After the Federal Circuit’s creation in 1982, it followed suit and adopted a “general rule” awarding an injunction against an adjudged infringer.¹⁷ Although recognizing that “a district court has discretion whether to enter an injunction,”¹⁸ it declared that “an injunction should issue once infringement has been established unless there is a sufficient reason for denying it.”¹⁹ The court explained that injunctions against future infringement usually should be granted because of the nature of a patent as a property right.²⁰ As one early Federal Circuit decision put it, “the right to exclude recognized in a patent is . . . the essence of the concept of property.”²¹ In contrast, “[a] compulsory license, which may arise from a refusal to enjoin, is fun-

¹³ See *z4 Techs., Inc. v. Microsoft Corp.*, 434 F. Supp. 2d 437, 444–45 (E.D. Tex. 2006) (declining to award prospective monetary compensation after denying injunctive relief and ordering patentee to file a new civil action to recover damages for post-verdict infringement); see also H. Tomas Gomez-Arostegui, *Prospective Compensation in Lieu of a Final Injunction in Patent and Copyright Cases*, 78 *FORDHAM L. REV.* 1661, 1663 (2010) (“In the absence of a final injunction, many plaintiffs would prefer the option of suing the defendant again.”).

¹⁴ See *supra* note 9 and accompanying text.

¹⁵ See 35 U.S.C. § 283 (stating that courts “may grant injunctions in accordance with the principles of equity to prevent the violation of any right secured by patent” (emphasis added)); see also *Data-scope Corp. v. Kontron Inc.*, 786 F.2d 398, 399 (Fed. Cir. 1986) (“By its terms, 35 U.S.C. § 283 clearly makes the issuance of an injunction discretionary.” (internal quotations and citation omitted)).

¹⁶ See Note, *The Enforcement of Rights Against Patent Infringers*, 72 *HARV. L. REV.* 328, 342 (1958) (“Once the issues have been fully adjudicated in the plaintiff’s favor, a permanent injunction is usually granted as a matter of course.”); Herbert F. Schwartz, Note, *Injunctive Relief in Patent Infringement Suits*, 112 *U. PA. L. REV.* 1025, 1041–42 (1964) (“By the middle of the nineteenth century, courts generally recognized that the plaintiff was entitled to . . . an injunction against future infringements for the life of the patent.”); see also 3 *WILLIAM C. ROBINSON, THE LAW OF PATENTS FOR USEFUL INVENTIONS* § 1220 (1890) (“A perpetual injunction issues, as a matter of course, at the conclusion of a suit in equity, whenever the plaintiff has sustained the allegations of his bill, provided the patent has not then expired.”).

¹⁷ See *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388, 394–95 (2006).

¹⁸ *Trans-World Mfg. Co. v. Al Nyman & Sons, Inc.*, 750 F.2d 1552, 1564 (Fed. Cir. 1984).

¹⁹ *W.L. Gore & Assocs., Inc. v. Garlock, Inc.* 842 F.2d 1276, 1281 (Fed. Cir. 1988).

²⁰ See, e.g., *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1246–47 (Fed. Cir. 1989) (“[I]t is contrary to the laws of property, of which the patent law partakes, to deny the patentee’s right to exclude others from use of his property.”).

²¹ *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1548 (Fed. Cir. 1983); see also *Dawson Chem. Co. v. Rohm & Hass Co.*, 448 U.S. 176, 215 (1980) (noting “the long-settled view that the essence of a patent grant is the right to exclude”).

damentally at odds with the right of exclusion built into our patent system.”²² As a result, the Federal Circuit recognized a presumption of irreparable harm when validity and continuing infringement were established.²³

Although permanent injunctions were rarely denied prior to *eBay*,²⁴ lower federal courts did recognize several limited exceptions to this “general rule.” One well-recognized exception occurred when granting a permanent injunction would endanger public wealth or welfare.²⁵ For instance, in *City of Milwaukee v. Activated Sludge*, the Seventh Circuit reversed the district court’s entry of an injunction regarding a patented method for treating sewage that would have required the City of Milwaukee to close its sewage treatment plant, “leaving the entire community without any means for the disposal of raw sewage other than running it into Lake Michigan.”²⁶ As a result, an injunction would have polluted the city’s drinking water and endangered “the health and the lives of more than half a million people.”²⁷ Similarly, in *Vitamin Technologists v. Wisconsin Alumni Research Foundation*, the Ninth Circuit questioned whether an injunction was appropriate for a patented process of irradiating foods to increase vitamin D, which helped eliminate the debilitating disease commonly known as rickets.²⁸ In that case, the patentee had refused to license the patented process to margarine producers, at a time (during World War II) when margarine was a staple part of the diet of the poor.²⁹ The Ninth Circuit considered whether “the effect on the public health of refusing to the users of oleomargarine . . . the right to have . . . [margarine] irradiated by the patented process is against the public interest.”³⁰

²² *Ortho Pharm. Corp. v. Smith*, 15 U.S.P.Q.2d 1856, 1863 (E.D. Pa. 1990).

²³ *Smith Int’l Inc. v. Hughes Tool Co.*, 718 F.2d 1573, 1581 (Fed. Cir. 1983).

²⁴ *See* Barry Ungar, *The Paid-in-Full, Lump-Sum Damages Award: A Perversion of Georgia-Pacific, Lucent v. Gateway and the Right to Exclude*, 41 AIPLA Q.J. 205, 208 (2013) (“Until the Supreme Court’s decision in *MercExchange, L.L.C. v. eBay, Inc.* . . . , courts routinely awarded injunctions once a patent holder successfully proved infringement . . .”). The exact rate of permanent injunction grants prior to *eBay* is unclear, but there is widespread agreement that injunctions were granted in the vast majority of cases. *See* Foley & Lardner LLP, 2007 Business Litigation Express, at 11, http://www.foley.com/files/Event/528a386c-167b-4179-9552-f5a74d8cf8a8/Presentation/EventAttachment/5882e1f2-85d9-489b-9f69-fe934b10519b/Session6_AnatHakim.pdf (finding that permanent injunctions were granted in 95% of cases before *eBay*); Robert M. Isackson, *After ‘eBay,’ Injunctions Decrease*, NAT’L L.J., Dec. 3, 2007, at S1 (reporting pre-*eBay* permanent injunction grants in 84% of patent cases).

²⁵ *See, e.g., Rite-Hite Corp. v. Kelley, Inc.*, 56 F.3d 1538, 1547 (Fed. Cir. 1995) (“[C]ourts have in rare instances exercised their discretion to deny injunctive relief in order to protect the public interest.”).

²⁶ 69 F.2d 577, 593 (7th Cir. 1934).

²⁷ *Id.* For a more detailed summary of the *Activated Sludge* case, *see* Julie A Berger & Justin Brunner, *A Court’s Dilemma: When Patents Conflict with Public Health*, 12 VA. J.L. & TECH. 7, 53–57 (2007).

²⁸ 146 F.2d 941, 942, 944 (9th Cir. 1944).

²⁹ *Id.* at 945.

³⁰ *Id.* The Ninth Circuit ultimately found that the patent was invalid and unenforceable on other grounds. *Id.* at 947–53.

Federal courts sometimes denied injunctions on other grounds prior to *eBay*. For example, the Federal Circuit denied preliminary injunctive relief on a handful of occasions when the infringing party “has or will soon cease the allegedly infringing activities.”³¹ In addition, several lower courts rejected entry of a permanent injunction when the patentee did not manufacture or sell a commercial product, but nonetheless sought to exclude an infringing defendant.³² As the Federal Circuit explained, “[a]lthough a patentee’s failure to practice an invention does not necessarily defeat the patentee’s claim of irreparable harm, [its] lack of commercial activity . . . is a significant factor in the calculus.”³³

In cases where a permanent injunction was not granted, pre-*eBay* courts occasionally awarded a so-called “compulsory license” to at least partially compensate the patentee for the defendant’s future infringement. For instance, in *Foster v. American Machine & Foundry Co.*, the Second Circuit affirmed the trial court’s denial of a permanent injunction when the patentee, who did not manufacture a product using the patented technology, sought to exclude a manufacturing infringer.³⁴ It approved the district court’s decision to instead grant a “compulsory license with royalties” to the patentee, reasoning that this award was fair in light of the patentee’s “utter failure to exploit the patent on his own.”³⁵ Similarly, in *Shatterproof Glass v. Libbey-Owens Ford Co.*, the Federal Circuit upheld a “court-ordered 5% royalty for [a] compulsory patent license for continuing operations” by the defendant after denying the patentee’s request for a permanent injunction.³⁶

B. The *eBay* Litigation and Supreme Court Decision

1. *The Parties and District Court Decision*

Nearly a decade after the Supreme Court’s decision, “[t]he story of *eBay* is well known.”³⁷ Plaintiff MercExchange, a failed start-up founded by the inventor of the patent-in-suit,³⁸ asserted that eBay, Inc., infringed U.S. Patent No. 5,845,265

³¹ *Polymer Tech., Inc., v. Bridwell*, 103 F.3d 970, 974 (Fed. Cir. 1996); *see also* *Reebok Int’l, Inc. v. J. Baker, Inc.*, 32 F.3d 1552, 1557–58 (Fed. Cir. 1994) (affirming district court’s denial of a preliminary injunction when the defendant had discontinued production of the allegedly infringing product).

³² *High Tech Med. Instrumentation, Inc. v. New Image Indus., Inc.*, 49 F.3d 1551, 1557 (Fed. Cir. 1995) (denying an injunction when patentee did not “make or sell [the patented product] and [did] not license their manufacture and sale”); *Foster v. Am. Mach. & Foundry Co.*, 492 F.2d 1316, 1324 (2d Cir. 1974) (affirming denial of injunction when the infringer “manufactures a product” but “the [patentee] does not,” reasoning that “[i]n the assessment of relative equities, the court could properly conclude that to impose irreparable hardship on the infringer by injunction, without any concomitant benefit to the patentee, would be inequitable”).

³³ *High Tech Med. Instrumentation*, 49 F.3d at 1556.

³⁴ 492 F.2d at 1324.

³⁵ *Id.*

³⁶ 758 F.2d 613, 628 (Fed. Cir. 1985).

³⁷ Venkatesan, *supra* note 2, at 31.

³⁸ For a detailed and interesting description of MercExchange and its founder Mr. Thomas G. Woolston, who was the sole inventor of the ‘265 patent, see Ryan T. Holte, *Trolls or Great Inventors: Case Studies of Patent Assertion Entities*, 59 ST. LOUIS UNIV. L.J. 1, 23–30 (2014).

(“the ‘265 patent”), which was directed to a method and apparatus “for an electronic market designed to facilitate the sale of goods between private individuals by establishing a central authority to promote trust among participants.”³⁹ After a five-week trial, a jury found that the ‘265 patent and two other patents in the same family as the ‘265 patent were valid and infringed, and it awarded MercExchange \$35 million in damages.⁴⁰

MercExchange subsequently moved for entry of a permanent injunction, which the district court denied.⁴¹ While recognizing that “the grant of injunctive relief against the infringer is considered the norm,” the district court also stated that it was required to consider “traditional equitable principles,” including “(i) whether the plaintiff would face irreparable injury if the injunction did not issue, (ii) whether the plaintiff has an adequate remedy at law, (iii) whether granting the injunction is in the public interest, and (iv) whether the balance of the hardships tips in the plaintiff’s favor.”⁴² After evaluating all of these factors, the district court found that none of them weighed in favor of granting MercExchange an injunction. First, the district court pointed to “evidence of the plaintiff’s willingness to license its patents, its lack of commercial activity in practicing the patents, and its comments to the media as to its intent with respect to enforcement of its patent rights” in finding that eBay had rebutted the presumption that MercExchange would suffer irreparable harm absent an injunction.⁴³ Second, the district court relied on MercExchange’s practice of “licens[ing] its patents to others in the past” and “its willingness to license the patents to the defendants in this case” as evidence that it had an adequate remedy at law.⁴⁴ Third, it concluded that “the public interest factor equally supports granting an injunction to protect [MercExchange]’s patent rights, and denying an injunction to protect the public’s interest in using a patented business-method that the patent holder declines to practice.”⁴⁵ Finally, it concluded that the balance of hardships favored eBay because “[a]ny harm suffered . . . by the defendants’ infringement of the patents can be recovered by way of damages,” and entry of an injunction “would essentially be opening a Pandora’s box of new problems,” including the possibility of future disputes around eBay’s proposed design around and contempt proceedings to enforce an injunction.⁴⁶

³⁹ eBay Inc. v. MercExchange, L.L.C., 547 U.S. 388, 390 (2006).

⁴⁰ MercExchange, L.L.C. v. eBay, Inc., 275 F. Supp. 2d 695, 698–99 (E.D. Va. 2003).

⁴¹ *Id.* at 710, 715. For a summary of the parties’ briefing on the issue of injunctive relief at the trial court, see Ryan T. Holte, *The Misinterpretation of eBay v. MercExchange and Why: An Analysis of the Case History, Precedent, and Parties*, 18 CHAP. L. REV. (forthcoming 2015), draft available at <http://ssrn.com/abstract=2570944>.

⁴² *MercExchange*, 275 F. Supp. 2d. at 711.

⁴³ *Id.* at 712.

⁴⁴ *Id.* at 713.

⁴⁵ *Id.* at 714.

⁴⁶ *Id.*

2. Federal Circuit Decision

MercExchange then appealed to the Federal Circuit, which affirmed the jury's findings that the '265 patent was valid and infringed by eBay, but reversed the district court's denial of a permanent injunction.⁴⁷ The Federal Circuit first recounted the "general rule . . . that a permanent injunction will issue once infringement and validity have been adjudged."⁴⁸ It then explained that the district court had failed to "provide any persuasive reason to believe this case is sufficiently exceptional to justify the denial of a permanent injunction."⁴⁹ In particular, the Federal Circuit criticized the district court's reasoning that MercExchange's willingness to license its patents meant that it did not suffer irreparable harm and that it had an adequate remedy at law, stating that this fact "should not . . . deprive [MercExchange] of the right to an injunction which it would otherwise be entitled. Injunctions are not reserved for patentees who intend to practice their patents, as opposed to those who choose to license."⁵⁰ It also declared that the district court's "general concern regarding business-method patents" and "the likelihood of continuing disputes over whether the defendants' subsequent actions would violate MercExchange's rights" were "not a sufficient basis for denying a permanent injunction."⁵¹

3. Supreme Court Decision

The Supreme Court granted certiorari limited to the issue of permanent injunctive relief⁵² and unanimously reversed the Federal Circuit.⁵³ The Court's opinion, delivered by Justice Thomas, is relatively short (less than five pages in the *United States Reports*) and direct. After summarizing the procedural history, the Court stated that "[a]ccording to well-established principles of equity, a plaintiff seeking a permanent injunction must satisfy a four-factor test."⁵⁴ Specifically, the Court held that the patentee must show:

⁴⁷ *MercExchange, L.L.C. v. eBay, Inc.*, 401 F.3d 1323, 1326 (Fed. Cir. 2005), *reversed in part on appeal*, 547 U.S. 388 (2006).

⁴⁸ *Id.* at 1338 (citing *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1246–47 (Fed. Cir. 1989)).

⁴⁹ *Id.* at 1339.

⁵⁰ *Id.*

⁵¹ *Id.*

⁵² *eBay Inc. v. MercExchange, L.L.C.*, 546 U.S. 1029 (2005) (writ of certiorari granted). A summary of the amicus briefs filed in the Supreme Court on this issue is available at Holte, *supra* note 41, at Part II.B.1.

⁵³ *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388, 390 (2006).

⁵⁴ *Id.* at 391. Several prominent remedies scholars have persuasively argued the four-factor test articulated in *eBay* was neither "traditional" nor "well-established." See Douglas Laycock, *MODERN AMERICAN REMEDIES: CASES AND MATERIALS* 426 (4th ed. 2010) (concluding that "there was no 'traditional' four-part test" for permanent injunctions); Mark P. Gergen, John M. Golden & Henry E. Smith, *The Supreme Court's Accidental Revolution? The Test for Permanent Injunctions*, 112 *COLUM. L. REV.* 203, 207–14 (2012) (explaining how the *eBay* decision's four-factor test "differs from traditional equitable practice in at least three, and possibly four, significant ways"); Doug Rendleman, *The Trial Judge's Equitable Discretion Following eBay v. MercExchange*, 27 *REV. LITIG.* 63 n.71 (2007) (noting that "[r]emedies specialists had never heard of the four-point test" articulated in *eBay*). A full analysis of the merits of the *eBay* decision and its treatment of the history of permanent injunctive relief is outside the scope of this Article.

(1) that it has suffered an irreparable injury; (2) that remedies available at law, such as monetary damages, are inadequate to compensate for that injury; (3) that, considering the balance of hardships between the plaintiff and defendant, a remedy in equity is warranted; and (4) that the public interest would not be disserved by a permanent injunction.⁵⁵

The Court then concluded that this test “appl[ied] with equal force to disputes arising under the Patent Act,” reasoning that nothing in section 283 of the Patent Act “indicates that Congress intended [] a departure” from basic equitable principles.⁵⁶

After a short discussion of patents as property rights and the treatment of injunctive relief under the Copyright Act,⁵⁷ the Court concluded that neither the district court nor the Federal Circuit had “fairly applied these traditional equitable principles in deciding [MercExchange]’s motion for a permanent injunction.”⁵⁸ It criticized the district court for “appear[ing] to adopt certain expansive principles suggesting that injunctive relief could not issue in a broad swath of cases,” including when the patent owner did not directly practice the invention and when it was willing to license the patents to others, and declared that such categorical rules “cannot be squared with the principles of equity adopted by Congress.”⁵⁹ At the same time, it rebuffed the Federal Circuit’s attempt to establish a “‘general rule’ unique to patent disputes,” that a permanent injunction would issue absent “exceptional circumstances,” explaining that its departure “in the opposite direction” was also incompatible with the four-factor test.⁶⁰ The Court then vacated and remanded the case to the district court to apply “the traditional four-factor framework.”⁶¹

This unanimous opinion, however, only thinly veiled an apparent deep-seated disagreement between the Justices regarding the circumstances under which permanent injunctions should be granted in future patent cases.⁶² These diverging views burst to the forefront in two concurring opinions. In a two-paragraph concurrence, Chief Justice Roberts, joined by Justices Scalia and Ginsburg, suggested that trial courts would be wise to consider “a page of history” and continue to grant permanent injunctions in the “vast majority of patent cases” after *eBay*.⁶³ In particular, the

⁵⁵ *eBay*, 547 U.S. at 391.

⁵⁶ *Id.* at 392.

⁵⁷ *Id.* at 392–93.

⁵⁸ *Id.* at 393.

⁵⁹ *Id.*

⁶⁰ *Id.* at 393–94.

⁶¹ *eBay*, 547 U.S. at 394.

⁶² See Paul M. Mersino, Note, *Patents, Trolls, and Personal Property: Will eBay Auction Away a Patent Holder’s Right to Exclude?*, 6 AVE MARIA L. REV. 307, 326 (2007) (“The generality in the [C]ourt’s holding [in *eBay*] was compounded by the fact that, although it was technically unanimous, the two concurring opinions were highly divergent on exactly how the holding should be applied.”); see also James M. Fischer, *The “Right” to Injunctive Relief for Patent Infringement*, 24 SANTA CLARA COMPUTER & HIGH TECH. L.J. 1, 20 (2007) (“The Court’s decision in *eBay*, although presented as a unanimous decision . . . is sufficiently terse, pithy, and fractured by the two concurrences as to provide some support to practically any conclusion one wishes to draw from the decision.”).

⁶³ *eBay*, 547 U.S. at 395 (Roberts, C.J., concurring).

Chief Justice noted the difficulty posed in protecting the right to exclude “through monetary remedies that allow an infringer to *use* an invention against the patentee’s wishes.”⁶⁴

In a separate concurrence, Justice Kennedy, joined by Justices Stevens, Souter, and Breyer, initially expressed agreement with the Chief Justice’s statement that “history may be instructive in applying [the four-factor] test,” but immediately proceeded to critique the Chief Justice’s assertion regarding the difficulty of protecting the right to exclude without an injunction, contending that “[b]oth the terms of the Patent Act and the traditional view of injunctive relief accept that the existence of a right to exclude does not dictate the remedy for a violation of that right.”⁶⁵ Justice Kennedy then explained why modern patent cases often differed from historical patent litigation in several important ways, including the role of non-practicing patentees who employed injunctive relief “as a bargaining tool to charge exorbitant fees to companies that seek to buy licenses to practice the patent.”⁶⁶ He also explained that injunctions may be inappropriate “[w]hen the patented invention is but a small component of the product the companies seek to produce and the threat of an injunction is employed simply for undue leverage in negotiations.”⁶⁷ Finally, Justice Kennedy pointed to the “burgeoning number of patents over business methods,” some of which suffer from “potential vagueness and suspect validity,” as another reason to potentially deny injunctive relief.⁶⁸

C. *eBay*’s Impact on PAEs

eBay’s four-factor test for permanent injunctions has dramatically affected PAEs who do not practice the patented technology.⁶⁹ Empirical studies of patent cases demonstrate that PAEs rarely are awarded permanent injunctions in patent cases following *eBay*. In a recent study, Professors Colleen Chien and Mark Lemley found that non-practicing patentees were granted permanent injunctions in only 26% of patent cases from May 2006 (the month of the Supreme Court’s *eBay* decision) through August 2011, and in only 7% of cases where the non-practicing patentees’ injunction was opposed by the infringer.⁷⁰ In contrast, they found that practicing patentees were awarded permanent injunctions almost 80% of the time.⁷¹ In a separate paper reporting the results of an empirical study of all contested permanent injunction decisions in district courts from the date of the Supreme Court’s *eBay* decision through the end of 2013, this author found that non-practicing entities were

⁶⁴ *Id.* (Roberts, C.J., concurring).

⁶⁵ *Id.* at 395–96 (Kennedy, J., concurring).

⁶⁶ *Id.* (Kennedy, J., concurring).

⁶⁷ *Id.* at 396–97 (Kennedy, J., concurring).

⁶⁸ *Id.* at 397 (Kennedy, J., concurring).

⁶⁹ See Venkatesan, *supra* note 2, at 27 (“As is now well known, *eBay* dramatically changed the way federal courts decide whether to grant injunctive relief after a patent infringement verdict, overturning decades of Federal Circuit precedent that granted a nearly automatic right to post-verdict injunctive relief.”).

⁷⁰ Chien & Lemley, *supra* note 5, at 10 tbl. 1.

⁷¹ *Id.*

granted permanent injunctions in only 16% of decisions, while operating companies received injunctions 80% of the time.⁷²

A review of lower court decisions after *eBay* shows that PAEs often fail the first two factors of *eBay*'s four-factor test. First, PAEs often are unable to satisfy the "irreparable injury" requirement because courts no longer presume that a patentee is irreparably harmed by ongoing patent infringement.⁷³ Since *eBay*, the Federal Circuit has "confirm[ed] that *eBay* jettisoned the presumption of irreparable harm as it applies to determining the appropriateness of injunctive relief."⁷⁴ Without this presumption, PAEs often cannot demonstrate the type of harm that would warrant entry of an injunction. The most common form of irreparable harm found by district courts post-*eBay* is the patentee's loss of market share for a product due to the defendant's introduction of a competing infringing product.⁷⁵ As the Federal Circuit recently explained, "[w]here two companies are in competition against one another, the patentee suffers the harm—often irreparable—of being forced to compete against products that incorporate and infringe its own patented inventions."⁷⁶ But PAEs do not manufacture or sell products directly, and so they cannot establish this type of harm.⁷⁷

Further, a PAE's acceptance of monetary compensation in exchange for a license to practice the patented technology can demonstrate that it is unable to satisfy *eBay*'s second factor. As the district court in *eBay* explained in again denying a permanent injunction after remand from the Supreme Court, a patentee's "willingness to license its patent portfolio" can support a finding that the patentee has an "adequate remedy at law."⁷⁸ Thus, as one district court bluntly put it, "[b]ecause it

⁷² Christopher B. Seaman, Permanent Injunctions in Patent Litigation After *eBay*: An Empirical Study (unpublished manuscript) (on file with author).

⁷³ Gomez-Arostegui, *supra* note 13, at 1668.

⁷⁴ Robert Bosch LLC v. Pylon Mfg. Corp., 659 F.3d 1142, 1149 (Fed. Cir. 2011).

⁷⁵ Seaman, *supra* note 72; see also Douglas Ellis et al., *The Economic Implications (and Uncertainties) of Obtaining Permanent Injunctive Relief After eBay v. MercExchange*, 17 FED. CIR. B.J. 437, 442 (2008) ("For the most part, when the parties-in-suit were deemed direct competitors, permanent injunctions were issued." (emphasis omitted)).

⁷⁶ Douglas Dynamics, LLC v. Buyers Prods. Co., 717 F.3d 1336, 1345 (Fed. Cir. 2013); see also Praxair, Inc. v. ATMI, Inc., 543 F.3d 1306, 1330 (Fed. Cir. 2008) (Lourie, J., concurring) ("[A] patent provides a right to exclude infringing competitors . . .").

⁷⁷ See John Golden, "Patent Trolls" and Patent Remedies, 85 TEXAS L. REV. 2111, 2113 (2007) ("Since the Supreme Court issued its opinion in *eBay*, district courts appear to have consistently denied permanent injunctions in cases where an infringer has contested the patent holder's request for such relief and the infringer and patent holder were not competitors."); Sarah R. Wasserman Rajec, *Tailoring Remedies to Spur Innovation*, 61 AM. U. L. REV. 733, 758 (2012) ("The market share rule ensures that only actors who practice their patents will be entitled to injunctions. Moreover, only firms that practice in the relevant field of technology will be competitors with market share, by definition.").

⁷⁸ MercExchange, L.L.C. v. eBay, Inc., 500 F. Supp. 2d 556, 582 (E.D. Va. 2007); see also Apple Inc. v. Samsung Elecs. Co., 735 F.3d 1352, 1370 (Fed. Cir. 2013) (finding "no error in the district court's decision to consider evidence of Apple's past licensing behavior," but also finding that the trial court could not create "a categorical rule that [a patentee]'s willingness to license its patents precludes the issuance of an injunction").

is an NPE [non-practicing entity], [the patentee] cannot obtain an injunction against patent infringement from a federal court.”⁷⁹

The unavailability of injunctive relief significantly impacts PAEs in licensing markets for patented inventions. Without a credible threat of a permanent injunction, PAEs’ bargaining power in licensing negotiations for future uses of the patented technology is significantly diminished.⁸⁰ As the Federal Trade Commission explained in its 2011 report, *The Evolving IP Marketplace*, the absence of injunctive relief for PAEs may result in a dynamic called “infringer hold-out,” whereby manufacturing infringers “will be less willing to license and more willing to litigate if the consequence of lost litigation is only a compulsory license and not an injunction.”⁸¹

III. Ongoing Royalties After *eBay*

Faced with the unavailability of injunctive relief, prevailing PAEs increasingly have turned to so-called “ongoing royalties” to provide some measure of compensation for harm caused by continuing infringement.⁸² This Part will first discuss the nature of an ongoing royalty, and then it will address several unresolved issues regarding ongoing royalty awards.

A. Ongoing Royalties as an Alternative to Permanent Injunctions

1. *Ongoing Royalties vs. Compulsory Licenses*

An ongoing royalty is monetary compensation paid to the patentee by the adjudged infringer for post-judgment infringing uses of the patented invention.⁸³ Some have asserted that an ongoing royalty is merely a euphemism for a compulsory license.⁸⁴ Strictly speaking, however, this claim is incorrect for at least three reasons.

⁷⁹ *Lamina Packing Innovations, LLC v. Monsieur Touton Selection, Ltd.*, No. 12 Civ. 5039(CM), 2013 WL 1421781, at *1 (S.D.N.Y. Apr. 4, 2013).

⁸⁰ *See Venkatesan, supra note 2*, at 26 (“*eBay* also triggered a deeper change—the level of compensation a patentee should expect for patents adjudicated to be valid and infringed, particularly for ‘nonpracticing patentees’ who do not commercialize their patents.”); *see also* Barton H. Thompson Jr., Note, *Injunction Negotiations: An Economic, Moral, and Legal Analysis*, 27 STAN. L. REV. 1563, 1576 (1975) (explaining that “the denial of equitable relief allows another to utilize [the owner’s] property for less than the potential bargained-for rate”).

⁸¹ *See* FED. TRADE COMM’N, *supra note 3*, at 220.

⁸² *See* Lisa M. Tittlemore, *The Controversy Over “Ongoing Royalty” Awards in the Evolving Landscape of Remedies for Patent Infringement*, 56 FED. LAW., Nov./Dec. 2009, at 29, 30 (“[S]ince *eBay*, ongoing royalties have become far more prevalent.”); *see also infra* Part IV.B.1 & tbl.1 (describing the increase in number of ongoing royalty awards since *eBay*).

⁸³ *See Paice LLC v. Toyota Motor Corp.*, 504 F.3d 1293, 1314 (Fed. Cir. 2007) (explaining that an “ongoing royalty” is “an order permitting [future] use of a patented invention in exchange for a royalty” (emphasis omitted)).

⁸⁴ *See, e.g., Hynix Semiconductor Inc. v. Rambus Inc.*, 609 F. Supp. 2d 951, 986 (N.D. Cal. 2009) (“[O]ngoing royalty’ is merely a nice way of saying ‘compulsory license.’”); *see also Paice*, 504 F.3d at 1316 (Rader, J., concurring) (“[C]alling a compulsory license an ‘ongoing royalty’ does not make it any less [of] a compulsory license.”).

First, unlike compulsory licenses in other areas of intellectual property law, such as a mechanical license for a previously-released musical work under section 115 of the Copyright Act,⁸⁵ an ongoing royalty is not available to all comers; rather, it is limited to the infringing defendant.⁸⁶ Second, an ongoing royalty is not “compulsory” for the patentee as that term is normally used. If a patentee is unable to obtain permanent injunctive relief to prevent future infringement, it may elect not to seek an ongoing royalty and instead bring a second lawsuit for monetary damages under section 283 for infringement occurring after entry of final judgment in the initial lawsuit.⁸⁷ Third, an ongoing royalty is not a “license” in terms of remedies for a violation because, unlike a traditional licensing agreement between private parties where breach of the agreement would give rise to a contract-based cause of action,⁸⁸ violation of an ongoing royalty order (for example, by failing to pay the ordered royalties) would be redressable through the district court’s contempt power.⁸⁹

2. *Paice LLC v. Toyota Motor Corp.*

Ongoing royalties (although not necessarily by that name) were awarded in several district court cases shortly after the *eBay* decision.⁹⁰ But it was not until the Federal Circuit’s 2007 decision in *Paice LLC v. Toyota Motor Corp.*⁹¹ that an ongoing royalty was firmly established as a form of prospective relief for patentees.

In that case, Paice LLC, a Delaware limited liability company, sued Toyota Motor Company and several of its American subsidiaries in June 2004 for infringing three patents that it owned related to hybrid vehicle technology.⁹² Called a “pa-

⁸⁵ 17 U.S.C. § 115 (2012).

⁸⁶ See *Creative Internet Adver. Corp. v. Yahoo! Inc.*, 674 F. Supp. 2d 847, 852 n.6 (E.D. Tex. 2009) (“The term ‘compulsory license’ implies that *anyone* who meets certain criteria has congressional authority to use that which is licensed.”); Brief Amici Curiae of 52 Intellectual Property Professors in Support of Petitioners at 8–9, *eBay Inc. v. MercExchange LLC*, 547 U.S. 388 (2006) (No. 05-130), 2006 WL 1785363, at *9 (“A compulsory license is a blanket rule that permits all others to use a patent upon payment of a specified royalty, giving certainty to those who would infringe the patent that they can do so upon payment of a royalty.”).

⁸⁷ Bernard H. Chao, *After eBay, Inc. v. MercExchange: The Changing Landscape for Patent Remedies*, 9 MINN. J.L. SCI. & TECH. 543, 567 (2008); see also Paul M. Janicke, *Implementing the “Adequate Remedy at Law” for Ongoing Patent Infringement After eBay v. MercExchange*, 51 IDEA 163, 174 (2011) (“Traditionally, when an injunction was refused[,] the patent owner was left to bring successive actions as and when further infringements occurred.”).

⁸⁸ Cf. *Nano-Proprietary, Inc. v. Canon, Inc.*, 537 F.3d 394, 399–401 (5th Cir. 2008) (evaluating an alleged breach of a patent license agreement under contract law).

⁸⁹ See Gómez-Arostegui, *supra* note 13, at 1673 (“[T]he court retains the power to hold a defendant in contempt for failing to pay a continuing royalty.” (citing *Broadcom Corp. v. Qualcomm Inc.*, No. 05-CV-467 (C.D. Cal. Aug. 28, 2008) (order granting in part and denying in part plaintiff’s motion for contempt))).

⁹⁰ See, e.g., *Voda v. Cordis Corp.*, No. CIV-03-1512-L, 2006 WL 2570614, at *6 (W.D. Okla. Sept. 5, 2006), *aff’d*, 536 F.3d 1311 (Fed. Cir. 2008); *Finisar Corp. v. DirecTV Grp.*, No. 1:05-CV-264, 2006 WL 2037617, at *1 (E.D. Tex. July 7, 2006).

⁹¹ 504 F.3d 1293, 1314 (Fed. Cir. 2007).

⁹² Complaint at 1, 8–10, *Paice LLC v. Toyota Motor Corp.*, No. 2:04-CV-211 (E.D. Tex. June 8, 2004), 2004 WL 3358536, at *1. The asserted patents in the *Paice* litigation were U.S. Patent No.

tent troll” by some,⁹³ Paice was founded by Dr. Alex Severinsky, an ex-Soviet émigré with a Ph.D. in electrical engineering and a professor at the University of Maryland who is a named inventor on 30 U.S. patents.⁹⁴ Toyota manufactured and sold the popular Prius hybrid electric vehicle in the United States starting in 2000.⁹⁵ Paice alleged that starting in 2003, Toyota’s Prius (as well as two other vehicles) infringed Paice’s patented technology.⁹⁶ After a ten-day trial, the jury found that two claims of one of the asserted patents were infringed and awarded over \$4 million in damages to Paice.⁹⁷

After the verdict, Paice moved for entry of a permanent injunction to prevent Toyota from making, using, offering for sale, and selling the infringing vehicles in the United States.⁹⁸ Applying *eBay*’s four-factor test, the district court denied Paice’s request, finding that it had not proven either irreparable harm or that monetary damages would be inadequate.⁹⁹ In lieu of an injunction, it awarded an ongoing royalty of approximately \$25 per infringing vehicle sold—the same rate as the jury’s verdict for past damages.¹⁰⁰

Paice appealed both the denial of its motion for a permanent injunction as well as the ongoing royalty award.¹⁰¹ After affirming on the other issues raised by the parties, the Federal Circuit considered the district court’s ongoing royalty order. It first denied Paice’s claim that the district court lacked statutory authority to issue the ongoing royalty, concluding that “[u]nder some circumstances, awarding an ongoing royalty for patent infringement in lieu of an injunction may be appropriate” under section 283.¹⁰² However, the court also cautioned that an ongoing royalty was not necessarily justified “as a matter of course whenever a permanent injunction is not imposed.”¹⁰³ It also rejected Paice’s assertion that it was entitled to a jury decision under the Seventh Amendment on the amount of an ongoing royalty, con-

5,343,970 (issued Sept. 6, 1994), U.S. Patent No. 6,209,672 (issued Apr. 3, 2001), and U.S. Patent No. 6,554,088 (issued Apr. 29, 2003).

⁹³ David Kiley, *The Secret Company That’s Profiting From Every Hybrid On The Road*, AUTOBLOG.COM (Oct. 30, 2010), <http://www.autoblog.com/2010/10/30/profitting-from-hybrids> (“Some might call Paice a ‘patent troll,’ which is a derogatory term for a company that buys patent rights of bankrupt firms and tries to shake down companies in infringement cases.”).

⁹⁴ Paice, *About Paice*, <http://www.paicehybrid.com/about> (last visited Feb. 28, 2015); Alex Severinsky, DEP’T OF MECH. ENG’G, UNIV. OF MD., <http://www.enme.umd.edu/faculty/severinsky> (last visited Feb. 28, 2015); see also Sam Smith, *The Hybrid Inventor Who Sued Toyota—And Won*, WIRED.COM (July 22, 2010), <http://www.wired.com/2010/07/alex-severinsky-toyota>.

⁹⁵ *Paice*, 504 F.3d at 1299.

⁹⁶ *Id.*

⁹⁷ *Id.* at 1302.

⁹⁸ *Id.*

⁹⁹ *Paice LLC v. Toyota Motors Corp.*, No. 2:04-CV-211, 2006 WL 2385139, at *4–5 (E.D. Tex. Aug. 16, 2006). The district court also concluded that the balance of the hardships weighed against enjoining Toyota, and that the public interest favored neither party. *Id.* at *6.

¹⁰⁰ *Paice*, 504 F.3d at 1303 (citing *Paice LLC v. Toyota Motors Corp.*, No. 2:04-CV-211, slip op. at 2 (E.D. Tex. Aug. 16, 2006)).

¹⁰¹ *Id.*

¹⁰² *Id.* at 1314.

¹⁰³ *Id.* at 1315.

cluding that an award of monetary relief “does not, standing alone, warrant a jury trial.”¹⁰⁴ Finally, the Federal Circuit vacated the royalty of \$25 per vehicle, concluding that “the district court’s order provides no reasoning to support . . . the royalty rate” and remanded “for the limited purpose of having the district court reevaluate the ongoing royalty rate.”¹⁰⁵ On remand, the Federal Circuit suggested that the district court entertain any additional evidence offered by the parties “to account for any additional economic factors arising out of the imposition of an ongoing royalty.”¹⁰⁶ The court also strongly implied that the parties should be given a reasonable opportunity to privately negotiate a royalty rate for future uses, with the district court only setting a royalty rate if “the parties fail to come to an agreement.”¹⁰⁷

In a brief concurring opinion, then-Chief Judge Rader agreed with the judgment, but emphasized his position that the court “should do more than suggest that ‘the district court *may* wish to allow the parties to negotiate amongst themselves . . . before imposing an ongoing royalty.’”¹⁰⁸ Instead, he would “*require* the district court to remand this issue to the parties” to determine royalty terms on their own “or to obtain the permission of both parties before setting the ongoing royalty rate itself.”¹⁰⁹ Chief Judge Rader explained his preference for a negotiated resolution by pointing to the parties’ superior knowledge regarding “market or other circumstances that might affect the royalty rate reaching into the future.”¹¹⁰ Ultimately, he argued, “the parties to a license are better situated than the courts to arrive at fair and efficient [licensing] terms.”¹¹¹

B. Unresolved Issues Regarding Ongoing Royalties

Although there has been some disagreement in the academic literature about courts’ authority to grant an ongoing royalty for future patent infringement,¹¹² ongoing royalties have been routinely granted by district courts¹¹³ and regularly con-

¹⁰⁴ *Id.* at 1316.

¹⁰⁵ *Id.* at 1315.

¹⁰⁶ *Paice*, 504 F.3d at 1315. On remand, the district court in fact did so, and awarded a higher \$98 per vehicle ongoing royalty rate in light of “changed legal and factual circumstances occurring since the first hypothetical negotiation.” *Paice LLC v. Toyota Motor Corp.*, 609 F. Supp. 2d 620, 630 (E.D. Tex. 2009).

¹⁰⁷ *Paice*, 504 F.3d at 1315.

¹⁰⁸ *Id.* at 1316 (Rader, C.J., concurring) (quoting *id.* at 1315).

¹⁰⁹ *Id.* (Rader, C.J., concurring).

¹¹⁰ *Id.* (Rader, C.J., concurring).

¹¹¹ *Id.* (Rader, C.J., concurring).

¹¹² Compare Gomez-Arostegui, *supra* note 13, at 1664 (“The principal aim of this Article is to demonstrate that federal courts have no authority to award compulsory prospective compensation,” including a “continuing royalty . . . for “post-judgment . . . patent infringement.”), and Chao, *supra* note 87, at 567 (suggesting that § 283 only expressly authorizes “injunctions” and “does not discuss any other kind of relief”), and Ungar, *supra* note 24, at 219–23 (contending that the Patent Act provides no basis for a jury to award a license for future infringement), with Mark A. Lemley, *The Ongoing Confusion Over Ongoing Royalties*, 76 MO. L. REV. 695, 699 (2011) (contending that “while the question is not free from doubt, there are reasonable arguments for treating ongoing royalties as within either the law or the equity power of the courts”).

¹¹³ See Appendix for a list of ongoing royalty awards by district courts.

firmed by the Federal Circuit since *Paice*.¹¹⁴ However, a number of key issues remain unresolved, including when ongoing royalties should be granted, who should determine the royalty rate, the methodology for calculating the award, the structure of the royalty payments, and whether the royalty rate should be increased due to post-judgment willful infringement. This section addresses each of these topics in turn.

1. When An Ongoing Royalty Should Be Awarded

A threshold issue is under what circumstances should courts grant an ongoing royalty. This Article contends that an ongoing royalty should be granted in nearly all cases where an injunction has been denied and the patentee requests monetary compensation for prospective infringement by the defendant. To do otherwise would effectively permit infringers to engage in royalty-free uses of the patented technology,¹¹⁵ which in turn would likely have a negative impact on incentives to innovate.¹¹⁶ Moreover, royalty-free exploitation by an adjudicated infringer appears inconsistent with section 284's requirement that the patentee be adequately compensated for infringement.¹¹⁷

However, several limited exceptions to this principle should be recognized. First, the obligation to pay an ongoing royalty should terminate when the patent's term expires. This comports with the rule from antitrust law prohibiting a patentee from requiring a licensee to pay post-expiration royalties.¹¹⁸ Second, an ongoing royalty should not be required if the infringer has voluntarily ceased its infringing conduct and there is no reasonable prospect of resumption.¹¹⁹ In such situations, the time and cost associated with determining a royalty award would be wasted because the defendant is unlikely to resume its infringing conduct. Third, a court might decline to award an ongoing royalty—or, less dramatically, grant a royalty at a lower rate than for past infringement—if public health or welfare would be seriously

¹¹⁴ See, e.g., *Fresenius USA, Inc. v. Baxter Int'l, Inc.*, 733 F.3d 1369, 1379 (Fed. Cir. 2013); *Amado v. Microsoft Corp.*, 517 F.3d 1353, 1361–62 (Fed. Cir. 2008).

¹¹⁵ See *Apple, Inc. v. Samsung Elecs. Co.*, No. 12-CV-00630-LHK, 2014 WL 6687122, at *9 (N.D. Cal. Nov. 25, 2014) (“While a patentee does not automatically receive ongoing royalties in lieu of a permanent injunction . . . a prevailing patentee should receive compensation for any continuing infringement.”).

¹¹⁶ Cf. SUZANNE SCOTCHMER, *INNOVATION AND INCENTIVES* 178 (2004) (explaining that royalty-free cross-licensing within a patent pool dilutes “[t]he incentive of a pool member to bear the cost of innovation”).

¹¹⁷ See 35 U.S.C. § 284 (“Upon finding for the claimant[,] the court shall award the claimant damages adequate to compensate for the infringement”); see also *Telcordia Techs., Inc. v. Cisco Sys., Inc.*, 612 F.3d 1365, 1379 (Fed. Cir. 2010) (“An award of an ongoing royalty is appropriate because the record supports the district court’s finding that [patentee] has not been compensated for [infringer]’s continuing infringement.”).

¹¹⁸ See *Brulotte v. Thys Co.*, 379 U.S. 29 (1964). The Supreme Court recently granted certiorari to reconsider whether requiring royalty payments after a patent’s expiration should be per se unlawful. *Kimble v. Marvel Enters., Inc.*, 135 S. Ct. 781 (2014).

¹¹⁹ See *Xpert Universe, Inc. v. Cisco Sys., Inc.*, No. 09-157-RGA, 2013 WL 6118447, at *14 (D. Del. Nov. 20, 2013) (denying patentee’s request for “an enhanced ongoing royalty for the life of the patents for future sales” because “[t]here are no future infringing sales on which to base a royalty”).

harmful by imposing a royalty. This might occur, for instance, if the royalty would hinder access to a lifesaving treatment for which there are no reasonable alternatives.¹²⁰

2. Who Determines the Royalty Rate

After determining that an ongoing royalty should be awarded, the next logical question is who should decide the amount of the royalty. The Federal Circuit has repeatedly held that ongoing royalties are equitable in nature and thus do not implicate the Seventh Amendment right to a jury trial.¹²¹ Thus, despite some arguments to the contrary,¹²² it seems likely that courts will continue to be involved in ongoing royalty determinations for the foreseeable future, absent intervention by the Supreme Court or the Federal Circuit sitting en banc.

However, the jury can still play a significant role in determining the amount of an ongoing royalty. Even if the Seventh Amendment doesn't require a jury trial, the court can submit the issue of an appropriate ongoing royalty rate to the jury for an advisory verdict.¹²³ In several cases in the Eastern District of Texas, Judge Ron Clark submitted the question on a "proper future royalty rate" to the jury, noting that its "finding on that question may be taken into account by the court and the parties when arriving at a value for future damages, but would not automatically result in an award of future damages in that amount."¹²⁴ Judge Clark reasoned that deter-

¹²⁰ Cf. Colleen Chien, *Cheap Drugs at What Price to Innovation: Does the Compulsory Licensing of Pharmaceuticals Hurt Innovation?*, 18 BERKELEY TECH. L.J. 853, 861 (2003) (noting that in developing countries, "the high price of products covered by patents can put needed technology out of the reach of . . . consumers").

¹²¹ See *Paice* 504 F.3d at 1315–16 ("[T]he fact that monetary relief is at issue in this case does not, standing alone, warrant a jury trial."); see also *Fresenius USA, Inc. v. Baxter Int'l, Inc.*, 733 F.3d 1369, 1379 (Fed. Cir. 2013) ("An injunction and compulsory license are both inherently prospective. While we may at times improperly use the term 'damages' as a shorthand term to encompass the concept of the right to some prospective *monetary* relief, that cannot change the equitable character of that relief."); *Warsaw Orthopedic, Inc. v. NuVasive, Inc.*, 515 F. App'x 882, 882 (Fed. Cir. 2012) ("An ongoing royalty is not the same as an accounting for damages.").

¹²² See Janicke, *supra* note 87, at 167 ("[I]f the plaintiff elects to recover in the present case for future wrongs, she has a right to a jury trial to set the amount."); Schulz et al., *supra* note 8, at 79 ("An ongoing royalty as compensation for future infringing acts is a legal remedy."). This Article takes no position on the contested issue of whether the Federal Circuit's conclusion in *Paice* (and reaffirmed in subsequent decisions) that a jury trial for ongoing royalties is not required under the Seventh Amendment is correct as a matter of constitutional and/or statutory interpretation.

¹²³ See FED. R. CIV. P. 39(c)(1) ("In any action not triable of right by a jury, the court, on motion on its own[,] may try any issue with an advisory jury. . . ."); Lemley, *supra* note 112, at 706 (contending that "a court setting ongoing royalties should do one of two things: ask the jury in its special verdict form to specify the percentage royalty rate and use that rate for an ongoing royalty, or set a royalty rate derived from the trial testimony and the jury's lump-sum damages award").

¹²⁴ See *Cummins-Allison Corp. v. SBM Co.*, 584 F. Supp. 2d 916, 921 (E.D. Tex. 2008); see also *Ariba, Inc. v. Emptoris, Inc.*, 567 F. Supp. 2d 914, 917 (E.D. Tex. 2008) (ordering that "a separate question on a proper future royalty rate [will] be submitted to the jury"); Michael Sadowitz, *Who Determines Post-Verdict Damage Awards for Patent Infringement in a Post-eBay World?*, THE MTTLR BLOG (Oct. 23, 2008), <http://blog.mttl.org/2008/10/who-determines-post-verdict-damage.html#sadowFN16anc> ("In the absence of strong objections from the parties, Judge Clark

mining a forward-looking royalty rate for future patent infringement was no more difficult for a jury to calculate than damages for other types of future harm.¹²⁵ Indeed, in many cases involving a claim for a reasonable royalty for past damages, the parties already present evidence regarding actual and anticipated future uses of the patented invention beyond the date of the hypothetical negotiation¹²⁶; the next step of asking a jury to also calculate a forward-looking royalty does not seem beyond a jury's capabilities.¹²⁷ In terms of timing, asking the jury determining damages for past infringement to also consider future damages is preferable to empaneling a second jury after an injunction is denied; the second jury will be unfamiliar with the facts of the case, so getting it up to speed may result in further delay and additional litigation-related expenses for the parties.¹²⁸

In addition, a jury may decide prospective compensation as part of a paid-in-full, "lump sum" award for the life of the patent, which covers both past and future uses of the patented technology.¹²⁹ The Seventh Amendment right to a jury trial attaches to claims for damages for past infringement.¹³⁰ If a jury awards a lump sum

will submit an ongoing royalty rate question to the juries in three cases pending trial." (citing *Seoul Semiconductor Co. Ltd. v. Nichia Corp.*, No. 9:07-cv-00273 (E.D. Tex. July 9, 2008); *SciCo v. Boston Scientific*, 9:07-cv-0076 (E.D. Tex. July 9, 2008); *Iovate Health Scis. Inc. v. Bio-Engineered Supplements & Nutrition, Inc.*, 9:07-cv-00046 (E.D. Tex. July 9, 2008)).

¹²⁵ See *Ariba*, 567 F. Supp. 2d at 918 ("Determining a percentage rate or royalty per item to be applied in the future in a patent case is no more difficult than the task commonly performed by jurors in federal and state courts, when asked to calculate loss of future earning capacity, future medical expenses, future pain and suffering, or future lost profits.").

¹²⁶ *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1334 (Fed. Cir. 2009):

[E]vidence of usage after infringement started can, under appropriate circumstances, be helpful to the jury and the court in assessing whether a royalty is reasonable Even though parties to a license negotiation will usually not have precise data about future usage, they often have rough estimates as to the expected frequency of use. This quantitative information, assuming it meets admissibility requirements, ought to be given its proper weight, as determined by the circumstances of each case.

See also Roger D. Blair & Thomas F. Cotter, *Rethinking Patent Damages*, 10 TEX. INTELL. PROP. L.J. 1, 41 (2001) ("[C]ourts sometimes take into account events that have occurred after the infringement . . . despite the fact that this success may have been unanticipated at the time of the hypothetical negotiations."); John C. Jarosz & Michael J. Chapman, *The Hypothetical Negotiation and Reasonable Royalty Damages: The Tail Wagging the Dog*, 16 STAN. TECH. L. REV. 769, 801 (2013) ("In actual patent litigations, ex post facts are routinely considered despite frequent assertions that only information available at the point of hypothetical negotiation is to be considered.").

¹²⁷ See *Ariba*, 567 F. Supp. 2d at 918 (rejecting the patentee's claim that requiring a lay jury to determine an ongoing royalty would result in confusion).

¹²⁸ See Lemley, *supra* note 112, at 700 ("By the time the judge rules on whether the patentee is entitled to an injunction, it is too late to send the ongoing royalties question back to the same jury. Judges may be reluctant to convene a second jury just to decide the ongoing royalty question."). Professor Lemley also notes that the reexamination clause of the Seventh Amendment might also make submitting the issue of an ongoing royalty to a second jury problematic. *Id.* at 705.

¹²⁹ See, e.g., *Regents of the Univ. of Cal. v. Monsanto Co.*, No. C 04-0634 PJH, 2005 WL 3454107, at *26-28 (N.D. Cal. Dec. 16, 2005) ("As a review of the case law makes clear, . . . a fully paid up royalty spanning the life of the patent is an allowable form of damages." (citations omitted)).

¹³⁰ See *Markham v. Westview Instruments, Inc.*, 517 U.S. 370, 377 (1996) ("[T]here is no dispute that infringement cases today must be tried to a jury, as their predecessors were more than two centu-

without specifying whether it was limited solely to past infringement, the district court may treat the lump sum as also encompassing all future uses.¹³¹ As a result, a patentee requesting a lump sum damages award must make clear in the jury instructions and verdict form that it is seeking a single payment only for retrospective harm; otherwise, it may forfeit any claim for a post-judgment ongoing royalty.¹³²

In many cases, if a permanent injunction is denied, district courts will permit—and sometimes require—litigants to negotiate regarding the amount of an ongoing royalty before the court will impose one.¹³³ As explained by Judge Rader in *Paice*, because licenses for future use “are driven largely by business objectives, the parties to a license are better situated than the courts to arrive at fair and efficient terms.”¹³⁴ In addition, the litigants often have superior information regarding technological and market conditions than a generalist court.¹³⁵ However, if an ongoing royalty is demanded after a permanent injunction has been denied, the main incentive for the infringer to agree to a royalty—the threat of being prevented from using the patented technology under court order—has been removed.¹³⁶ Thus, it is not surprising to learn, as discussed in more detail below, that court-ordered negotiations regarding an ongoing royalty rate are rarely successful.¹³⁷

3. *The Structure of the Ongoing Royalty Award*

Another key issue is the structure of an ongoing royalty award. There is no rule requiring that the structure of an ongoing royalty for future infringement be the

ries ago.”); *Duhn Oil Tool, Inc. v. Cooper Cameron Corp.*, 818 F. Supp. 2d 1193, 1204 (E.D. Cal. 2011) (“The Seventh Amendment right to jury trial applies in patent infringement actions for damages.”).

¹³¹ See *Personal Audio, LLC v. Apple, Inc.*, No. 9:09CV111, 2011 WL 3269330, at *13 (E.D. Tex. July 29, 2011) (holding that a “lump sum award giving [the infringer] a fully paid up license to the patents-in-suit” had the effect of “covering all past and future use of the patented technology”).

¹³² See *id.* at *5–13 (finding that a lump sum award for “all past and future sales” in the verdict form represents a “fully paid up license” for the patented technology); see also *Lighting Ballast Control, LLC v. Philips Elecs. N. Am. Corp.*, 814 F. Supp. 2d 665, 693 (N.D. Tex. 2011) (holding that an “ambiguous damages verdict of ‘3,000,000.00’ should be construed to represent a lump-sum royalty payment, which would grant [defendant] a license to the [patent-in-suit] . . . through the expiration of the patent”), *rev’d on other grounds*, 498 F. App’x 986 (Fed. Cir. 2013), *panel decision reinstated*, 744 F.3d 1272 (Fed. Cir. 2014), *vacated and remanded on other grounds sub nom. Lighting Ballast Control LLC v. Universal Lighting Techs., Inc.*, 135 S. Ct. 1173 (2015).

¹³³ See, e.g., *Telcordia Techs., Inc. v. Cisco Sys.*, 612 F.3d 1365, 1379 (Fed. Cir. 2010) (affirming district court order granting an ongoing royalty and directing that parties negotiate regarding the amount of the royalty); *Hynix Semiconductor Inc. v. Rambus Inc.*, 609 F. Supp. 2d 951, 986 (N.D. Cal. 2009) (ordering parties to engage in negotiation for ongoing royalty, despite the patentee’s objections); *Ricoh Co. v. Quanta Comp. Inc.*, No. 06-CV-462-BBC, 2010 WL 1607908, at *4 (W.D. Wis. Apr. 19, 2010) (ordering the litigants to negotiate regarding a license for an ongoing royalty).

¹³⁴ *Paice LLC v. Toyota Motor Corp.*, 504 F.3d 1293, 1316 (Fed. Cir. 2007) (Rader, C.J., concurring).

¹³⁵ See *COTTER*, *supra* note 8, at 55 (contending that “all other things being equal[,] the potential parties to a license do indeed have an information advantage” compared to a court).

¹³⁶ See *supra* note 80 and accompanying text.

¹³⁷ See *infra* Part IV.B.5.

same as that used for past infringement.¹³⁸ In other words, a lump sum could be awarded for past damages, while a per-unit running royalty could be used for prospective relief. The three main options for structuring prospective monetary relief in patent cases—a lump sum license, a per-unit royalty based on a fixed dollar amount, and a per-unit royalty based on a percentage of the sales price of the infringing product¹³⁹—are each discussed below.

a. Lump Sum License

The first option, a paid-in-full lump sum license, has already been mentioned.¹⁴⁰ A lump sum license is the simplest form of compensation; a single payment covers all past and future uses of the patented technology for the duration of the patent term.¹⁴¹ Courts have repeatedly authorized lump sum awards in patent cases.¹⁴² For instance, in *Lucent Technologies, Inc. v. Gateway, Inc.*, the Federal Circuit discussed in depth the option of entering into an “upfront, paid-in-full royalty” in evaluating potential structures for a reasonable royalty to compensate for past infringement.¹⁴³

One advantage of a lump sum license is that it avoids the difficulties associated with determining and making regular royalty payments for future sales of the infringing product. Although a lump sum requires the parties to make some estimate regarding the level of future infringement,¹⁴⁴ once a flat rate is agreed upon, a single

¹³⁸ See Svetla K. Tzenova, *The Structure of Ongoing Royalties in Patent Litigation*, LAW360.COM (Oct. 11, 2011, 12:39 PM ET), <http://www.law360.com/articles/275573/the-structure-of-ongoing-royalties-in-patent-litigation> (“[T]he structure of an ongoing royalty . . . can differ from the structure of the reasonable royalty for past infringement.”).

¹³⁹ Other potential alternative royalty structures include a hybrid royalty that is partially lump sum and partially a per-unit royalty, a per-unit royalty rate that varies depending on the number of uses and/or units sold, a per-unit royalty rate that varies over time, and a per-unit royalty with a minimum payment. See Golden, *supra* note 77, at 2151 n.151 (describing several of these alternatives); Eric Keller, *Time-Varying Compulsory License: Facilitating License Negotiation for Efficient Post-Verdict Patent Infringement*, 16 TEX. INTELL. PROP. L.J. 427, 428 (2008) (arguing in favor of a “royalty rate[] that increase[s] with time according to a schedule set by the court”).

¹⁴⁰ See *supra* notes 129–132 and accompanying text.

¹⁴¹ See Gómez-Arostegui, *supra* note 13, at 1674 (“As another alternative to a final injunction, a court might award the plaintiff a single lump sum for all future infringements for the life (or a shorter term) of the patent . . .”).

¹⁴² See, e.g., *Interactive Pictures Corp. v. Infinite Pictures, Inc.*, 274 F.3d 1371, 1385–86 (Fed. Cir. 2001) (upholding award of actual damages in the form of a lump sum payment); *Open Text S.A. v. Box, Inc.*, No. 13–cv–04910–JD, 2015 WL 466815, at *1 (N.D. Cal. Jan. 28, 2015) (“[T]here is no doubt that a fully paid-up lump sum is an allowable form of damages.”); *Regents of the Univ. of Cal. v. Monsanto Co.*, No. C 04–0634 PJH, 2005 WL 3454107, at *26 (N.D. Cal. Dec. 16, 2005) (“As a review of the case law makes clear . . . a fully paid up royalty spanning the life of the patent is an allowable form of damages.”).

¹⁴³ 580 F.3d 1301, 1326 (Fed. Cir. 2009).

¹⁴⁴ *Id.* (“Parties agreeing to a lump-sum royalty agreement may, during the license negotiation, consider the expected or estimated usage . . . of a given invention . . . because the more frequently most inventions are used, the more valuable they generally are and therefore the larger the lump-sum payment.”); Lemley, *supra* note 112, at 701 (“A lump sum royalty award for future infringement . . . [r]equires a prediction of how many infringing products will be sold in the remaining

dollar figure resolves all claims between the parties. As a result, “lump sum payments can be quickly and easily administered” without creating “an ongoing contractual relationship between the parties.”¹⁴⁵ It also gives both sides certainty regarding the total amount of compensation¹⁴⁶ and avoids potential disputes over accounting for royalty payments.¹⁴⁷ Finally, a lump sum license can be an effective way for a patent holder “to raise a substantial amount of cash quickly,”¹⁴⁸ which can then be invested into new research or used to finance other business activities.

However, there are also substantial downsides to a lump sum license. Many of the risks regarding the extent of future use of the patented technology are borne by the patentee.¹⁴⁹ As one author has explained, “[a] lump-sum payment . . . allows no flexibility with respect to the post-trial uncertainty about the profitability of the infringer’s product . . . or of the patent itself.”¹⁵⁰ For example, if a licensed product turns out to be substantially more popular than anticipated, the additional profit from these sales will accrue entirely to the infringer. Similarly, “[t]he licensed technology may be wildly successful, and the licensee may have acquired the technology for far less than what later proved to be its economic value.”¹⁵¹ The licensing infringer also bears some risks with a lump sum license as well. For instance, if the patented invention is rendered obsolete by new technology, then the licensee has lost much of the value of the lump sum license.¹⁵² “Thus, as with any other judgment that awards lump-sum future damages, we may eventually learn that the amount awarded overcompensated or undercompensated the plaintiff.”¹⁵³

b. Per-Unit Royalty: Fixed Dollar Amount

A second option is an ongoing royalty based on a fixed amount (typically in American currency) per unit sold until the patent expires. The primary advantage of this alternative is that it reduces the possibility that either the patentee or the infringer will be dramatically overcompensated or undercompensated based on unan-

life of the patent, the price at which they will be sold, and the percentage of that price the patentee would be willing to pay.”).

¹⁴⁵ Ullmer, *supra* note 3, at 93.

¹⁴⁶ Gómez-Arostegui, *supra* note 13, at 1675 (explaining that with a lump sum license, “[t]he precise dollar amount of the award for all future infringements is determined once and for all at the time of judgment”).

¹⁴⁷ *See Lucent*, 580 F.3d at 1326 (“A lump-sum license removes any risk that the licensee using the patented invention will underreport, e.g., engage in false reporting, and therefore underpay, as can occur with a running royalty agreement.”); Ullmer, *supra* note 3, at 92 n.110 (“[O]ngoing royalties may require a court to step in and adjudicate disputes over the payment or accounting procedures prescribed by the royalty agreement.”).

¹⁴⁸ *See Lucent*, 580 F.3d at 1326.

¹⁴⁹ *See Lemley*, *supra* note 112, at 701 (“[A] forward-looking lump-sum award is unlikely to accurately capture the future injury to the patentee.”).

¹⁵⁰ Tzenova, *supra* note 138.

¹⁵¹ *Lucent*, 580 F.3d at 1326.

¹⁵² *See id.* (“A further, important consideration is that an upfront, paid-in-full royalty removes . . . the ability to reevaluate the usefulness, and thus the value, of the patented technology as it is used and/or sold by the licensee.”).

¹⁵³ Gómez-Arostegui, *supra* note 13, at 1675.

ticipated post-judgment developments.¹⁵⁴ For example, if the patented technology becomes wildly popular, then the licensee will share in the unexpected benefits through increased royalty payments for each unit sold. Likewise, if the technology is not adopted by the market, then the infringer will pay a relatively small amount compared to the cost of a lump sum.

A per-unit royalty has several potential downsides as well. For one, a per-unit royalty requires the licensee-infringer to track sales of product(s) that practice the patented technology and report them on a regular basis (e.g., annually, quarterly, or monthly) to the patentee, which imposes “ongoing administrative burdens.”¹⁵⁵ Moreover, from the patentee’s perspective, there may be a “risk that the licensee using the patented invention will underreport,” either inadvertently or deliberately, “and therefore underpay” the patentee.¹⁵⁶

In addition, a per-unit royalty based on a fixed amount “is vulnerable to changes over time in the price or value of the product.”¹⁵⁷ For example, a licensed product’s price may decrease over time in response to competition from the entrance of new, noninfringing competitors into the market, or due to subsequently-developed alternatives to the patented technology, which would compel the licensee-infringer to reduce its price (e.g., from \$10 per unit to \$5 per unit) or risk losing customers.¹⁵⁸ If the amount of the royalty remains constant (e.g., \$1 per unit sold), then the effective royalty rate would increase (e.g., from 10% to 20% of the unit’s sale price).¹⁵⁹ Conversely, inflation may erode the value of a fixed price royalty over time unless the price is adjusted to compensate.¹⁶⁰

¹⁵⁴ See Lemley, *supra* note 112, at 702 (“A per-unit dollar royalty is somewhat better [than a lump sum], because a court does not need to accurately estimate how many products the defendant will sell; the defendant simply pays a dollar amount each quarter based on what it actually did sell.”).

¹⁵⁵ *Lucent*, 580 F.3d at 1326. These burdens would apply equally to a per-unit royalty based on a percentage of the sales price, which is described in more detail in the following subsection.

¹⁵⁶ *Id.*

¹⁵⁷ Lemley, *supra* note 112, at 701.

¹⁵⁸ See *IGT v. Alliance Gaming Corp.*, 702 F.3d 1338, 1350 (Fed. Cir. 2012) (“If a product is priced higher than similar competing products, rational cost-minimizing consumers will shift to the lower-priced similar products If, instead, there are no similar or acceptable alternatives (as occurs in a monopolized market or where patent protection bars the introduction of competitive alternatives), consumers will bear the increased price for the preferred product because there are no satisfactory alternatives to which demand can be shifted.”); see also Christopher B. Seaman, *Reconsidering the Georgia-Pacific Standard for Reasonable Royalty Patent Damages*, 2010 BYU L. REV. 1661, 1711–15 (discussing the role of noninfringing alternatives in constraining royalty rates in the context of a hypothetical negotiation).

¹⁵⁹ See also Lemley, *supra* note 112, at 701 (describing other potential changes in effective royalty rates for fixed price royalties).

¹⁶⁰ See CARYN R. LELAND, *LICENSING ART & DESIGN* 42 (rev. ed. 1995) (“Because a fixed rate formula will not match the rate of inflation over the term of the license, a percentage rate would be more favorable to the licensor . . .”).

c. Per-Unit Royalty: Percentage of Sales Price

The third alternative is a per-unit ongoing royalty calculated as a percentage of the licensed product's sales price. This has many of the same benefits as a per-unit fixed amount royalty, but it avoids the disadvantages associated with changes to the licensed product's price.¹⁶¹ However, it is not flawless.

One potential difficulty with a per-unit royalty based on a percentage is the perception that a very high (e.g., greater than 10%–15%) or very low (e.g., less than 0.1%) percentage royalty rate is unfair, even if it is economically justified because the value of the patented technology is very large or small, respectively, compared to the price of the product that incorporates the patented technology.¹⁶² For example, in *Uniloc USA, Inc. v. Microsoft Corp.*, the Federal Circuit held that patentee should not have been permitted under the entire market value rule to compare the accused infringer's proposed licensing fee with the total amount of sales of the relevant product, which the patentee claimed would result in a 0.00003% royalty.¹⁶³ A second, related issue is what product constitutes the proper royalty base for purposes of determining a percentage royalty. A percentage ongoing royalty may appear superficially more palatable if it is calculated as a low percentage of the largest saleable unit (e.g., a computer server) rather than a higher percentage of a smaller component that embodies the patented invention (e.g., a computer chip).¹⁶⁴ Despite these limitations, however, a per-unit royalty calculated as a percentage of the sales price of a licensed product is generally the optimal structure of an ongoing royalty.¹⁶⁵

4. The Methodology for Determining an Ongoing Royalty

If the parties are unable to agree on an ongoing royalty rate, then the decision maker must select an appropriate royalty rate. The methodology used to calculate this rate is one of the most important parts of an ongoing royalty determination. However, the Federal Circuit has not provided clear guidance on this important issue.¹⁶⁶

In the absence of an established framework, many district courts have elected to apply some or all of the *Georgia-Pacific* factors for determining a reasonable royalty for past infringement to guide their decision regarding prospective royal-

¹⁶¹ See Lemley, *supra* note 112, at 701 (contending that “[t]he best option is an ongoing percentage royalty, which obviates the need to predict either the quantity sold or the price”).

¹⁶² See Tzenova, *supra* note 138.

¹⁶³ 632 F.3d 1292, 1318–21 (Fed. Cir. 2011).

¹⁶⁴ *Cornell Univ. v. Hewlett-Packard Co.*, 609 F. Supp. 2d 279, 287–90 (N.D.N.Y. 2009).

¹⁶⁵ See Lemley, *supra* note 112, at 701.

¹⁶⁶ See *Mondis Tech. Ltd. v. Chimei Innolux Corp.*, 822 F. Supp. 2d 639, 645 (E.D. Tex. 2011) (“[T]he Federal Circuit has not announced a particular standard to be used in calculating an ongoing royalty rate.”); see also Lemley, *supra* note 112, at 703 (“Neither [*Paice* nor *Amado*] set a rule for how ongoing royalties were to be calculated”); Schulz et al., *supra* note 8, at 81 (“The Federal Circuit has not provided any specific guidance as to how an ongoing royalty should be decided.”).

ties.¹⁶⁷ The *Georgia-Pacific* test, developed over forty years ago by a district court¹⁶⁸ and subsequently adopted by the Federal Circuit,¹⁶⁹ identifies fifteen nonexclusive factors to be considered in the context of a so-called “hypothetical negotiation” between the patentee and the accused infringer.¹⁷⁰ The *Georgia-Pacific* factors “involve a wide variety of technical, financial, licensing, and other issues.”¹⁷¹ However, the *Georgia-Pacific* test has been repeatedly criticized as being overly flexible, providing no real methodology for both jurors and courts to apply, and as likely to result in the overcompensation of patentees.¹⁷²

Other district courts have applied the *Read* factors for determining enhanced damages for willful patent infringement to assess whether a post-judgment royalty

¹⁶⁷ See, e.g., *Apple, Inc. v. Samsung Elecs. Co.*, No. 12-CV-00630-LHK, 2014 WL 6687122, at *13 (N.D. Cal. Nov. 25, 2014) (“Courts have used the *Georgia-Pacific* factors to evaluate a post-verdict hypothetical negotiation for ongoing royalties.”); *Bianco v. Globus Med., Inc.*, No. 2:12-CV-00147-WCB, 2014 WL 2980740, at *2 (E.D. Tex. July 2, 2014) (“[C]ourts have often used the so-called *Georgia-Pacific* factors in assessing . . . a royalty rate in a hypothetical post-verdict licensing negotiation”); *Carnegie Mellon Univ. v. Marvell Tech. Grp., Ltd.*, No. CIV.A. 09-290, 2014 WL 1320154, at *37 (W.D. Pa. Mar. 31, 2014) (“[T]he Court weighs the traditional *Georgia-Pacific* factors to arrive at a reasonable royalty which is adequate to compensate the patentee for the continued infringement.”); *Paice LLC v. Toyota Motor Co.*, 609 F. Supp. 2d 620, 624 (E.D. Tex. 2009) (“Many of the factors noted by the *Georgia-Pacific* court are also seemingly applicable to an ongoing royalty rate analysis.”).

¹⁶⁸ *Georgia-Pacific Corp. v. U.S. Plywood Corp.*, 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970), *aff’d in part*, 446 F.2d 295 (2d Cir. 1971).

¹⁶⁹ See, e.g., *Unisplay, S.A. v. Am. Elec. Sign Co.*, 69 F.3d 512, 517 n.7 (Fed. Cir. 1995) (holding that “[a] comprehensive list of relevant factors in determining a reasonable royalty is set out in *Georgia-Pacific*”); *Hanson v. Alpine Valley Ski Area, Inc.*, 718 F.2d 1075, 1077 (Fed. Cir. 1983) (affirming reasonable royalty award based on trial court’s application of *Georgia-Pacific*).

¹⁷⁰ *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1324–25 (Fed. Cir. 2009); see also *Rite-Hite Corp. v. Kelley Co.*, 56 F.3d 1538, 1554 n.13 (Fed. Cir. 1995) (en banc).

¹⁷¹ Seaman, *supra* note 158, at 1666.

¹⁷² See, e.g., Daralyn J. Durie & Mark A. Lemley, *A Structured Approach to Calculating Reasonable Royalties*, 14 LEWIS & CLARK L. REV. 627, 644 (2010) (“Reasonable royalty damage awards are a mess. Damage awards, rationales, and percentages are widely disparate, reflecting an uncertain legal environment and very little oversight of jury fact-finding.”); Jarosz & Chapman, *supra* note 126, at 810 (“[T]he use of a hypothetical negotiation construct to calculate such damages has contributed to a lack of certainty and predictability.”); Amy L. Landers, *Let the Games Begin: Incentives to Innovation in the New Economy of Intellectual Property Law*, 46 SANTA CLARA L. REV. 307, 373 (2006) (asserting that “the *Georgia-Pacific* factors and the hypothetical negotiation construct fail to provide sufficient guidance” in determining a reasonable royalty); Brian J. Love, *The Misuse of Reasonable Royalty Damages as a Patent Infringement Deterrent*, 74 MO. L. REV. 909, 910–11 (2009) (“This Article documents the striking fact that courts have time and again awarded reasonable royalty damages for patent infringement that rise well above any objectively ‘reasonable’ level for the apparent purpose of punishing defendants for their infringing conduct.”); John W. Schlicher, *Patent Damages, the Patent Reform Act, and Better Alternatives for the Courts and Congress*, 91 J. PAT. & TRADEMARK OFF. SOC’Y 19, 22 (2009) (contending that “reasonable royalty damage awards frequently exceed the economic value of patented inventions” and that “juries are not given useful guidance on how to apply the so-called *Georgia-Pacific* factors”); Seaman, *supra* note 158, at 1661, 1666–67 (arguing that *Georgia-Pacific* “has become increasingly difficult for juries to apply in lengthy and complex patent trials, resulting in unpredictable damage awards” and that “there is a growing body of evidence that *Georgia-Pacific* has resulted in the systematic overcompensation of patent owners in certain industries”).

rate should be increased from the pre-judgment rate.¹⁷³ And yet others have applied arbitrary rules like the so-called “25% rule of thumb”¹⁷⁴ or have increased or decreased proposed royalty rates without clear explanation.¹⁷⁵ Part V of this Article proposes a new framework to help guide courts’ and juries’ determination of ongoing royalty awards.¹⁷⁶

5. *Enhancement of Ongoing Royalties for Post-Judgment Willfulness*

A related issue is whether the ongoing royalty rate should be increased relative to the royalty rate for past damages due to the defendant’s post-judgment willful infringement. Many courts conclude that any continuing infringement by the defendant after the jury’s verdict is automatically willful and thus routinely enhance the post-judgment royalty rate.¹⁷⁷ In contrast, some other courts have reasoned that an adjudication of infringement should not necessarily lead to a higher ongoing royalty rate because it merely confirms the parties’ assumptions in the hypothetical negotiation that the patent-in-suit is both valid and infringed in determining a retrospective royalty rate.¹⁷⁸ Similarly, some intellectual property scholars contend that district

¹⁷³ See *Fractus, S.A. v. Samsung Elecs. Co.*, No. 6:09-CV-203, 2013 WL 1136964, at *2 (E.D. Tex. Mar. 15, 2013).

¹⁷⁴ The 25% rule of thumb “is a tool that has been used to approximate the reasonable royalty rate that the manufacturer of a patented product would be willing to offer to pay to the patentee during a hypothetical negotiation.” *Uniloc USA, Inc. v. Microsoft Corp.*, 632 F.3d 1292, 1312 (Fed. Cir. 2011) (citing Robert Goldscheider, John Jarosz & Carla Mulhern, *Use Of The 25 Per Cent Rule in Valuing IP*, 37 LES NOUVELLES 123, 123 (Dec. 2002)). In *Uniloc v. Microsoft*, the Federal Circuit held that the “25 percent rule of thumb is a fundamentally flawed tool for determining a baseline royalty rate in a hypothetical negotiation” and rejected its application. *Id.* at 1315–17.

¹⁷⁵ See *Paice LLC v. Toyota Motor Co.*, 609 F. Supp. 2d 620, 630–31 (E.D. Tex. 2009) (applying the “25% Rule of Thumb to Toyota’s profit margin of 9%, thereby yielding a royalty rate of 2.25%,” and then reducing it by 1/3 for a final royalty rate of 1.5%); see also *Amado v. Microsoft Corp.*, 517 F.3d 1353, 1361–62 (Fed. Cir. 2008) (vacating a district court award for ongoing royalties at triple the rate for past infringement without inquiring into the possibility of changed circumstances and whether the ongoing royalty rate was reasonable as a result).

¹⁷⁶ See *infra* Part V.

¹⁷⁷ See, e.g., *Affinity Labs of Tex., LLC v. BWM N. Am., LLC*, 783 F. Supp. 2d 891, 899 (E.D. Tex. 2011) (“Following a jury verdict and entry of judgment of infringement and no invalidity, a defendant’s continued infringement will be willful absent very unusual circumstances.”); *I/P Engine, Inc. v. AOL, Inc.*, No. 2:11cv512, 2014 WL 309245, at *3 (E.D. Va. Jan. 28, 2014) (finding post-judgment infringement willful and increasing the ongoing royalty rate compared to the jury’s verdict).

¹⁷⁸ See, e.g., *Carnegie Mellon Univ. v. Marvell Tech. Group, Ltd.*, No. 09-290, 2014 WL 1320154, at *38 (W.D. Pa. Mar. 31, 2014) (finding that a hypothetical negotiation that the patentee would be “largely satisfied with the exceptional returns on its minimal financial investments in the[] patents” and denying patentee’s claim for enhanced damages); *Univ. of Pittsburgh v. Varian Med. Sys., Inc.*, No. 08cv1307, 2012 WL 1436569, at *11 (W.D. Pa. Apr. 25, 2012), *vacated and remanded on other grounds*, 561 F. App’x 934 (Fed. Cir. Apr. 10, 2014) (explaining that the jury was “instructed to assume . . . that [patent-in-suit] was valid and was being infringed” and finding that “no changed circumstances exist which would warrant a higher ongoing royalty [rate] than that set by the jury”); see also *Ariba, Inc. v. Emptoris, Inc.*, 567 F. Supp. 2d 914, 918 (E.D. Tex. 2008) (reasoning that “it is logically inconsistent to argue that a [royalty] calculation based upon assumptions

courts should not increase post-verdict royalty damages simply because the defendant has exercised its ability under the ongoing royalty award to exploit the patented technology in return for continuing royalty payments.¹⁷⁹

For reasons explained in more detail in Part V, this Article contends that post-judgment uses of the patented technology should not be considered “willful” if they occur pursuant to an ongoing royalty, and therefore any increase in the ongoing royalty rate (as compared to damages for past infringement) must be justified by other market and/or technological reasons.

IV. An Empirical Assessment of Ongoing Royalties Since *eBay*

In light of these unresolved issues, as well as to obtain an understanding of how district courts award ongoing royalties after *eBay*, the author undertook an empirical assessment of district court decisions regarding ongoing royalties. The objectives, methodology, and findings from this study are discussed in the remainder of this Part.

A. Study Objectives and Methodology

This empirical study of ongoing royalty awards evolved out of a larger research project conducted by the author regarding permanent injunctive relief following the Supreme Court’s decision in *eBay*. For that project, data was collected on all available post-*eBay* permanent injunctions decisions by district courts from the date of the *eBay* decision through the end of 2013.¹⁸⁰ One frequently-encountered issue in these cases was whether monetary damages for ongoing infringement constituted an adequate remedy at law, which would preclude entry of

of infringement and validity would change when those assumptions are replaced by jury findings of the same facts”).

¹⁷⁹ See Lemley, *supra* note 112, at 702 (“If a court has decided that the defendant should be allowed to continue to sell the infringing product because enjoining its sale imposes too great a hardship on either the defendant or the public, it seems odd to then punish the defendant for doing the very thing the court just permitted.”).

¹⁸⁰ See Seaman, *supra* note 72.

an injunction.¹⁸¹ In some situations, district courts determined that the relief provided by of an ongoing royalty obviated the need for a permanent injunction.¹⁸²

To better assess how district court courts were deciding ongoing royalty awards since *eBay*, the author created an original data set of ongoing royalty decisions from the date of the Supreme Court's *eBay* decision through January 2015. The starting point was the author's list of cases where a permanent injunction had been denied since *eBay*.¹⁸³ Additional ongoing royalty decisions were identified through searches conducted in several databases, including WestlawNext¹⁸⁴ and Lex Machina,¹⁸⁵ as well the *Annotated Patent Digest*, which contained an extensive discussion of ongoing royalty opinions by the Federal Circuit and district courts.¹⁸⁶ Furthermore, since many of the leading ongoing royalty decisions came from cases originally filed in the United States District Court for the Eastern District of Texas, the author searched the Eastern District of Texas Federal Court Practice Blog by attorney Michael C. Smith, which has extensive news and commentary on patent cases from that court.¹⁸⁷

¹⁸¹ See, e.g., *VirnetX Inc. v. Apple Inc.*, 925 F. Supp. 2d 816, 846 (E.D. Tex. 2013), *aff'd in part, vacated in part, rev'd in part on other grounds sub nom. VirnetX, Inc. v. Cisco Sys., Inc.*, 767 F.3d 1308 (Fed. Cir. 2014) (rejecting patentee's request for a permanent injunction because it "has not demonstrated that . . . monetary damages are an insufficient remedy"); *MercExchange, L.L.C. v. eBay, Inc.*, 500 F. Supp. 2d 556, 582 (E.D. Va. 2007) (after remand in *eBay*, finding that "damages at law constitute an adequate remedy for eBay's willful infringement" and rejecting patentee MercExchange's request for a permanent injunction); *z4 Techs., Inc. v. Microsoft Corp.*, 434 F. Supp. 2d 437, 441 (E.D. Tex. 2006) (rejecting patentee's claim that "monetary damages for future infringement are not an adequate remedy because they cannot compensate [patentee] for the loss of its right to exclude [the infringer]" and denying a permanent injunction); see also Janicke, *supra* note 87, at 164 ("In the wake of the *eBay* decision, the district courts refusing permanent injunctions against ongoing infringement have in every instance first found that an adequate damages remedy at law was indeed available.").

¹⁸² See, e.g., *Creative Internet Adver. Corp. v. Yahoo! Inc.*, 674 F. Supp. 2d 847, 852 (E.D. Tex. 2009) (finding "that an ongoing royalty is necessary—in lieu of injunctive relief—to adequately remedy future infringement"); cf. *Bianco v. Globus Med., Inc.*, No. 2:12-CV-00147-WCB, 2014 WL 1049067, at *3 (E.D. Tex. Mar. 17, 2014) (in trade secret litigation, finding that "monetary relief in the form of an ongoing royalty will provide full compensation for any future injury" and denying entry of an injunction).

¹⁸³ See Seaman, *supra* note 72.

¹⁸⁴ The following search was performed in the ALLFEDS database (which contains all federal cases) in WestlawNext: (paice or amado or creative or activevideo) /250 ("ongoing royalty" or (compulsor! /4 license) or (post-judg! /4 royalty!)) /250 patent.

¹⁸⁵ LEX MACHINA, <https://lexmachina.com> (last visited Mar. 1, 2015). The search term "ongoing royalty" was used in this database, then the results were filtered by limiting "Case Types" to "Patent."

¹⁸⁶ 4 ROBERT A. MATTHEWS, JR., ANNOTATED PATENT DIGEST § 30:90.100 (2015) (case examples setting amount of ongoing royalty).

¹⁸⁷ Michael C. Smith et al., EDTEXWEBLOG.COM, http://mcsmith.blogs.com/eastern_district_of_texas (last visited Mar. 1, 2015). Google's Advanced Search feature was used to search this site for the words "ongoing royalty." https://www.google.com/search?q=ongoing+royalty&as_epq=&as_oq=&as_eq=&as_nlo=&as_nhi=&lr=&cr=&as_qdr=all&as_sitesearch=http%3A%2F%2Fmcsmith.blogs.com%2F&as_occt=any&safe=images&tbs=&as_filetype=&as_rights=&gws_rd=ssl.

From these sources, fifty-seven district court decisions regarding ongoing royalties were identified.¹⁸⁸ A complete list of these decisions is included in the Appendix. Each case was then hand coded for a variety of criteria using a standardized set of coding instructions.¹⁸⁹ This included information about the parties to the case;¹⁹⁰ information about the ongoing royalty decision, including citation information, the district court where the case was pending, the date of the decision;¹⁹¹ and who made the decision (judge or jury) regarding the amount of the ongoing royalty.¹⁹² Information about the patented technology,¹⁹³ the structure of the ongoing royalty award,¹⁹⁴ and the rate of post-judgment ongoing royalties compared to the effective royalty for past infringement.¹⁹⁵ All data analysis was conducted using Stata/IC 13.1.

It is also important to note several limitations of this study. First, it involves a relatively small number of decisions: fifty-seven cases involving fifty-four separate ongoing royalty awards (excluding settlements).¹⁹⁶ As a result of this small size,

¹⁸⁸ Fifty-six of these were patent cases and one was a trade secret case. The trade secret case, *Bianco v. Globus Medical, Inc.*, No. 2:12-CV-00147-WCB, 2014 WL 2980740 (E.D. Tex. July 2, 2014), was included in the data set because it involved a medical device, which is often protected under patent law, and it presented many of the same issues as an ongoing royalty in patent cases. *Id.* In addition, it is extensively cited and relied on prior ongoing royalty decisions from patent cases. *Id.*

¹⁸⁹ In empirical research, written coding instructions are desirable because they help promote consistency in coding and serve as “a check against looking, consciously or not, for confirmation of predetermined positions.” Mark A. Hall & Ronald F. Wright, *Systematic Content Analysis of Judicial Opinions*, 96 CAL. L. REV. 63, 81 (2008); see also Lee Epstein & Andrew Martin, *Coding Variables*, in 1 ENCYCLOPEDIA OF SOCIAL MEASUREMENT 321, 325 (Kimberly Kempf-Leonard ed., 2005) (explaining that “the overriding goal of a codebook is to minimize human judgment—to leave as little as possible to interpretation”).

¹⁹⁰ String variables were used for the name of the plaintiff [PLAINTIFF] and the defendant [DEFENDANT] in the case. If multiple plaintiffs and/or defendants existed, then only the first-named party was used. The identity of the patent owner—for instance, whether it was a PAE—also was classified as a separate variable [PATENTEE], as explained in more detail below. See *infra* notes 213–215 and accompanying text.

¹⁹¹ These variables included the docket number for the case [DOCKET], citation to the ongoing royalty decision in Westlaw or the electronic court docket in ECF/PACER [CITE], and the date of the ongoing royalty decision [DATE].

¹⁹² This was a binary variable [JURY] based on whether the jury or judge made the decision regarding an ongoing royalty.

¹⁹³ This variable [TECH] was broken down into 9 different fields of technology: computer software, electronics, electrical, mechanical, chemistry, biotechnology, drugs, medical devices, and other. See Seaman, *supra* note 72.

¹⁹⁴ This variable [TYPE] included the three major types of royalty structures previously discussed: (1) paid-in-full lump sum awards, (2) per-unit royalties based on a fixed price, and (3) per-unit royalties based on a percentage of the sales price. See *supra* Part III.B.3. It also included other royalty structures as an additional option.

¹⁹⁵ This variable [RATIO] was expressed as a single numeric figure following this formula: post-judgment royalty rate / pre-judgment royalty rate.

¹⁹⁶ Some decisions contained multiple ongoing royalty awards for different products. If the royalty rate varied for different products, then each product was coded as a separate ongoing royalty award.

traditional statistical tools for hypothesis testing, such as chi-squared tests and regression analysis, could not be employed.

Second, the ongoing royalty decisions studied are subject to the selection effect and thus may not be representative of the broader set of disputes where a patentee might seek a forward-looking royalty. “In general, [t]he selection effect refers to the proposition that the selection of tried cases is not a random sample of the mass of underlying cases.”¹⁹⁷ This is because “[c]ases only go to trial when the parties substantially disagree on the predicted outcome.”¹⁹⁸ Rational parties consider all available information regarding their likelihood of success on a claim, including the applicable legal precedent, and adjust their expectations and strategy accordingly.¹⁹⁹ Thus, when the applicable legal standard clearly favors one side or the other, parties tend to settle their disputes rather than incur the expense of litigation.²⁰⁰ In contrast, “[d]ifficult cases falling close to the applicable legal standard tend not to settle, because the parties are more likely to disagree substantially in their predicted outcomes.”²⁰¹ As a result, “the disputes selected for litigation . . . will constitute neither a random nor a representative sample of the set of all disputes.”²⁰² Here, the court decisions studied are not representative of all patent disputes because all of the following must have (or have not) occurred: (1) a patent infringement lawsuit was filed and litigated to judgment; (2) at least one patent-in-suit was found to be infringed and not invalid; (3) the district court either declined to enter a permanent injunction or the patentee did not request a permanent injunction; and (4) the parties were unable to resolve the issue of a prospective license among themselves.

Finally, some ongoing royalty decisions from the relevant time period may be missing from the data set; thousands of patent cases are filed each year,²⁰³ and it is possible that some ongoing royalty decisions were not identified despite extensive searches in multiple databases.

B. Findings

This section presents some of the more noteworthy findings from an analysis of the ongoing royalty decisions previously identified. It first discusses the frequency of ongoing royalty awards, the districts where ongoing royalties are most commonly granted, and the patented technology involved. It then delves more deeply into the structure and amount of ongoing royalty awards, including differ-

¹⁹⁷ Kevin M. Clermont & Theodore Eisenberg, *Trial by Jury or Judge: Transcending Empiricism*, 77 CORNELL L. REV. 1124, 1129 (1992) (alteration in original) (quoting Theodore Eisenberg, *Testing the Selection Effect: A New Theoretical Framework with Empirical Tests*, 19 J. LEGAL STUD. 337, 337 (1990)). For the seminal article on the “selection effect,” see George L. Priest & Benjamin Klein, *The Selection of Disputes for Litigation*, 13 J. LEGAL STUD. 1 (1984).

¹⁹⁸ Clermont & Eisenberg, *supra* note 197, at 1129.

¹⁹⁹ Priest & Klein, *supra* note 197, at 4.

²⁰⁰ Clermont & Eisenberg, *supra* note 197, at 1129.

²⁰¹ *Id.*

²⁰² Priest & Klein, *supra* note 197, at 4.

²⁰³ Matthew Sag, *IP Litigation in United States District Courts: 1994 to 2014*, at 17 & fig.4 (unpublished paper), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2570803.

ences between pre-judgment and post-judgment royalty rates by district and by field of technology.

1. Ongoing Royalty Awards: By Year

The number of ongoing royalty awards granted each year has been increasing since the *eBay* decision, as depicted in Table 1 below. In particular, since the Federal Circuit decision in *Paice LLC v. Toyota Motors Corp.* in 2007, the number of ongoing royalty awards per year has more than tripled, from three awards the year before *Paice* (2006) to ten awards in 2014, the most recent year studied.

Table 1:

Ongoing Royalty Awards, by Year

Year	Number of Awards
2006*	3
2007	3
2008	4
2009	7
2010	7
2011	8
2012	6
2013	9
2014	10

* = partial year (*eBay* decided 5/15/06)

2. Ongoing Royalty Awards: By District

Another notable finding is that ongoing royalties are highly concentrated geographically, with four district courts—the Eastern District of Texas, the Northern District of California, the Eastern District of Virginia, and the District of Delaware—granting a majority of the ongoing royalty awards in patent cases (out of 94 total U.S. district courts). In particular, as depicted in Table 2 below, the Eastern District of Texas alone awarded 40% of all ongoing royalty awards. The remaining 90 district courts awarded only 35% of ongoing royalties, with no single district awarding more than four.

Table 2:**Ongoing Royalty Awards, by District**

District	% of Awards	N
Eastern District of Texas	40%	23
Northern District of California	9%	5
Eastern District of Virginia	9%	5
District of Delaware	7%	4
All Other Districts	35%	20

This finding is not entirely surprising, however, in light of the concentration of patent litigation in particular districts. For example, 47.4% of all patent cases in 2014 were filed in just two districts—the Eastern District of Texas (28.4%) and the District of Delaware (18.9%).²⁰⁴ These districts are often selected by patentees as preferred venues for patent litigation for a combination of reasons, including local rules governing patent cases, judges with extensive experience in handling patent litigation, and in some cases, a perceived bias in favor of patent holders by jurors.²⁰⁵ In particular, given that the Eastern District of Texas—and to a somewhat lesser extent, the District of Delaware—have been preferred forums for PAEs to file infringement actions,²⁰⁶ and the difficulty that PAEs have in obtaining injunctive relief after *eBay*,²⁰⁷ it is not shocking these two districts represent almost half of all ongoing royalty awards.

3. Ongoing Royalty Awards: By Patented Technology

A third area of investigation was the rate of ongoing royalty awards by patented technology. Patent litigation has long varied by industry, with consumer elec-

²⁰⁴ *All Court Case Filings by Year*, LEX MACHINA, <https://law.lexmachina.com/court/table#Patent-tab> (last visited Apr. 14, 2015) (reporting that 1425 patent cases were filed in the Eastern District of Texas and 946 patent cases were filed in the District of Delaware in 2014, compared to a national total of 5024 cases); see also *Lex Machina Releases First Annual Patent Litigation Year in Review*, LEX MACHINA (May 13, 2014), <https://lexmachina.com/2014/05/patent-litigation-review> (listing the Eastern District of Texas and the District of Delaware as the top two districts for patent cases in both 2012 and 2013); Mark Liang, *The Aftermath of TS Tech: The End of Forum Shopping in Patent Litigation and Implications for Non-Practicing Entities*, 19 TEX. INTELL. PROP. L.J. 29, 41 fig. 1 (2010) (showing the most popular districts for patent litigation from 2000–2009).

²⁰⁵ See, e.g., Jeanne C. Fromer, *Patentography*, 85 N.Y.U. L. REV. 1444, 1486–87 (2010); Yan Leychkis, *Of Fire Ants and Claim Construction: An Empirical Study of the Meteoric Rise of the Eastern District of Texas as a Preeminent Forum for Patent Litigation*, 9 YALE J.L. & TECH. 193, 210–15 (2007). For a detailed explanation of why the permissive venue rules in patent cases allow many cases to be filed in these two districts, see Liang, *supra* note 204, at 39–40.

²⁰⁶ See Liang, *supra* note 204, at 42–43 tbl.1 (listing the Eastern District of Texas as the top forum for patent infringement suits by NPEs); Fabio E. Marino & Teri H.P. Nguyen, *Has Delaware Become the “New” Eastern District of Texas? The Unforeseen Consequences of the AIA*, 30 SANTA CLARA HIGH TECH. L.J. 527, 529–30 (2014) (“Recent survey data on new patent suit filings suggests that NPE’s have found a new ‘forum of choice’ in the District of Delaware.”).

²⁰⁷ See *supra* Part II.C.

tronics, computer software, pharmaceuticals, and medical devices among the most-litigated fields.²⁰⁸

Table 3:
Ongoing Royalty Awards, by Patented Technology

Field of Technology	% of Awards	N
Software	37%	21
Electronics	25%	14
Medical Devices	19%	11
All Other Technologies	19%	11

As shown in Table 3, ongoing royalty awards are heavily concentrated in just three fields—software (37%), electronics (25%), and medical devices (19%). All other areas of technology—including mechanical, electrical, chemical, pharmaceutical, and biotechnology—constitute the remaining 19% of royalty awards. Again, however, this is not entirely surprising given that PAEs—who generally cannot obtain injunctive relief, and thus can only seek monetary compensation for future infringement—are heavily concentrated in the computing and software industries.²⁰⁹

The prevalence of medical devices, however, is somewhat noteworthy, as there are few PAEs in this field.²¹⁰ Digging a bit deeper into the data, it appears that medical device cases where an ongoing royalty was awarded fall into two subgroups: (1) cases where the district court declined to grant an immediate permanent injunction even though the litigants were competitors, sometimes because of concern about an injunction’s impact on the health of some members of the general public,²¹¹ and (2)

²⁰⁸ See PRICEWATERHOUSECOOPERS LLP, 2014 PATENT LITIGATION STUDY 12 chart 7a (2006), *available at* http://www.pwc.com/en_US/us/forensic-services/publications/assets/2014-patent-litigation-study.pdf (listing consumer products as 17% of all patent cases, biotechnology and pharmaceuticals as 14% of all cases, computer hardware and electronics at 10% of all cases, medical devices as 9% of all cases, and software as 7% of all cases from 1995–2013).

²⁰⁹ See James Bessen & Michael J. Meurer, *The Direct Costs from NPE Disputes*, 99 CORNELL L. REV. 387, 413 (2014) (“We have not read anyone who seriously disputes that NPE litigation is concentrated in business method, software, and computer technologies”); Brian J. Love, *An Empirical Study of Patent Litigation Timing: Could A Patent Term Reduction Decimate Trolls Without Harming Innovators?*, 161 U. PA. L. REV. 1309, 1342 (2013) (“Overall, about 65% of NPE-asserted patents cover computer- or electronics-related inventions, and almost 40% cover the narrower category of software-related inventions.”).

²¹⁰ See Bessen & Meurer, *supra* note 209, at 418–19 n.144 (noting that “only 1% of NPE lawsuits arise in drug or medical-technology patent classes”).

²¹¹ See, e.g., *Boston Sci. Corp. v. Cordis Corp.*, 838 F. Supp. 2d 259, 275 (D. Del. 2012), *aff’d*, 497 F. App’x 69 (Fed. Cir. 2013) (patentee requested only an ongoing royalty because “it appreciates that courts have been reluctant to issue injunctions in stent cases”); *Fresenius USA, Inc. v. Baxter Int’l, Inc.*, No. C 03-1431 PJH, 2012 WL 761712, at *4 (N.D. Cal. Mar. 8, 2012), *vacated and remanded*, 721 F.3d 1330 (Fed. Cir. 2013) (granting an injunction but staying it for nine months while the defendant completed a design-around and awarding an ongoing royalty during the stay period).

cases where an individual inventor or a university developed the patented technology and thus might have difficulty proving irreparable harm.²¹²

4. *Ongoing Royalty Awards: Operating Companies vs. PAEs*

Another area of interest in the empirical data is the identity of the patentee as an operating company or a non-practicing entity. Relying on the coding methodology developed by Professors Chris Cotropia, Jay Kesan, and David Schwartz in their recent study of PAE litigation,²¹³ each patent owner was coded into one of nine different categories.²¹⁴ These more granular categories then were combined into larger groups of operating companies and PAEs.²¹⁵

In the data set, ongoing royalty decisions were almost evenly split between operating companies (49%) and PAEs (51%). In light of the previous discussion regarding the unavailability of injunctive relief for PAEs,²¹⁶ it is unremarkable that PAEs were common recipients of ongoing royalty awards.

The number of ongoing royalties awarded to operating companies is more noteworthy. Some operating companies turned to ongoing royalties because they could not prove an injunction was warranted under the circumstances of the case. For example, in *Apple, Inc. v. Samsung Electronics Co.*, the patentee, Apple, was unable to obtain injunctive relief against one of its top competitors, Samsung, because it was unable to demonstrate that the infringing features of Samsung's infringing phones drove consumer demand.²¹⁷ Thus, it was awarded an ongoing royalty for prospective infringement by Samsung.²¹⁸

5. *Settlement of Ongoing Royalty Claims*

As previously discussed, once a district court determines that an ongoing royalty should be imposed, it may compel the parties to engage in negotiations regarding an appropriate royalty rate.²¹⁹ However, these court-ordered negotiations usually are not successful. In the data set, only 12% of ongoing royalty awards (7 out of

²¹² See, e.g., *Univ. of Pittsburgh v. Varian Med. Sys., Inc.*, No. 2:08-CV-01307, 2012 WL 1436569, at *1 (W.D. Pa. Apr. 25, 2013); *Voda v. Cordis Corp.*, 506 F. Supp. 2d 868, 872 (W.D. Okla. 2007).

²¹³ Christopher A. Cotropia, Jay P. Kesan & David L. Schwartz, *Unpacking Patent Assertion Entities (PAEs)*, 99 MINN. L. REV. 649 (2014).

²¹⁴ The categories are: (1) university, (2) individual inventor, (3) large patent aggregator, (4) failed operating or start-up company, (5) patent holding company, (6) operating company, (7) IP holding company owned by an operating company, (8) technology development company, and (9) other. *Id.* at 668–71.

²¹⁵ The following categories were classified as PAEs for purposes of data analysis: (1) university, (2) individual inventor, (3) large patent aggregator, (4) failed operating or start-up company, (5) patent holding company, and (8) technology development company.

²¹⁶ See *supra* Part II.C.

²¹⁷ *Apple, Inc. v. Samsung Elecs. Co.*, No. 12-CV-00630-LHK, 2014 WL 7496140, at *11–15 (N.D. Cal. Aug. 27, 2014).

²¹⁸ *Apple, Inc. v. Samsung Elecs. Co.*, No. 12-CV-00630-LHK, 2014 WL 6687122, at *13 (N.D. Cal. Nov. 25, 2014).

²¹⁹ See *supra* notes 133–134 and accompanying text.

57 cases) were resolved privately through the parties.²²⁰ The remaining 88% (50 out of 57 cases) were decided by the court.

²²⁰ These settled cases are: PACT XXP Techs., AG v. Xilinx, Nos. 2:13-CV-691, 2:07-CV-563 (E.D. Tex. Sept. 3, 2013), ECF No. 447; Medwestvaco Corp. v. Rexam PLC, No. 1:10-CV-511, 2012 WL 2153165 (E.D. Va. June 12, 2012); LaserDynamics LLC v. Quanta Computer Corp., No. 2:11-CV-276, 2:06-CV-348 (E.D. Tex. June 3, 2011), ECF No. 825; Edward Lifesciences AG v. Corevalve, Inc., 1:08-CV-91, 2011 WL 446203 (D. Del. Feb. 7, 2011); Ricoh Corp. v. Quanta Computer Corp., No. 3:06-CV-462, 2010 WL 1607908 (W.D. Wis. Apr. 19, 2010); Grantley Patent Holdings, Inc. v. Clear Channel Comm'cns, Inc., No. 9:06-CV-259 (June 10, 2008), ECF No. 244; z4 Techs. Inc. v. Microsoft Corp., 434 F. Supp. 2d 437 (E.D. Tex. 2006). (Several of the cases in the Eastern District of Texas have multiple docket numbers because the district court severed the claim for ongoing royalties as a separate civil action.).

6. *The Structure of Ongoing Royalties*

Also as previously discussed, the structure of an ongoing royalty award is an important matter.²²¹ As depicted in Table 4 below, the predominant type of ongoing royalty was a per-unit royalty calculated as a percentage of the infringing product's sale price (63%). The second-most prevalent form of ongoing royalty was a per-unit royalty based on a fixed dollar amount (31%). There were two instances of a paid-in-full, lump sum award that covered future infringement.²²² In addition, there was one ongoing royalty that was calculated as a fixed royalty price per day for the remaining duration of the patent-in-suit.²²³

Table 4:

Structure of Ongoing Royalty Award

Type of Award	% of Awards	N
Per Unit Royalty – Percent of Sales Price	63%	30
Per Unit Royalty – Fixed Amount	31%	15
Lump Sum	4%	2
Other	2%	1

²²¹ See *supra* Part III.B.3.

²²² *Lighting Ballast Control, LLC v. Philips Elecs. N. Am. Corp.*, 814 F. Supp. 2d 665 (N.D. Tex. 2011); *Personal Audio, LLC v. Apple, Inc.*, No. 9:09-CV-111, 2011 WL 3269330, at *1 (E.D. Tex. July 29, 2011).

²²³ *Clear With Computers, LLC v. Hyundai Motor Am., Inc.*, No. 6:09-CV-479, 2012 WL 8144915, at *8 (E.D. Tex. Jan. 9, 2012). In two other cases, the structure of the ongoing royalty could not be ascertained from the public record. *CardSoft, Inc. v. VeriFone Holdings, Inc.* No. 2:08-CV-98, 2013 WL 5862762 (E.D. Tex. Oct. 30, 2013); *Tyco Healthcare Group, LP v. Applied Med. Res. Group*, No. 9:09-CV-176 (E.D. Tex. May 17, 2010), ECF No. 138.

7. Comparison of Ongoing and Pre-Judgment Royalty Rates

Finally, one important contested issue is whether district courts should increase the royalty rate for future infringing uses as compared to the effective royalty for past infringement. As previously discussed, district courts have split on this issue.²²⁴

When possible, the author attempted to obtain both the ongoing (prospective) royalty rate as well as the effective royalty rate for past (retrospective) damages from publicly-available court records. While this information was not always available, after diligent searching, both backward- and forward-looking royalty rates were able to be ascertained for 74% (37 out of 50) of the ongoing royalty cases that did not settle. From this data, the author calculated the ratio of the ongoing (post-judgment) royalty rate compared to the pre-judgment royalty rate, expressed as a single number.²²⁵ Thus, a ratio of 1 (representing 1:1) means that the ongoing royalty rate and pre-judgment royalty rate were identical in the case. A ratio of 2 (representing 2:1), in contrast, means that the ongoing royalty rate was double (two times) the pre-judgment royalty rate.

Table 5 below contains summary statistics for ongoing (royalty rates compared to pre-judgment royalty rates). In particular, the median ratio is 1.34, meaning that in the median case, the ongoing royalty rate was 34% greater than the pre-judgment royalty rate. The higher mean (average) ratio of 1.84 (i.e., 84% increase compared to the pre-judgment royalty) is somewhat skewed by one outlier case.²²⁶ The 25th and 75th percentiles are 1 and 2, respectively.

Table 5:

Summary Statistics: Ongoing vs. Pre-Judgment Royalty Rates

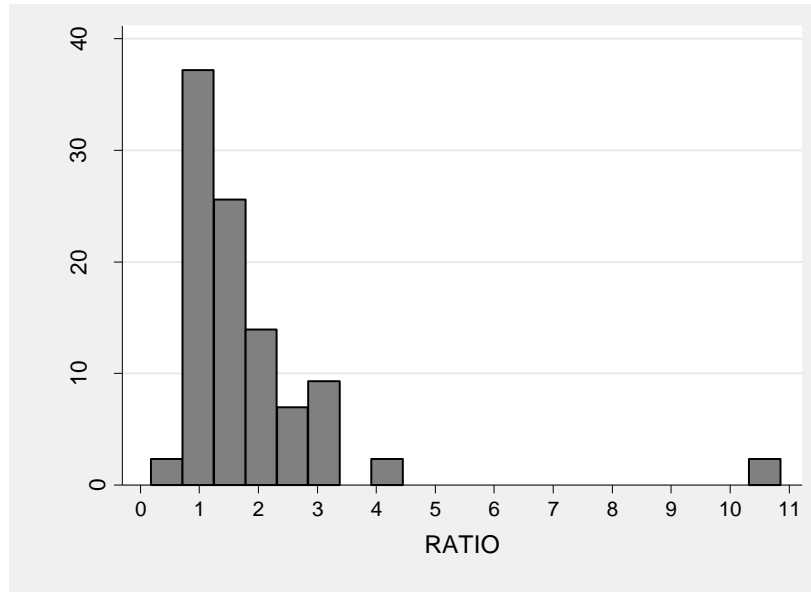
Statistic	Ratio
25th Percentile	1
Median	1.34
Mean	1.84
75th Percentile	2

Figure 1 below illustrates the distribution of ongoing royalty rates as compared to the pre-judgment royalty rate. As shown in the graphic, the vast majority of ongoing royalty rates are between 1–3 times the amount of the pre-judgment royalty rate, with a peak at 1 (representing identical pre- and post-judgment rates) that drops off quickly as the x-axis increases.

²²⁴ See *supra* notes 177–178 and accompanying text.

²²⁵ The following formula was used: ongoing royalty rate / pre-judgment royalty rate.

²²⁶ See *Boston Sci. Corp. v. Cordis Corp.*, 838 F. Supp. 2d 259, 275 (D. Del. 2012) (awarding a 32% post-judgment ongoing royalty, compared to a pre-judgment royalty rate of 2.95% determined by the jury).

Figure 1:**Distribution of Ongoing vs. Pre-Judgment Royalty Rates**

After excluding the outlier case, the ratio of ongoing royalty rates compared to pre-judgment royalty rates can be further evaluated. Table 6 shows the mean ratio of royalty rates for the four districts that decide the most ongoing royalty cases, as well as all other districts combined. The Eastern District of Texas, which awards the most ongoing royalties, has the highest mean ratio (1.76) of all four districts.

Table 6:**Ongoing vs. Pre-Judgment Royalty Rates, by District**

District	Ratio (Mean)	Std. Error
Eastern District of Texas	1.76	.23
Northern District of California	1.33	.33
District of Delaware	1.58	.38
Eastern District of Virginia	1.56	.31
All Other Districts	1.57	.19

Finally, Table 7 shows the mean ratio of royalty rates based on the technological field of the patented invention. Computer software (1.70) has the highest mean ratio of the top three technological fields.

Table 7:
Ongoing vs. Pre-Judgment Royalty Rates, by Technology

Technology	Ratio (Mean)	Std. Error
Software	1.70	.18
Electronics	1.34	.28
Medical Devices	1.46	.16
All Other Technologies	2.08	.51

V. A Methodology for Calculating Ongoing Royalties

In this final Part, this Article proposes a new methodology for calculating an ongoing royalty. Specifically, it contends that the decision maker should start with the royalty rate for retrospective (past) damages. This royalty rate can then be adjusted upward or downward based on the presence of a variety of factors, including the market for the patented invention, anticipated non-infringing alternatives to the invention, and other considerations. Finally, it contends that enhancement of the ongoing royalty rate for “willful” infringement is generally inappropriate.

A. Proposed Formula

The following formula expresses the author’s proposed methodology for determining an ongoing royalty rate:

$$\mathbf{R_o} = (\mathbf{R_j} + \mathbf{F_i} - \mathbf{F_d}) * \mathbf{E}$$

$\mathbf{R_o}$ represents the ongoing royalty rate. $\mathbf{R_j}$ stands for the royalty rate for past infringement, which is the starting point of the analysis. The next two factors, $\mathbf{F_i}$ and $\mathbf{F_d}$, embody factors that favor an increase or decrease of the ongoing royalty rate, respectively, compared to the royalty for past infringement. Finally, \mathbf{E} represents the possibility of an enhancement of the ongoing royalty rate separate from the other factors. Each of these variables is discussed in more detail below.

B. Using the Prejudgment Royalty Rate as a Starting Point

In general, “the jury’s [retrospective] damages award is a starting point for evaluating ongoing royalties.”²²⁷ This verdict “is not dispositive[,] but only a starting point in the analysis.”²²⁸

Some contend that retrospective and prospective royalty determinations are substantially different, and thus the prospective royalty rate should be determined largely independently of the rate for past infringement.²²⁹ This misapprehends the

²²⁷ *Apple, Inc. v. Samsung Elecs. Co.*, No. 12-CV-00630-LHK, 2014 WL 6687122, at *14 (N.D. Cal. Nov. 25, 2014).

²²⁸ *I/P Engine, Inc. v AOL, Inc.*, No. 2:11cv512, 2014 WL 309245, at *2 (E.D. Va. Jan. 28, 2014).

²²⁹ *See, e.g., Paice LLC v. Toyota Motor Corp.*, 504 F.3d 1293, 1317 (Fed. Cir. 2007) (“[P]re-suit and post-judgment acts of infringement are distinct . . .”) (Rader, C.J., concurring).

relationship between the two forms of royalties. Both royalties attempt to determine the value that the parties place on the ability to use the patented technology and the amount they would be willing to pay (for the licensee) and accept (for the licensor) at certain points in time—for retrospective damages, shortly before the time of first infringement; and for prospective royalties, at the time of final judgment. These determinations both rely on similar evidence, including the nature of the patented technology, the identity of the litigants, and the infringing products.

C. Factors Affecting an Ongoing Royalty Rate

Once the retrospective damages award is selected as the starting point, the decision maker then should consider evidence of actual or anticipated changes to technological and market conditions that may affect the post-judgment licensing rate. This is a natural part of the hypothetical negotiation process. As Professor John Golden has explained, “private parties presumably set royalty rates with a view to some estimate of future market conditions. . . . [i]f the parties anticipate changed market conditions, they can . . . agree to a formula or process for adjusting the royalty rate accordingly.”²³⁰ Similarly, Professor Peter Lee has noted that the value of a patented invention “may change over time, rendering the reasonable royalty for past infringement an imperfect measure of compensation for prospective infringement.”²³¹ Indeed, the Federal Circuit has expressly approved the consideration of post-verdict evidence, stating that district courts “may take additional evidence if necessary to account for additional economic factors arising out of the imposition of an ongoing royalty.”²³²

Some scholars have contended that the ongoing royalty rate should generally be the same as the royalty rate for past infringement.²³³ For instance, Professor Mark Lemley has contended that “the answer to how to set the ongoing royalty seems straightforward: it is the royalty rate the jury set for past damages.”²³⁴ However, limiting an ongoing royalty to the jury’s determination of a retrospective royalty rate risks potential over- or under-compensation of the patentee by failing to consider post-verdict evidence that might affect the parties’ valuations—and thus their willingness to license—the patented technology.

²³⁰ Golden, *supra* note 77, at 2150 n. 142

²³¹ Peter Lee, *The Accession Insight and Patent Infringement Remedies*, 110 MICH. L. REV. 175, 234 (2011).

²³² *Paice*, 504 F.3d at 1315; *see also id.* at 1316–17 (Rader, C.J., concurring) (asserting that “post-judgment acts of infringement . . . may warrant *different royalty rates given* the change the parties’ legal relationship and *other factors*.” (emphasis added)); *ActiveVideo v. Verizon*, 694 F.3d 1312, 1343 (Fed Cir. 2012) (noting that “an assessment of prospective damages for ongoing infringement” may consider “changes in the parties’ bargaining positions and other economic circumstances that may be of value in determining an appropriate ongoing royalty”).

²³³ *See* COTTER, *supra* note 8, at 127 (asserting that “if there is some class of cases in which policy post-*eBay* dictates that courts award prospective royalties in lieu of a permanent injunction, they should use the same, *ex ante*, licens[ing] terms used in setting retrospective royalties”).

²³⁴ Lemley, *supra* note 112, at 702. Professor Lemley later notes a potential exception: when there is “proof of circumstances going forward that differ from those the jury considered in setting past damages.” *Id.* at 706–07.

Some factors—represented in the formula by variable F_i —might counsel in favor of an increased ongoing royalty rate. For example, if the patented technology has increased (or is expected to increase) in value due to changing market conditions, this might counsel in favor of a higher prospective royalty rate. This occurred after remand in *Paice v. Toyota*, where the district court concluded that the patentee’s hybrid vehicle technology increased in utility due to changing market forces—namely, skyrocketing oil and gas prices—as well as changes to the regulatory environment (federal fuel efficiency standards) that made the patented technology more valuable.²³⁵ Ultimately, these considerations led the district court to grant an ongoing royalty that was nearly four times larger than the retrospective royalty rate.²³⁶ Another potential reason to increase the ongoing royalty rate is when the patented technology has matured and become more widely implemented in products and services that have obtained market acceptance.²³⁷

Other factors, in contrast, might weigh in favor of a decreased royalty rate. These are represented in the formula by variable F_a . One such factor is the potential availability and market acceptance of subsequently-developed non-infringing alternatives to the patented technology. If a non-infringing alternative would provide the same benefits as the patented technology—or even be superior to it—then it would reduce the licensee’s willingness to pay a future royalty.²³⁸ Similarly, the likelihood and anticipated expense of creating a “design around” that avoids the patented technology would be relevant in setting an ongoing royalty.²³⁹ Furthermore, the demand for the patented technology may change due to other reasons, such as exogenous market forces or changes in consumer preferences.

D. Enhancement of the Ongoing Royalty Rate

The final variable in the formula, E , is perhaps the most controversial—it represents an enhancement (increase) in the ongoing royalty rate for reasons other than technological and market changes, most commonly due to alleged willful infringement.²⁴⁰ As previously discussed, many district courts conclude that *any* post-

²³⁵ *Paice LLC v. Toyota Motor Corp.*, 609 F. Supp. 2d 620, 628–29 (E.D. Tex. 2009).

²³⁶ *Id.* at 630 (granting an ongoing royalty of \$98 per infringing vehicle sold, compared to a \$25 per vehicle royalty for past infringement).

²³⁷ See Ullmer, *supra* note 3, at 96 (noting that “the value for past-infringement of e-commerce patents during the early days of the Internet would [be] substantially less valuable than . . . the same patents after immense e-commerce markets emerged”).

²³⁸ Tzenova, *supra* note 138; see also COTTER, *supra* note 8, at 67 (“From an economic perspective, the overarching consideration is the benefit the user would expect to gain from the use, in comparison with alternatives . . .”).

²³⁹ See Ullmer, *supra* note 3, at 96 (“The elusive ‘other factors’ that Rader refers to in his *Paice* concurrence should include considerations such as whether the infringer can easily design around the patent and use noninfringing alternatives . . .”); see also *Cummins-Allison Corp. v. SBM Co.*, 584 F. Supp. 2d 916, 919 (E.D. Tex. 2008) (noting that “some factors such as the relative importance of the technology or the availability of a design-around may have changed since the date of first infringement”).

²⁴⁰ See, e.g., *Affinity Labs of Tex., LLC v. BMW N. Am.*, 783 F. Supp. 2d 891, 898 (E.D. Tex. 2011) (after “calculat[ing] the amount of a reasonable ongoing royalty . . . [t]he court may then determine

judgment uses of the patented technology by the adjudicated infringer are automatically willful.²⁴¹ As a result, these courts generally treat the royalty rate for past damages as a floor below which an ongoing royalty will not fall,²⁴² and often grant increased damages to deter the defendant from future infringement.²⁴³

This reasoning is flawed. Enhancement should not automatically occur simply because an adjudicated infringer continues infringing after an ongoing royalty is awarded. Enhanced damages are imposed “to deter willful patent infringement by punishing the willful infringer.”²⁴⁴ But an ongoing royalty expressly *authorizes* future uses of the patented technology that would otherwise be infringing in exchange for a royalty payment. Thus, “willfulness, as such, is not the inquiry when the infringement is permitted” by a court-ordered royalty.²⁴⁵ As Professor Lemley has explained, “[i]f a court has decided that the defendant should be allowed to continue to sell the infringing product because enjoining its sale imposes too great a hardship on either the defendant or the public, it seems odd to then punish the defendant for doing the very thing the court just permitted.”²⁴⁶

Moreover, it is important to keep in mind that an ongoing royalty is typically awarded only when a patentee requests it. The patentee can elect to not pursue a prospective remedy and preserve its right to bring a second lawsuit for damages accrued after judgment in the initial action, often with a strong claim for willfulness.²⁴⁷ It would be anomalous for a patentee to seek an ongoing royalty from the infringer for future uses of the patented technology on one hand and then later,

whether, and by how much, this reasonable ‘market’ royalty should be increased to account for the fact that ongoing infringement will be willful”).

²⁴¹ See, e.g., *id.* at 899 (“Following a jury verdict and entry of judgment of infringement and no invalidity, a defendant’s continued infringement will be willful absent very unusual circumstances.”); *Soverain Software LLC v. Newegg, Inc.*, No. 6:07-CV-511, 2010 WL 8231079, at *16 (E.D. Tex. Aug. 11, 2010) (“[Defendant] is now an adjudged infringer and [Defendant’s] continued infringement is both voluntary and intentional, making [Defendant’s] continued infringement willful.”); see also Janicke, *supra* note 87, at 186 (“[P]ost-verdict acts of willfulness would appear to be ipso facto present in light of a final judgment in the patent owner’s favor.”).

²⁴² See, e.g., *Boston Sci. Corp. v. Cordis Corp.*, 838 F. Supp. 2d 259, 276 (D. Del. 2012), *aff’d*, 497 F. App’x 69 (Fed. Cir. 2013) (“The court declines to allow Cordis, an adjudicated willful infringer, to effectively owe less for its post-verdict infringement than the jury found for its pre-verdict infringement under the circumstances.”).

²⁴³ See, e.g., *VirnetX, Inc. v. Apple Inc.*, No. 6:13-CV-211, slip op. at 9 (E.D. Tex. Feb. 25, 2014) (applying *Read* factors and increasing ongoing royalty rate by 50% due to defendant’s willful infringement).

²⁴⁴ *Avia Group Int’l, Inc. v. L.A. Gear Cal., Inc.*, 853 F.2d 1557, 1566 (Fed. Cir. 1998); see also *NTP Inc. v. Research in Motion, Ltd.*, 270 F. Supp. 2d 751, 754 (E.D. Va. 2003) (“Enhanced damages not only operate as a punitive measure against individual infringing defendants, but they also serve an overarching purpose as a deterrence of patent infringement.”).

²⁴⁵ *Amado v. Microsoft Corp.*, 517 F.3d 1353, 1362 (Fed. Cir. 2008).

²⁴⁶ Lemley, *supra* note 112, at 702.

²⁴⁷ See *supra* note 87 and accompanying text; see also Gomez-Arostegui, *supra* note 13, at 1663 (“A subsequent suit might strengthen the possibility of a willful-damages award, if the plaintiff could not previously make one out . . .”).

when that royalty award is being determined, claim the infringer's future uses are now improper and thus deserving of enhancement.

Although willfulness is not a sound justification for enhancing an ongoing royalty award, there may be other reasons that district courts should consider a potential enhancement in the prospective royalty rate. One such reason may be to ensure adequate compensation to the patentee for future infringement.²⁴⁸ As previously noted, in a negotiation for an ongoing royalty, one of the major incentives for an infringer to agree to a license—the “big stick” of a permanent injunction²⁴⁹—has been removed.²⁵⁰ Thus, “[w]ithout the risk of a post-judgment enhancement, a defendant would be encouraged to bitterly contest every claim of patent infringement, because in the end, only a reasonable royalty would be imposed and there would essentially be no downside to losing.”²⁵¹ At the same time, however, district courts should be wary of excessively large enhancements, such as greater than triple the amount of the royalty rate for past damages. Large enhancements can effectively act as a property rule by making use of patented technology unaffordable, and thus the defendant will not practice the technology despite the ongoing royalty expressly permitting it to do so.²⁵²

VI. Conclusion

Ongoing royalties have become an increasingly important form of prospective relief for prevailing patentees since the Supreme Court's landmark *eBay* decision. In particular, given PAEs' difficulty in establishing irreparable harm and the absence of an adequate remedy at law following *eBay*, it may be the only available form of relief available for future infringement short of repeated lawsuits for accrued damages. However, ongoing royalties are not limited to PAEs; some operating companies, particularly those in the medical device industry, have relied on this form of equitable relief as well.

Despite their growing importance, lower federal courts have not settled on a consistent, economically sound methodology for determining an appropriate ongoing royalty rate. This Article offers a potential framework for doing so. It relies on the retrospective (prejudgment) royalty rate as a starting point, but also requires that the decision maker consider evidence regarding actual and anticipated market conditions, emerging non-infringing alternatives to the patented technology, and other factors that may influence the future value of the patent. Finally, while it contends that enhancement of the ongoing royalty rate due to the alleged “willful” nature of post-judgment infringement is inappropriate, it also recognizes that a modest in-

²⁴⁸ See, e.g., *Univ. of Pittsburgh v. Varian Med. Sys., Inc.*, No. 08cv1307, 2012 WL 1436569, at *11 (W.D. Pa. Apr. 25, 2012) (“The ongoing royalty must adequately compensate the patentee for the continued infringement . . .”).

²⁴⁹ *Paice LLC v. Toyota Motor Corp.*, 609 F. Supp. 2d 620, 624 (E.D. Tex. 2009).

²⁵⁰ See *supra* notes 79–80 and accompanying text.

²⁵¹ *Affinity Labs of Tex., LLC v. BMW N. Am.*, 783 F. Supp. 2d 891, 898 (E.D. Tex. 2009).

²⁵² See *Keller*, *supra* note 139, at 428 (“When the royalty rate gets high enough it acts as an effective injunction by making continued infringement unprofitable.”).

crease in the royalty rate may be needed to fully compensate the patent holder for loss of its right to exclude the infringing defendant in the future.

Appendix

List of Ongoing Royalty Decisions Since *eBay*

PLAINTIFF	DEFENDANT	COURT	DOCKET	CITE	DATE
Douglas Dynamics, LLC	Buyers Prods. Co.	W.D. Wis.	3:09-CV-00261	2014 WL 7409503	12/31/14
Apple, Inc.	Samsung Elecs., Inc.	N.D. Cal.	1:12-CV-00630	2014 WL 6687122	11/25/14
TransPerfect Global, Inc.	MotionPoint Corp.	N.D. Cal.	4:10-CV-02590	2014 WL 6068384	11/13/14
Bianco	Globus Med., Inc.	E.D. Tex.	2:12-CV-00147	2014 WL 2980740	7/2/14
Telcordia Techs., Inc.	Cisco Sys., Inc.	D. Del.	1:04-CV-00876	2014 WL 1457797	4/14/14
Carnegie Mellon Univ.	Marvell Tech. Grp., Ltd.	W.D. Pa.	2:09-CV-00290	2014 WL 1320154	3/31/14
Depuy Synthes Prods., LLC	Globus Med., Inc.	D. Del.	1:11-CV-00652	ECF No. 415	3/28/14
VirnetX Inc.	Apple Inc.	E.D. Tex.	6:13-CV-00211 6:10-CV-00417	ECF No. 53; 925 F. Supp. 2d 816	3/6/14
WBIP, LLC	Kohler Co.	D. Mass.	1:11-CV-10374	2014 WL 585854	2/12/14
I/P Engine, Inc.	AOL, Inc.	E.D. Va.	2:11-CV-00512	2014 WL 309245	1/28/14
Tomita Techs. USA, LLC	Nintendo Co., Ltd.	S.D. N.Y.	1:11-CV-04256	2013 WL 6504394; 2013 WL 4101251	11/12/13

CardSoft, Inc.	VeriFone Holdings, Inc.	E.D. Tex.	2:08-CV-00098 2:13-CV-00941	2013 WL 5862762	10/30/13
Morpho Detection, Inc.	Smith Detection, Inc.	E.D. Va.	2:11-CV-00498	2013 WL 5701522	10/17/14
PACT XPP Techs., AG	Xilinx	E.D. Tex.	2:13-CV-00691 2:07-CV-00563	ECF No. 447	9/3/13
Internet Machs. LLC	Alienware Corp.	E.D. Tex.	6:10-CV-00023	2013 WL 4056282	6/19/13
Syntrix Biosystems, Inc.	Illumina, Inc.	W.D. Wash.	3:10-CV-05870	2013 WL 3089448	6/18/13
Warsaw Orthopedic, Inc.	Nuvasive, Inc.	S.D. Cal.	3:08-CV-01512	ECF No. 592	6/10/13
Univ. of Pittsburgh	Varian Med. Sys.	W.D. Pa.	2:08-CV-01307	2012 WL 1436569	4/25/13
Fractus, S.A.	Samsung Elecs., Inc.	E.D. Tex.	6:12-CV-00421 6:09-CV-00203	2013 WL 1136964	3/15/13
Soverain Software LLC	J.C. Penney Corp.	E.D. Tex.	6:09-CV-00274	899 F. Supp. 2d 574	8/9/12
Meadwestvaco Corp.	Rexam PLC	E.D. Va.	1:10-CV-00511	2012 WL 2153165	6/12/12
Broadcom Corp.	Emulex Corp.	C.D. Cal.	8:09-CV-01058	ECF No. 1090	3/16/12
Boston Sci. Corp.	Cordis Corp.	D. Del.	1:10-CV-00315	838 F. Supp. 2d 259	3/12/12
Fresenius USA, Inc.	Baxter Int'l, Inc.	N.D. Cal.	4:03-CV-01431	2012 WL 761712	3/8/12
Clear With Computers, LLC	Hyundai Motor Am., Inc.	E.D. Tex.	6:09-CV-00479	2012 WL 8144915	1/9/12
ActiveVideo Networks, Inc.	Verizon Comm'cns, Inc.	E.D. Va.	2:10-CV-00248	827 F. Supp. 2d 641	11/23/11
Mondis Tech. Ltd.	Chimei Innolux Corp.	E.D. Tex.	2:11-CV-00378	822 F. Supp. 2d 639	9/30/11
Lighting Ballast Control, LLC	Philips Elecs. N. Am. Corp.	N.D. Tex.	7:09-CV-00029	814 F. Supp. 2d 665	8/26/11
Datatresury Corp.	Wells Fargo & Co.	E.D. Tex.	2:06-CV-00072	2011 WL 8810604	8/2/11
Personal Audio,	Apple, Inc.	E.D. Tex.	9:09-CV-	2011 WL	7/29/11

Inc.			00111	3269330	
LaserDynamics LLC	Quanta Computer, Inc.	E.D. Tex.	2:11-CV-00276 2:06-CV-00348	ECF No. 825	6/3/11
Edwards Lifesciences AG	Corevalve, Inc.	D. Del.	1:08-CV-00091	2011 WL 446203	2/7/11
Affinity Labs of Texas LLC	BMW N. Am., LLC	E.D. Tex.	9:08-CV-00164	783 F. Supp. 2d 891	1/26/11
Bard Peripheral Vascular	W.L. Gore & Assocs., Inc.	D. Ariz.	2:03-CV-00597	ECF No. 1057	9/9/10
Soverain Software LLC	Newegg, Inc.	E.D. Tex.	6:07-CV-00511	836 F. Supp. 2d 462	8/11/10
Presidio Components	Amer. Tech. Ceramics	S.D. Cal.	3:08-CV-00335	2010 WL 3070370; 723 F. Supp. 2d 1284	8/5/10
Tyco Healthcare Group LP	Applied Med. Res. Grp.	E.D. Tex.	9:09-CV-00176	ECF No. 138	5/17/10
Humanscale Corp.	CompX Int'l Inc.	E.D. Va.	3:09-CV-00086	2010 WL 1779963	4/29/10
Ricoh Co.	Quanta Computer Inc.	W.D. Wis.	3:06-CV-00462	2010 WL 1607908	4/19/10
Transamerica Life Ins. Co.	Lincoln Nat'l Life Ins. Co.	N.D. Iowa	1:06-CV-00110	691 F. Supp. 2d 946	3/8/10
Creative Internet Adver. Corp.	Yahoo Inc.	E.D. Tex.	6:07-CV-00354	674 F. Supp. 2d 847	12/9/09
Cummins-Allison Corp	SBM Co., Ltd.	E.D. Tex.	9:07-CV-00196	669 F. Supp. 2d 774; 584 F. Supp. 2d 916	11/13/09
Paice LLC	Toyota Motor Corp.	E.D. Tex.	2:04-CV-00211	609 F. Supp. 2d 620	4/17/09

Boston Sci. Corp.	Johnson & Johnson	N.C. Cal.	3:02-CV-00790	2009 WL 975424; 2008 WL 5054955; 550 F. Supp. 2d 1102	4/9/09
Joyal Prods., Inc.	Johnson Elec. N. Am., Inc.	D. N.J.	3:04-CV-05172	2009 WL 512156	2/27/09
Hynix Semiconductor, Inc.	Rambus Inc.	N.D. Cal.	5:00-CV-20905	609 F. Supp. 2d 951	2/23/09
Ariba Inc.	Emptoris Inc.	E.D. Tex.	9:07-CV-00090	ECF No. 284; <i>see also</i> 576 F. Supp. 2d 914	1/7/09
Amado	Microsoft Corp.	C.D. Cal.	8:03-CV-00242	2008 WL 8641264	12/4/08
Grantley Patent Holdings, Inc.	Clear Channel Commc'n, Inc.	E.D. Tex.	9:06-CV-00259	ECF No. 244	6/10/08
Orion IP, LLC	Mercedes-Benz USA	E.D. Tex.	6:05-CV-00322	2008 WL 8856865	3/28/08
ResQNet.com, Inc.	Lansa, Inc.	S.D.N.Y.	1:01-CV-03578	ECF No. 219	2/1/08
Broadcom Corp.	Qualcomm, Inc.	C.D. Cal.	8:05-CV-00467	ECF No. 995	12/31/07
Voda	Cordis Corp.	W.D. Okla.	5:03-CV-01512	2006 WL 2570614	3/27/07
Genlyte Thomas Group LLC	Arch. Lighting Grp.	D. Mass.	1:05-CV-10945	ECF No. 80	2/5/07
Innogenetics, N.V.	Abbott Labs.	W.D. Wis.	3:05-CV-00575	ECF No. 357, 360	9/11/06
Finisar Corp.	DirecTV Group Inc.	E.D. Tex.	1:05-CV-00264	512 F.3d 1363	7/7/06
z4	Microsoft Corp.	E.D. Tex.	6:06-CV-00258 6:06-CV-00142	434 F. Supp. 2d 437	6/14/06

