

PAICE YOURSELVES: A BASIC FRAMEWORK FOR ONGOING ROYALTY DETERMINATIONS IN PATENT LAW

By Stephen M. Ullmer

In the wake of the Supreme Court's landmark decision overturning the rule of automatic injunctions in patent cases, *eBay Inc. v. MercExchange, LLC*, district courts and the Federal Circuit must now consider how best to grant prospective damages.¹ Lower courts are still working out the details of this standard, and many post-*eBay* patent cases have denied the patentee a permanent injunction.² In *Amado v. Microsoft Corp.*³ and *Paice LLC v. Toyota Motor Corp.*,⁴ the Federal Circuit reviewed two separate ongoing royalties.⁵ Though the Federal Circuit generally approves of ongoing royalties as a form of remedy, it vacated and remanded both decisions

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1. *eBay Inc. v. MercExchange, LLC*, 547 U.S. 388, 394 (2006); *see also* Jake Phillips, Note, *eBay's Effect on Copyright Injunctions: When Property Rules Give Way to Liability Rules*, 24 BERKELEY TECH. L. J. _ (2009).

2. As of January 7, 2009, 23 post-*eBay* cases have denied a permanent injunction. Injunction Rulings to 1-7-09, http://www.patstats.org/Injunction_rulings_post-ebay_to_1-7-09.xls (last visited Jan. 25, 2009). Prior to *eBay* injunctions issued automatically, as the Federal Circuit employed an automatic injunction rule for more than twenty years. *See* Jeremy Mulder, Note, *The Aftermath of eBay: Predicting When District Courts Will Grant Permanent Injunctions in Patent Cases*, 22 BERKELEY TECH. L.J. 67, 68 (2007); *see also* *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1247 (Fed. Cir. 1989); *W.L. Gore & Assocs. v. Garlock, Inc.*, 842 F.2d 1275, 1281 (Fed. Cir. 1988).

3. 517 F.3d 1353 (Fed. Cir. 2008).

4. 504 F.3d 1293 (Fed. Cir. 2007).

5. This Note focuses primarily on ongoing royalties as a form of future damages. *See infra* Part II. An ongoing royalty is different from a reasonable royalty, in the sense that a reasonable royalty is for *past* infringement while an ongoing royalty compensates a patent holder for *future* infringement. Because an ongoing royalty permits future infringement, it is similar to a compulsory license. *Compare Paice*, 504 F.3d at 1313 n.13 (distinguishing ongoing royalties from compulsory licenses because an ongoing royalty permits *only* a single infringer, rather than any future infringers, to continue its infringing conduct at a predetermined price), *with id.* at 1316 (Rader, J., concurring) ("[C]alling a compulsory license an 'ongoing royalty' does not make it any less a compulsory license.").

with instructions on what royalty-setting methodology the lower courts should use.⁶

This Note analyzes the Federal Circuit's decisions in *Paice* and *Amado*, paying particular attention to the application of ongoing royalties in cases of patent infringement. Following *eBay*, the lower courts deny injunctive relief more frequently and will likely compensate aggrieved patent owners with prospective liability-rule relief.⁷ This Note focuses on what rules and procedures courts should use to properly determine prospective relief and sets forth a framework for ongoing royalties. This framework addresses the Federal Circuit's concerns with ongoing royalties, and provides lower courts with a workable standard for future damages. In formulating this framework, this Note considers the differences between backward- and forward-looking royalties, which include market changes, design-around options, and technological advances that affect the damages calculus. This Note concludes by suggesting that a court must explicitly acknowledge these factors when setting an ongoing royalty.

Part I examines the legal landscape that led up to recent cases in the Federal Circuit involving ongoing royalties. This Part summarizes the Supreme Court's decision in *eBay*, paying particular attention to a form of damages known as "ongoing royalties." Part II reviews two cases, *Paice* and *Amado*, and their impact on the law of ongoing royalties. Part II describes how the Federal Circuit approved the concept of using an ongoing royalty, and concludes that the Federal Circuit appropriately remanded the cases for further explanation of how the lower courts determined the ongoing royalty rate. Part III considers the impact of these Federal Circuit decisions and suggests a new framework for ongoing royalties. This framework deals with the problems of forward-looking royalties by analogizing to the *Georgia-Pacific*⁸ factors for pre-verdict damages.

I. BACKGROUND

Section I.A briefly describes the pre-*eBay* prevalence of permanent injunctions. Section I.A also demonstrates that only a few rare exceptions led courts to deny a permanent injunction to a victorious patentee. Section

6. *Amado*, 517 F.3d at 1362; *Paice*, 504 F.3d at 1315.

7. See Yixin H. Tang, *Recent Development: The Future of Patent Enforcement After eBay v. MercExchange*, 20 HARV. J.L. & TECH. 235, 236 (2006) ("[T]he Court effectively made it much harder for patent holders who do not practice their patented inventions to obtain a permanent injunction . . ."); Injunction Rulings to 1-7-09, *supra* note 2.

8. See Mark A. Lemley, *Intellectual Property Rights and Standard-Setting Organizations*, 90 CALIF. L. REV. 1889, 1915 n.84 (2002) ("The fifteen *Georgia-Pacific* factors have become a standard measure of reasonable royalties in patent cases.").

I.B then describes the *eBay* decision and its ramifications for ongoing royalties. Part I then concludes with Section I.C, which describes two Federal Circuit cases in which each court remanded the improperly set ongoing royalty that followed each court's denial of a permanent injunction.

A. The Evolution of the Permanent Injunction

Traditionally, a determination of patent infringement led to an automatic permanent injunction.⁹ In the pre-*eBay* era, the Federal Circuit held that 35 U.S.C. § 235 meant that a court could only deny injunctive relief in rare circumstances in order to protect the public interest.¹⁰ The Federal Circuit denied injunctive relief infrequently, typically denying one only for inventions critical to public health and safety.¹¹ Otherwise, injunctions issued as a matter of course.¹²

The Federal Circuit typically connected the patent laws with traditional property laws, where remedies in equity were the norm. The court held that “[t]he patent right is but the right to exclude others, the very definition of ‘property.’”¹³ Under this presumption, many pre-*eBay* cases required a defendant to demonstrate that their case was exceptional in order to avoid a permanent injunction.¹⁴ The Federal Circuit in *eBay* hewed to its case

9. *See, e.g., Rite-Hite Corp. v. Kelley Co.*, 56 F.3d 1538, 1547 (Fed. Cir. 1995) (suggesting that injunctive relief is denied only in rare circumstances); *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1246-47 (Fed. Cir. 1989) (“Infringement having been established, it 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.”); *W.L. Gore & Assocs., Inc. v. Garlock, Inc.*, 842 F.2d 1275, 1281 (Fed. Cir. 1988) (“[I]njunctive relief against an adjudged infringer is usually granted.”).

10. *Rite-Hite Corp.*, 56 F.3d at 1547.

11. *See Hybritech Inc. v. Abbott Labs.*, 4 U.S.P.Q.2d (BNA) 1001 (C.D. Cal. 1987) (denying part of an injunction concerning medical supply kits that the patentee did not market) *aff’d*, 849 F.2d 1446 (Fed. Cir. 1988). Historically, the circuit courts followed a similar approach, which the Federal Circuit later cited favorably in *Rite-Hite Corp.* *See, e.g., Vitamin Technologists, Inc. v. Wis. Alumni Research Found.*, 64 U.S.P.Q. (BNA) 285 (9th Cir. 1945) (denying injunction concerning irradiation of oleomargarine); *City of Milwaukee v. Activated Sludge, Inc.*, 21 U.S.P.Q. (BNA) 69 (7th Cir. 1934) (denying an injunction that would cover a sewage treatment plant).

12. *See Richardson*, 868 F.2d at 1247 (“It is the general rule that an injunction will issue when infringement has been adjudged . . .”); *W.L. Gore*, 842 F.2d at 1281.

13. *Schenck v. Nortron Corp.*, 713 F.2d 782, 786 n.3 (Fed. Cir. 1983); *see Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1548 (Fed. Cir. 1983) (“[A] patent is a form of property right, and the right to exclude recognized in a patent is but the essence of the concept of property.”).

14. *See eBay Inc. v. MercExchange, LLC*, 547 U.S. 388, 393-94 (2006) (“The court articulated a ‘general rule,’ unique to patent disputes, ‘that a permanent injunction will issue once infringement and validity have been adjudged.’”).

law when it reversed the district court's denial of a permanent injunction.¹⁵ In reversing, the Supreme Court undermined the authority of the Federal Circuit's long-standing precedent.

B. Relief in Patent Infringement Cases After *eBay*

Justice Thomas's opinion in *eBay* ushered in a new era for lower courts handling patent law remedies. Rather than issue an injunction automatically, courts must now engage in the traditional four-factor equitable analysis:

A plaintiff must demonstrate: (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.¹⁶

Simply put, patent cases no longer receive special treatment, and injunctions only issue when the balance of equities favors injunctive relief.¹⁷ Though cases decided in the aftermath of *eBay* may issue permanent injunctions less frequently, courts must still follow the tenants of section 284 of the Patent Act:

[T]he court shall award the claimant damages adequate to compensate for the infringement, but in no event less than a reasonable royalty for the use made of the invention by the infringer . . .

¹⁸

This section of the Patent Act indicates that a court must award relief somewhere on the spectrum between reasonable royalties and a permanent injunction. Courts now have more discretion over the remedies in a patent infringement case. Justice Kennedy suggested in his *eBay* concurrence that courts deserve this extra discretion because “[a]n industry has developed in which firms use patents not as a basis for producing and selling goods but, instead, primarily for obtaining licensing fees.”¹⁹ In Kennedy's view, monetary relief may sufficiently compensate such nonpracticing entities—

15. *MercExchange, LLC v. eBay, Inc.*, 401 F.3d 1323, 1339 (Fed. Cir. 2005).

16. *eBay Inc. v. MercExchange, LLC*, 547 U.S. at 391.

17. *Id.* at 390.

18. Patent Act § 284, 35 U.S.C. § 284 (2006).

19. *eBay*, 547 U.S. at 396 (Kennedy, J., concurring).

thereby preventing holdup²⁰—as well as holders of suspect business method patents, and justify a court’s denial of a permanent injunction.²¹ Both *eBay* and Kennedy’s concurrence have influenced several recent cases where the court denied injunctive relief in favor of an ongoing royalty.

C. POST-EBAY DISTRICT COURT CASES DENYING A PERMANENT INJUNCTION

1. *Amado v. Microsoft Corp.*

a) Facts and Procedural History

Carlos Amado owned a patent covering a software program that combined the functionalities of spreadsheets and databases.²² Amado filed suit against Microsoft, alleging that some versions of Microsoft Office infringed his patent.²³ A jury determined that his patent was valid and infringed and awarded Amado damages of \$0.04 per infringing sale.²⁴ The district court also granted a permanent injunction, but stayed the injunction until seven days after any appeals were resolved or abandoned and required Microsoft to deposit \$2.00 per infringing sale in an escrow account.²⁵ While on appeal, the Supreme Court issued its decision in *eBay*, which prompted Microsoft to challenge Amado’s permanent injunction.²⁶ The district court dissolved the permanent injunction and awarded Amado \$0.12 per infringing unit for sales made during the period of the stay.²⁷ It calculated this value by trebling the jury-set damages award, reasoning that continued infringement was willful.²⁸ Both Amado and Microsoft appealed.

b) The Federal Circuit’s Analysis

Microsoft argued that Amado deserved no more than the \$0.04 jury-set royalty.²⁹ The Federal Circuit dismissed this claim because the jury award derived the value from past infringing conduct, not the conduct that oc-

20. Holdup occurs when a patent holder is able to seek rents above the value of its patent. This can happen, for example, when the patent comprises but one small part of an already developed and deployed product.

21. *eBay*, 547 U.S. at 396-97.

22. *Amado v. Microsoft Corp.*, 517 F.3d 1353, 1356 (Fed. Cir. 2008).

23. *Id.*

24. *Id.*

25. *Id.*

26. *Id.*

27. *Id.*

28. 35 U.S.C. § 284 (2006).

29. *Amado*, 517 F.3d at 1361.

curred after the verdict.³⁰ The Federal Circuit noted that after infringement, there are “change[s] in the parties’ bargaining positions, and the resulting change in economic circumstances,” and that these changes require a reconsideration of post-verdict damages calculation.³¹

The Federal Circuit also disagreed with the district court’s \$0.12 royalty.³² It was calculated by simply trebling the jury-set damages award. But just as it rejected Microsoft’s request for a \$0.04 royalty, the Federal Circuit required a more nuanced inquiry into the post-verdict economic circumstances.³³ Furthermore, the court held that “willfulness, as such, is not the inquiry when the infringement is permitted by a court-ordered stay.”³⁴ The Federal Circuit vacated the \$0.12 award and remanded the matter to the district court because the district court failed to reconsider the full economics of the parties’ positions.³⁵ The court did not dictate a precise award other than to say that the damage award set by the district court on remand should logically fall between the \$0.04 jury-set royalty and the \$2.00 escrow amount.³⁶

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

a) Facts and Procedural History

Paice LLC v. Toyota Motor Corp. dealt with three patents on drive trains for hybrid vehicles.³⁷ Paice asserted that certain Toyota hybrid drive trains were accused of infringing a controllable torque transfer unit (CTTU), a patented type of clutch, and other patented drive train technology.³⁸

Paice sued for both compensatory damages and a permanent injunction.³⁹ Paice contended that Toyota’s hybrid drive trains in the Highlander,

30. *Id.*

31. *Id.* at 1362. For further explanation of these circumstances, see *infra* Section III.

32. *Amado*, 517 F.3d at 1362.

33. *Id.*

34. *Id.* at 1361. The willfulness issue is examined *infra* Section II.C.

35. *Amado*, 517 F.3d at 1362. Recall that the \$0.12 was essentially based on a willfulness theory that the Federal Circuit rejected. Thus, the Federal Circuit needed to determine if, on other grounds, the \$0.12 award was adequately justified; it was not.

36. *Id.* at 1362 n.2. The court set this range because the district court awarded a reasonable royalty of \$0.04 per infringing unit for past infringement and set the escrow rate at \$2.00 per infringing unit, while specifying that the \$2.00 amount was for temporary holding.

37. *Paice LLC v. Toyota Motor Corp.*, 504 F.3d 1293, 1296 (Fed. Cir. 2007).

38. *Id.* at 1299 n.2.

39. *Id.* at 1301.

Lexus RX 400h, and Prius II models infringed Paice's patents.⁴⁰ The jury found the Toyota drive trains to infringe under the doctrine of equivalents⁴¹ and awarded Paice \$4,269,950 in damages.⁴²

The district court, however, denied Paice's request for a permanent injunction using the four-factor *eBay* test.⁴³ Instead, the district court determined that Paice was a nonmanufacturing entity that would not lose name recognition, had not established any irreparable injury, and for whom monetary damages were a sufficient remedy.⁴⁴

The district court ordered an ongoing royalty of \$25, the approximate per-vehicle amount that the jury awarded for past infringement, for each infringing sale by Toyota during the life of Paice's patent.⁴⁵ Paice appealed.⁴⁶

b) The Federal Circuit's Analysis

The Federal Circuit first examined whether an ongoing royalty was a valid form of relief at all. The court looked to 35 U.S.C. § 283, which provides that injunctions granted under the patent laws must "prevent the violation of any right secured by patent,"⁴⁷ and held that an ongoing royalty can indeed "prevent" the violation of patent rights.⁴⁸ While the Federal Circuit found support for the use of ongoing royalties in both patent and antitrust cases,⁴⁹ the court warned that an ongoing royalty should not issue as a matter of course.⁵⁰

Though the Federal Circuit acknowledged that an ongoing royalty could adequately compensate an aggrieved patent holder, the court was unsatisfied with the methodology used to determine the rate. According to the Federal Circuit, the district court provided no reasoning for its \$25 ongoing royalty, though it seems clear that it must have been based on the jury award—it was virtually identical.⁵¹ Accordingly, the Federal Circuit remanded the case to the district court with instructions to reevaluate the

40. *Id.* at 1300.

41. *Id.* at 1302.

42. *Id.*

43. *Id.* at 1302-03.

44. *Id.*

45. *Id.* at 1303.

46. *Id.*

47. 35 U.S.C. § 283 (2006).

48. *Paice*, 504 F.3d at 1314.

49. *See, e.g.*, *United States v. Glaxo Group Ltd.*, 410 U.S. 52, 59 (1973); *Shatterproof Glass Corp. v. Libbey-Owens Ford Co.*, 758 F.2d 613, 628 (Fed. Cir. 1985).

50. *Paice*, 504 F.3d at 1314-15.

51. *Id.*

ongoing royalty rate.⁵² Judge Rader's concurring opinion suggests that the Federal Circuit needed to remand the case because "pre-suit and post-judgment acts of infringement are distinct, and may warrant different royalty rates given the change in the parties' legal relationship and other factors."⁵³

II. DISCUSSION

Part II takes a closer look at the Federal Circuit's decisions in *Paice* and *Amado*. Section II.A determines that ongoing royalties sufficiently compensate a patent holder when a court denies a patent holder a permanent injunction. Section II.B asks whether a jury-set royalty rate for past infringement can be used as the ongoing-royalty rate and concludes that such a practice is procedurally inadequate. Section II.C then suggests that the *Amado* court properly rejected the use of the willfulness doctrine as a multiplier for past infringement royalties.

Conversely, Section II.D argues that some of the reasoning in *Amado* and *Paice* was erroneous. Though these aspects of the case did not affect the outcome they may compound the difficulties that lower courts face when setting ongoing royalties.

A. In Absence of a Permanent Injunction, Ongoing Royalties Provide an Appropriate Remedy

Now that permanent injunctions no longer automatically issue, the question of whether an ongoing royalty actually does adequately compensate an aggrieved patent holder has increased relevance. On its face, an ongoing royalty is a logical replacement for permanent injunctions and finds support even in pre-*eBay* Federal Circuit cases. For example, in *Shatterproof Glass Corp. v. Libbey-Owens Ford Co.*,⁵⁴ the Federal Circuit affirmed an extension of a 5% royalty for past infringement, based on product sales, to future sales.⁵⁵ There is additional case support in both antitrust⁵⁶ and nuisance⁵⁷ suits.

52. *Id.* at 1315.

53. *Id.* at 1317 (Rader, J., concurring).

54. 758 F.2d at 628 (upholding an ongoing royalty in a method patent case involving a sputter coating process for glass sheets).

55. *Id.* The Federal Circuit likely would not approve a similar award today without further justification and conspicuous analysis of future market conditions and altered bargaining positions. *See infra* Section II.B.

56. *United States v. Glaxo Group Ltd.*, 410 U.S. 52, 59 (1973) (demonstrating that reasonable royalty licensing is a well-accepted remedy in antitrust cases, especially when patents play a significant part in antitrust violations).

In their well-known 1972 article, Professors Calabresi and Malamed⁵⁸ examined when a particular entitlement is more appropriately protected by a property rule or a liability rule.⁵⁹ Calabresi and Malamed prefer liability rules when high transaction costs make buying out other parties difficult or even impossible.⁶⁰ In their view, liability rules are best (1) when the value of an initial entitlement is so great that even a mutually beneficial transfer of the entitlement would not occur,⁶¹ (2) when market valuations of an entitlement are “either unavailable or too expensive compared to a collective valuation,”⁶² and (3) when distributional concerns suggest that producers ought to be rewarded over nonproducers.⁶³ As Justice Kennedy illustrated in his *eBay* concurrence, these conditions sometimes occur in patent cases.⁶⁴ In particular, patent trolls fit the Calabresi and Malamed formulation because, by definition, they are nonproducers who engage in exploitive bargaining.

While Calabresi and Malamed’s formulation suggests that liability rules may be preferable in some patent cases, Professor Robert Merges suggests that injunctive relief is the proper remedy in most patent law cases.⁶⁵ Many patent cases involve only two parties, thus keeping transaction costs low, and the parties themselves are well-equipped to set the price

57. *Boomer v. Atl. Cement Co.*, 26 N.Y.2d 219, 228 (1970) (approving permanent damages in lieu of an injunction after plaintiffs won a nuisance case against the defendant cement plant).

58. Guido Calabresi & A. Douglas Melamed, *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral*, 85 HARV. L. REV. 1089 (1972).

59. *Id.* at 1092. For entitlements protected by a property rule, “someone who wishes to remove the entitlement from its holder must buy it from him in a voluntary transaction.” *Id.* Conversely, liability rule protection is characterized by the ability to destroy an entitlement by paying an objectively determined value.

60. *Id.* at 1119.

61. *Id.* at 1106; see also ROGER D. BLAIR & THOMAS F. COTTER, *INTELLECTUAL PROPERTY: ECONOMIC AND LEGAL DIMENSIONS OF RIGHTS AND REMEDIES* 40 (2005) (asserting that liability rules “make sense if, for example, the transaction costs of bargaining are unusually high and the likelihood of voluntary solution to this problem unusually low”); Robert P. Merges, *Of Property Rules, Coase, and Intellectual Property*, 94 COLUM. L. REV. 2655, 2664 (1994) (“Other factors indicate that a liability rule might better effectuate the bargain: many parties (especially when one party has the power to ‘holdup’ the entire enterprise), the likelihood of strategic bargaining, and otherwise high transaction costs.”).

62. Calabresi & Melamed, *supra* note 58, at 1110.

63. *Id.*

64. *eBay Inc. v. MercExchange, LLC*, 547 U.S. 388, 396-97 (Fed. Cir. 2006) (Kennedy, J., concurring); see generally Mulder, *supra* note 2.

65. Merges, *supra* note 61, at 2664.

and terms of a license.⁶⁶ Indeed, Merges suggested that judicially administered compulsory licensing schemes might place an overly cumbersome burden on judges, who would need to be educated on a case-by-case basis about various industries, market valuations, and other concerns.⁶⁷ However, Merges made these arguments while focusing on the prevalence, in certain industries, of an immense confluence of patent rights that overlap and block access to potential entrants.⁶⁸ With this particular focus in mind, Merges suggested that compulsory licensing schemes like ASCAP, BMI and patent pools will develop naturally, without legislative intervention.⁶⁹

Merges also differentiated his preferred approach regarding legislative licensing schemes from the Calabresi and Malamed focus on compulsory licenses created by judicial intervention.⁷⁰ Because Merges's article predates *eBay*, Merges assumed that judicial valuations that the court can specifically tailor to each case are unrealistic.⁷¹ But the *eBay* decision permits, and essentially demands, a judge to issue such specific, tailored valuations, at least in cases without permanent injunctions.⁷² While Merges recognized the benefits of naturally created licensing schemes, his pre-*eBay* reasoning should only apply in situations where a court grants the patentee a permanent injunction. When a court denies a patentee's permanent injunction request, Merges's preferred natural compulsory licensing schemes carry little to no weight with the patentee. Such schemes carry little weight because such patentees, typically non-practicing entities or patent trolls, do not compete directly, if at all, in the infringer's marketplace. In these cases, there exist no mutually beneficial grounds upon which the patentee wants to engage in a cross-licensing agreement or other form of cooperative agreement such as a patent pool. In a court's judgment, monetary relief adequately compensates these patentees because they typically seek large monetary settlements, rather than intellectual property *protection*, market share preservation, or product development. As a result, the specifically-tailored nature of judicially crafted compulsory license schemes appropriately compensates the patentee while preventing the patentee from exerting undue leverage on the infringer.

66. *Id.*

67. Robert P. Merges, *Contracting into Liability Rules: Intellectual Property Rights and Collective Rights Organizations*, 84 CALIF. L. REV. 1293, 1317 (1996).

68. *Id.* at 1295.

69. *Id.* at 1308.

70. *Id.* at 1307.

71. *Id.* at 1308.

72. *eBay Inc. v. MercExchange, LLC*, 547 U.S. 388, 396-97 (Fed. Cir. 2006) (Kennedy, J., concurring).

In another, earlier article, Merges claimed that the Calabresi and Malamed framework suggests that property rule relief makes sense in the patent law context because:

(1) there are only two parties to the transaction; (2) the costs of a transaction between the parties are otherwise low; and, most importantly, (3) a court called on to set the terms of the exchange would have a difficult time doing so quickly and cheaply, given the specialized nature of the assets and the varied and complex business environments in which they are deployed.⁷³

As Chief Justice Roberts's concurrence in *eBay* points out, these are typically the conditions of a patent case.⁷⁴ But recently there has been a rise in patent trolls who have the ability to extort settlements worth far more than the actual economic value of their patent.⁷⁵ The ability of the patent holder to holdup a producing entity in violation of the second prong of the four-factor test warrants a liability rule over a property rule.⁷⁶

B. The Federal Circuit Wisely Required a Post-Trial Reexamination of Facts for Ongoing Royalties

In both *Paice* and *Amado*, the district courts evidently took the damages award and turned it into an ongoing royalty. The Federal Circuit was right to reject this approach. For example, in *Paice*, the Federal Circuit rejected the district court's decision because the district court arrived at an ongoing royalty of \$25 per infringing vehicle without examining any of the post-verdict economic factors.⁷⁷ The \$25 ongoing royalty award in *Paice* was approximately the per-vehicle jury-set damages award.⁷⁸ Similarly, the district court in *Amado* calculated its ongoing royalty by (erroneously) trebling the pre-verdict infringement award of \$0.04 per infringing unit.⁷⁹

73. Merges, *supra* note 61, at 2664.

74. *eBay*, 547 U.S. at 394-95 (Roberts, C.J., concurring).

75. *Id.* at 396-97 (Kennedy, J., concurring).

76. Merges alludes to this argument but elected to focus on the more general case for intellectual property relief, as opposed to the more limited cases in which a court finds that the four-factor balancing test for injunctive relief weighs against an injunction. *See supra* note 61 and accompanying text.

77. *Paice LLC v. Toyota Motor Corp.*, 504 F.3d 1293, 1315 (Fed. Cir. 2008).

78. *Id.* at 1303.

79. *Amado v. Microsoft Corp.*, 517 F.3d 1353, 1356 (Fed. Cir. 2007). As Part III *infra* makes clear, this Note advocates the use of the reasonable royalty for past infringement as a starting point for the ongoing royalty. Thus, the *Amado* district court's use of the reasonable royalty as a basis for an ongoing royalty is not a per-se violation of the framework in this Note. The true fault in the *Amado* ongoing royalty revolves around the

In these cases, the Federal Circuit departed from precedent upholding similar awards. For example, in *Shatterproof Glass*, the Federal Circuit upheld a 5% ongoing royalty, which was simply an extension of the jury's 5% award.⁸⁰ But the *Paice* and *Amado* courts were correct to require a more comprehensive method of royalty calculation for several reasons.

First, ongoing royalties equivalent to pre-verdict royalties might deny the parties the opportunity to negotiate between themselves. The *Paice* court suggested that "the district court may wish to allow the parties to negotiate a license amongst themselves . . . before issuing an ongoing royalty."⁸¹ Additional instructions from the Federal Circuit suggested that the district court should reevaluate the ongoing royalty rate and take additional evidence if necessary to sufficiently analyze the ongoing royalty rate.⁸²

In his *Paice* concurrence, Judge Rader warned of the potential problems regarding court-imposed monetary damage awards, believing that the Federal Circuit should require district courts to cede negotiations over the final value of the ongoing royalty to the parties.⁸³ The district court had issued its ongoing royalty to the parties without providing the parties a meaningful chance to present "evidence and argument on royalty rates" for future infringing acts by Toyota.⁸⁴ Although the parties fully vetted the issues of monetary damages for past infringement, Rader emphasized that post-judgment infringement may differ from pre-suit infringement.⁸⁵ Additionally, Rader cautioned that the parties possessed greater expertise regarding the inherently speculative ongoing royalty projection than that

court's arbitrary enhancement of the reasonable royalty through the willfulness doctrine. Thus, the district court in *Amado* apparently considered only the reasonable royalty and the willfulness doctrine, which ignores the other considerations established by the framework established *infra* in Section III.C.

80. *Shatterproof Glass Corp. v. Libbey-Owens Ford Corp.*, 758 F.2d 613, 628 (Fed. Cir. 1985). Similarly, albeit in a case of state nuisance law rather than patent law, the Court of Appeals in New York in *Boomer* upheld a permanent damages calculation that ignored future considerations and based its damages on the difference in property values prior to the cement plant construction and the property values after the plant was completed. *Boomer v. Atl. Cement Co.*, 26 N.Y.2d 219, 228 (1970); *see also Boomer v. Atl. Cement Co.*, 287 N.Y.S.2d 112, 115-16 (N.Y. Sup. Ct. 1967).

81. *Paice*, 504 F.3d at 1315.

82. *Id.*

83. *Id.* at 1316 (Rader, J., concurring).

84. *Id.* In fact, the district court in *z4 Techs., Inc. v. Microsoft Corp.* implemented essentially what Judge Rader advocated when the court instructed the parties to submit new information concerning monetary damages. 434 F. Supp. 2d 437, 444 (E.D. Tex. 2006).

85. *Paice*, 504 F.3d at 1317 (Rader, J., concurring).

possessed by the court, because the parties involved in licensing agreements are far more aware of the business objectives implicated by any licensing agreement than are the courts.⁸⁶

Following the Rader concurrence, the *Amado* court reasoned that a judgment of validity and infringement in a patent case markedly changes the calculus involved in a royalty determination.⁸⁷ In other words, once certain claims of a patent have been found valid, the uncertainty that exists over the validity of all claims in the patent is greatly reduced. The jury is supposed to consider the fact that the validity of the patent would have been uncertain before the lawsuit when making their damages calculations.⁸⁸ In theory, the patent, having been judged valid, is worth more to the patent holder than before the judicial determination of validity. The Federal Circuit took issue with the district court's \$0.12 royalty because the district court relied directly on the jury's \$0.04 award for infringement that occurred prior to the verdict in the case and simply trebled the amount because it held the post-judgment infringement willful.⁸⁹ Specifically, the Federal Circuit admonished the district court for ignoring the change in the parties' bargaining positions and economic circumstances, and for generally ignoring the circumstances of the case.⁹⁰

In sum, the Federal Circuit acknowledged that the parties possess a strong interest in negotiating an ongoing royalty and airing concerns over future market conditions and altered bargaining positions. The individual parties involved in a lawsuit possess greater knowledge of their products and the marketplace than the court, and can analyze future market conditions and concerns more efficiently than a court of law. However, in situations where the parties fail to arrive at an agreeable post-trial licensing agreement, the court should, and according to the Federal Circuit may, step in and determine an ongoing royalty itself. In negotiations that involve non-practicing entities attempting to extract money through patent holdup, reasonable bargaining is least likely to occur and a court should not issue a permanent injunction. The appropriate time frame for a court's intervention should differ on a case by case basis—to limit the negotiation time frame for the parties involved ignores, needlessly, the varying levels of complexity that may be involved in any particular negotiation.

86. *Id.*

87. *Amado v. Microsoft Corp.*, 517 F.3d 1353, 1361-62 (Fed. Cir. 2007).

88. See Roger D. Blair & Thomas F. Cotter, *Rethinking Patent Damages*, 10 TEX. INTELL. PROP. L.J. 1, 42-43 (2001).

89. *Amado*, 517 F.3d at 1362.

90. *Id.*

C. The Federal Circuit Sensibly Rejected the Application of Willfulness Doctrine for Infringement During a Stay

In *Amado*, the district court determined that continued infringement during the stay of the permanent injunction was willful, and trebled damages during that period. The Federal Circuit's decision in *Amado* correctly rejected the district court's use of a willful infringement damage enhancement and appropriately rejected the district court's \$0.12 damage award based on this theory.⁹¹ Damages in patent infringement cases serve a compensatory purpose.⁹² The patent laws direct the court to award damages that adequately compensate the patentee for infringement.

Certain circumstances may call for enhanced damages, up to triple the assessed damage amount, in situations involving willful infringement.⁹³ Willful infringement depends on an examination of the totality of the circumstances that considers such aspects of the case as deliberate copying, good-faith beliefs, closeness of the case, duration of misconduct, and attempted concealment.⁹⁴ In *Amado*, the Federal Circuit aptly ruled that the district court mistakenly applied a theory of willful infringement because the district court based its determination on the fact that Microsoft intentionally infringed *Amado*'s patent during a stayed injunction and would continue to do so during the life of the court-ordered ongoing royalty.⁹⁵

Because willful infringement serves a deterrent function intended to punish unscrupulous and malicious infringers,⁹⁶ it made little sense for the Federal Circuit to apply the doctrine to Microsoft in *Amado*.⁹⁷ A stayed

91. *Id.*

92. *See* 35 U.S.C. § 284 (2006).

93. *Id.*

94. *Read Corp. v. Portec, Inc.*, 970 F.2d 816, 827 (Fed. Cir. 1992); *see also* ROBERT P. MERGES & JOHN F. DUFFY, *PATENT LAW AND POLICY: CASES AND MATERIALS* 1029-39 (4th ed. 2006) (exploring in more detail the scope of willfulness doctrine and its unpredictable nature).

95. *Amado*, 517 F.3d at 1362.

96. 7 DONALD S. CHISUM, *CHISUM ON PATENTS* § 20.03[4][b][v] ("The Federal Circuit's decisions have reenforced the notion that multiple damages is primarily a punitive provision to deter willful infringement of patents."); *see* Danny Prati, Note, *In re Seagate Technology LLC: A Clean Slate for Willfulness*, 23 *BERKELEY TECH. L.J.* 47, 49-50 (2008) (describing the punitive, as opposed to the compensatory, nature of willfulness damages). *But see In re Seagate Tech., LLC*, 497 F.3d 1360, 1378-79 (Fed. Cir. 2007) (Gajarsa, J., concurring) ("We have recognized a remedial aspect of such damages in at least three precedential opinions.").

97. *See* Benjamin Peterson, Note, *Injunctive Relief in the Post-eBay World*, 23 *BERKELEY TECH. L.J.* 193, 206-07 (2008) ("[T]he call for an increase in damages awards rests upon the assumption that courts will habitually undervalue patents, an assumption that has not been proven.").

injunction and ongoing royalty *intentionally* permit an infringer like Microsoft to continue its infringing conduct, but only at a fairly-determined price. Thus, applying an admittedly punitive damage multiplier to Microsoft fails to serve the punitive function of the willfulness doctrine and instead provides a windfall to the patentee. While future bargaining circumstances and market forces may require that a court determine the cost of post-verdict infringement separately from the cost of pre-verdict infringement, a court can sufficiently determine the value of infringing conduct and appropriately compensate the patent holder.⁹⁸ To rule otherwise and permit a court to treble the damages awarded by a court for pre-verdict infringement suggests that an arbitrary multiplier more accurately determines the proper value of an ongoing royalty than a specific court determination. This strips a court of the ability to accurately determine an appropriate ongoing royalty in favor of an arbitrary multiplier that applies despite the fact that the infringer received permission to continue its infringing actions in the future. A court can and should set the ongoing royalty on a case-by-case basis; if a particular case merits a higher ongoing royalty rate than the pre-verdict infringement reasonable royalty rate, courts may set the rate accordingly without the sway of the willfulness doctrine.

D. The Federal Circuit Should Have Provided Less Misleading Reasoning When it Rejected the Ongoing Royalties in *Amado* and *Paice*

While the Federal Circuit in both *Amado* and *Paice* correctly remanded each case because the ongoing royalties were based directly on the jury award for pre-verdict infringement, the court applied questionable reasoning in each case. Section II.D.1 indicates that the *Paice* court mistook the district court's ongoing royalty as entirely arbitrary, rather than simply as a copy of the reasonable royalty for past infringement. Similarly, Section II.D.2 demonstrates that the *Amado* court mistakenly analyzed the procedural assumptions involved in a reasonable royalty determination.

98. Note that this argument assumes that the parties themselves have failed to negotiate their own agreement and that the decision making power is now back in the court's hands.

1. *The District Court's Royalty Calculation Was Not in Fact "Arbitrary"*

The district court in *Paice* awarded an ongoing royalty of \$25 per infringing vehicle, which the Federal Circuit rejected as "arbitrary."⁹⁹ However, this award approximately equaled the reasonable royalty awarded to *Paice* for the infringing vehicles Toyota sold pre-verdict.¹⁰⁰ The district court likely reasoned that the distinction between pre- and post-verdict infringement altered the parties' bargaining positions in an insignificant way. Judge Rader's concurrence provided more appropriate reasoning for remanding the case to the district court. Specifically, Rader suggested that "pre-suit and post-judgment acts of infringement are distinct, and may warrant different royalty rates given the change in the parties' legal relationship and other factors."¹⁰¹ Rader also emphasized the speculative nature of ongoing royalty calculations, regardless of the companies' particular market or technology space, and suggested that licenses rely on business objectives and market knowledge of which the parties possess a far greater understanding than the court.¹⁰² Thus, *Paice* should be understood for more than the mere concept that an arbitrary royalty rate is erroneous, but also for the principle that a pre-verdict award cannot be directly copied for an ongoing royalty without considering the post-verdict economic circumstances.

2. *Commentary on Rate Methodology in Amado Contradicts Federal Circuit Precedent and Is Internally Inconsistent*

The Federal Circuit in *Amado* declared that "[t]here is a fundamental difference, however, between a reasonable royalty for pre-verdict infringement and damages for post-verdict infringement."¹⁰³ Though the court cited Judge Rader's concurrence, it provided its own independent

99. *Paice LLC v. Toyota Motor Corp.*, 504 F.3d 1293, 1314-15 (Fed. Cir. 2007).

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

101. *Paice*, 504 F.3d at 1317.

102. *Id.* at 1317. However, some scholars believe that court-awarded royalty rates systematically exceed, unfairly, the rates that the parties would negotiate on their own. Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEX. L. REV. 1991, 2020 (2007) ("As a result, royalty rates awarded in court under Georgia-Pacific properly should systematically exceed the rates that parties would negotiate out of court."); see also BLAIR & COTTER, *supra* note 61, at 231-32 (suggesting that in certain circumstances a reasonable royalty should logically exceed the infringer's expected profits). *But see* John M. Golden, "Patent Trolls" and Patent Remedies, 85 TEX. L. REV. 2111, 2133 (2007) (refuting the assumptions of Lemley and Shapiro and claiming that the patent holder may be disadvantaged in royalty negotiations).

103. *Amado*, 517 F.3d at 1361.

analysis. The court stated, “[p]rior to judgment, liability for infringement, as well as the validity of the patent, is uncertain, and damages are determined in the context of that uncertainty.”¹⁰⁴ But this is inconsistent with the hypothetical negotiation that the Federal Circuit supposedly used for damages calculations. The court undertook a hypothetical negotiation in order to assess what license terms the parties would have agreed to at the time infringement began had the parties been willing to negotiate and known the patent to be valid and infringed.¹⁰⁵ Thus, the uncertainties of patent litigation should play no role in the determination of a reasonable royalty, and the *Amado* court oddly implied that the reasonable royalty depended on the inherent uncertainty of litigation.¹⁰⁶

The court also stated that the ongoing royalty award should logically fall between the \$0.04 awarded by the jury for pre-verdict infringement and the \$2.00 requested by Amado.¹⁰⁷ This does not seem internally consistent with the Federal Circuit’s own opinion. To constrain the ongoing royalty award in this way neglects the full breadth of economic concerns regarding bargaining positions and changes in circumstance that the majority in *Paice*, Judge Rader in *Paice*, and the *Amado* court so strongly emphasized. If the bargaining positions truly change, then surely circumstances exist where an ongoing royalty determination should be lower than the jury’s original award. For instance, changes in inflation rates, design-around options, consumer supply and demand, or third party competition may drive down an appropriate ongoing royalty award below the jury’s award for pre-verdict infringement. Thus, the *Amado* court ought to have remanded the case to the district court to determine a proper ongoing royalty in light of any changes in circumstance or bargaining position, without artificially limiting the award and effectively penalizing Microsoft by instructing the court to award an amount no lower than the original reasonable royalty in the case.¹⁰⁸

104. *Id.* at 1362.

105. Lemley & Shapiro, *supra* note 102, at 2019 (“[T]he Georgia-Pacific factors assume that the parties know the patent is valid and infringed.”).

106. *Amado*, 517 F.3d at 1362.

107. *Id.* at 1362 n.2.

108. Similarly, in theory the economic circumstances could change to the point where the \$2.00 upper limit requested as relief by Amado is *too low* to adequately compensate the patent holder.

III. A PROPOSAL FOR AN ONGOING ROYALTY CALCULATION

This Part proposes a framework for calculating an ongoing royalty. First, it compares lump sum awards with ongoing royalties and concludes that ongoing royalties are the more appropriate form of future damages. Next, it establishes the essential considerations that a court must examine in order to determine a proper ongoing royalty. Finally, it sets forth the basic framework that a court should use to set an ongoing royalty rate.

A. Comparing Lump Sum and Ongoing Royalty Awards

Once a court denies an injunction, it should then permit the parties to negotiate an ongoing royalty. In the event that these negotiations fail, the court must determine the form of the ongoing royalty. This Section examines the two principal forms that prospective damages typically take: lump sum awards and ongoing royalties.¹⁰⁹ Each form of prospective damage has significant drawbacks,¹¹⁰ but in the majority of cases an ongoing royalty is the more appropriate form of prospective relief. Because court-awarded prospective relief will invariably be of a nonexclusive variety, a lump sum award to a nonexclusive compulsory licensee increases the average costs of production without affecting the marginal cost, thus motivating socially suboptimal production increases.¹¹¹ In a competitive industry, this behavior distorts supply and demand by decreasing the price

109. See Douglas Ellis et al., *The Economic Implications (and Uncertainties) of Obtaining Permanent Injunctive Relief After eBay v. MercExchange*, 17 FED. CIR. B.J. 437, 470 (2008). A related discussion occurs in the nuisance literature, where a court may decide to award damages periodically or in one lump sum. RICHARD A. EPSTEIN, *CASES AND MATERIALS ON TORTS* 634 (8th ed. 2004); see also *Boomer v. Atl. Cement Co.*, 257 N.E.2d 870 (N.Y. 1970) (electing a lump sum damage award in a nuisance case regarding a cement plant and surrounding property values). In nuisance cases involving real property, lump sum awards make sense because such an award ends the court's role in the dispute and losses in property value are more concrete and ascertainable than the values of a given patent.

110. For instance, lump sums motivate inefficient production, *infra* note 111, while ongoing royalties may require a court to step in and adjudicate disputes over the payment or accounting procedures prescribed by the royalty agreement. Some scholars argue that ongoing royalties may also disrupt a patent holder's attempts to regain control of its patent and successfully manage a licensing program. Ellis, *supra* note 109, at 470. However, this concern is significantly mitigated by the willfulness doctrine, as infringers of a patent previously found to be valid and infringed are more likely to pay enhanced damages in an infringement suit than receive a bargain based on a previous, court-awarded compulsory license agreement.

111. For a detailed description of the inefficient effects of lump-sum fees in the non-exclusive licensee context, see BLAIR & COTTER, *supra* note 61, at 198-99 & fig.7.5.

due to the increase in available quantity.¹¹² This harms the infringer because its profits decrease. In a transitive fashion, this decrease in profits for the infringer may also lower the lump sum amount because a court assessing the proper value of the patent may take into account the overall value of the patent to the infringer. Additionally, the increased production by the compulsory licensee decreases the available profits for any other licensees of the patent, which again may harm the patentee.¹¹³

While both lump sum awards and ongoing royalties require a court to predict the future,¹¹⁴ an ongoing royalty creates a more optimal production incentive structure because the royalty affects the marginal costs of production, therefore avoiding the inefficient levels of production promoted by a lump sum.¹¹⁵ A court and the parties to a lawsuit can also structure an ongoing royalty to track sales, revenues, or other appropriate metrics as the facts of a particular case may dictate. This grants a more appropriate level of control over the license, beyond the simple rate determined by a judge and permits the parties to negotiate the license terms more fully than in the lump sum case. The parties may also avoid, or at least minimize, the high chance of error associated with lump sum awards while simultaneously permitting a patent holder to recoup the full value of the patent.¹¹⁶ While lump sum payments can be quickly and easily administered without an ongoing contractual relationship between the parties, their accuracy requires a nearly impossible prediction of the future market, technological developments, and noninfringing alternatives. Ongoing royalties deal with these complex issues in a simple fashion—when, and only when, an infringer sells infringing products or services, they must pay a preset price.¹¹⁷ If the market changes or new technology develops, previously sunk costs in the form of a lump sum payment will not distort the infringer's behavior. Therefore, a court faced with awarding prospective relief should elect an ongoing royalty rather than a lump sum award.

112. *Id.*

113. *Id.*

114. For both types of prospective relief, a court must assess the future marketplace, costs, revenues, likely advances in technology, noninfringing alternatives, and other mutual concerns.

115. BLAIR & COTTER, *supra* note 61, at 199-201 & fig. 7.6.

116. *Id.* at 199.

117. At the same time, administrative and legal costs may increase if products change and the parties end up back in court. However, this problem is not unique to ongoing royalties. This problem is also implicated when an infringer attempts to design around a patent in order to evade an injunction, or even when a new design might create uncertainty regarding the terms of a voluntary licensing agreement.

B. What Must the Court Consider When Setting Ongoing Royalties?

This Section begins by briefly describing the policy suggestions advocated by other scholars. Recent work on this subject maintains that an ongoing royalty confers an inappropriate benefit on an infringer, and suggests alternatives including enhanced damages regimes and even complete inaction.¹¹⁸ For instance, Bernard Chao suggested that courts could simply do nothing, and future infringement would lead to future lawsuits.¹¹⁹ Such a policy decision has several negative effects. First, it clogs the court system with further, unnecessary lawsuits. Second, this policy acts like a permanent injunction because future infringement by an infringer who knows the patent is both valid and infringed would invoke the willfulness doctrine. Under *In re Seagate*, a patentee establishes willful infringement when an “infringer act[s] despite an objectively high likelihood that its actions constitute[] infringement of a valid patent.”¹²⁰ A previous case establishing both validity and infringement clearly satisfies this objective awareness requirement for willfulness, and any further infringement would likely lead to punitive damages. As a result, even in cases where an injunction is not warranted, an infringer must pay an arbitrarily enhanced royalty for continued use of the patent. Michael Brandt advocated an approach with a similar result that essentially tracks the district court’s approach in *Amado*, where a reasonable royalty is simply multiplied up to three times because the continued infringement is in some sense willful.¹²¹ These approaches ignore some economic concerns. In particular, patent damages serve a compensatory function, and a court must do more than arbitrarily enhance the reasonable royalty for past infringement to determine the proper compensatory ongoing royalty rate.¹²²

118. See, e.g., Bernard H. Chao, *After eBay, Inc. v. MercExchange: The Changing Landscape for Patent Remedies*, 9 MINN. J.L. SCI. & TECH. 543, 568-69 (2008) (suggesting that a do-nothing regime would allow patent holder to file new lawsuits for continuing infringement and potentially invoke willful infringement and enhanced damages); 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, 712-13 (2008) (claiming that precedent prevents ongoing royalty awards and that the parties should be left to themselves to negotiate a license while maintaining the threat of treble damages for future infringement).

119. Chao, *supra* note 118, at 568-69.

120. *In re Seagate Tech. LLC*, 497 F.3d 1360, 1371 (Fed. Cir. 2007).

121. Brandt, *supra* note 118, at 712-13.

122. See 7 CHISUM, *supra* note 96, § 20.03 (“The basic theory of damages is to make the patent owner whole for losses caused by the infringer’s illicit activity.”).

In recognition of the compensatory function of patent damages, this Section now turns to the considerations that a court should undertake to determine an ongoing royalty. For pre-verdict infringement, courts typically look to fifteen factors outlined in *Georgia-Pacific Corp. v. United States Plywood Corp.*¹²³ that Mark Lemley and Carl Shapiro contended essentially boil down to three important considerations: “the significance of the patented invention to the product and to market demand, the royalty rates people have been willing to pay for this or other similar inventions in the industry, and expert testimony as to the value of the patent.”¹²⁴ While the essential *Georgia-Pacific* factors are also relevant for ongoing royalty determinations, a court must consider them in a slightly different fashion in order to set a fair ongoing royalty.

First, courts will often turn to ongoing royalties in cases where the metric for past damages is a reasonable royalty rather than lost profits.¹²⁵ Courts can therefore skip the complicated analysis of third-party royalty rates, and can work directly from the reasonable royalty determined for the case at hand. The reasonable royalty should act as a baseline value for the courts, which can then alter the reasonable royalty in accordance with the other essential *Georgia-Pacific* considerations.¹²⁶

Second, courts must reconsider the significance of the patented invention in the product as well as market demand, and must do so with an eye to the future. This analysis is by no means simple, and courts must require the parties to brief this issue and provide expert testimony.¹²⁷ Because the parties are uniquely situated to present competing views on the importance of the patented invention and future market demand, the burden to prove

123. 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970).

124. Lemley & Shapiro, *supra* note 102, at 2018-19; *see also* BLAIR & COTTER, *supra* note 61, at 228-29 (“In any given case, however, a court is likely to focus on only a small number of factors . . .”).

125. Lemley & Shapiro, *supra* note 102, at 2017 (arguing that not only are lost profits difficult to prove, but patent owners that do not “sell goods in competition with the defendant will be unable to demonstrate lost profits from infringement.”). In cases involving lost profits, courts will likely issue permanent injunctions, rather than ongoing damages. Darryl J. Adams & Victoria Wicken, *Permanent Injunctions After eBay v. MercExchange: The Year in Review*, 15 TEX. INTELL. PROP. L.J. 417, 422 & n.36 (2007) (citing “loss of market share, lost profits, loss of brand name recognition, price erosion, and loss of reputation as a market leader or innovator” as the primary reasons that courts issue permanent injunctions).

126. Lemley & Shapiro, *supra* note 102, at 2018-19.

127. Judge Clark took this approach in *Finisar Corp. v. DirecTV Group, Inc.* by instructing the parties to brief the ongoing royalty issue. *Finisar Corp. v. DirecTV Group, Inc.*, No. 1:05-CV-264, 2006 WL 2709206 (E.D. Tex. Sept. 1, 2006). Judge Clark awarded the plaintiffs an ongoing royalty of \$1.60 per infringing set-top box. *Id.*

any differences between the pre-verdict royalty and an ongoing royalty must fall to the parties.¹²⁸ 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, or if the relevant markets have changed or will change in the future.¹²⁹ For instance, a reasonable ongoing royalty may be lower than a reasonable pre-verdict royalty if it would be particularly easy for the infringer to design around the patent using new, freely available technologies.

Suppose, for example, that a court sitting in 2008 set a reasonable royalty of \$1 per infringing widget for an infringement period between 1998 and 2008. Also suppose that during those years no equivalent, noninfringing alternatives were available, but that in 2008 a noninfringing equivalent entered the public domain. If other considerations hold constant and the cost to the infringer to implement this noninfringing equivalent is lower than \$1 per infringing widget over the remaining life of the patent, the court should set the ongoing royalty rate at a rate lower than \$1. Ideally, an ongoing royalty will not benefit the patent holder more than the value of the patent, and at the same time economics will not motivate the infringer to implement the freely available design around because such action would be wasteful.

A court may also deal with substantial changes in the relevant markets for the patented technology. This leads to an additional market consideration for courts that involves market expansion. For instance, a patent holder may only seek to exert or license its patents in a particular market, while another party infringes the patent in an alternate market that, perhaps, the infringer created. Such situations require case-by-case analysis, but should nevertheless affect a court’s ongoing royalty calculus.

Consider, for example, that the value for past-infringement of e-commerce patents during the early days of the Internet would carry substantially less valuable than the value of the same patents after immense e-commerce markets emerged. If a party can sufficiently prove these kinds of market changes, a court setting royalty rates may set an ongoing royalty higher than reasonable royalty for pre-verdict infringement in order to reflect the market changes.

Finally, courts must again consider expert testimony regarding ongoing royalties. Of course this leads to the familiar battle-of-the-experts

128. *See Paice LLC v. Toyota Motor Corp.*, 504 F.3d 1293, 1316-17 (Fed. Cir. 2007) (Rader, J., concurring).

129. *Id.*

problem,¹³⁰ but because most cases present far greater challenges and proof problems than the simple examples described above, experts represent one of the more reasonable ways for courts and juries to analyze the aforementioned market conditions and noninfringing alternatives.

C. A Basic Framework for Ongoing Royalty Determinations

Courts should reevaluate ongoing royalty determinations on a case-by-case basis using the basic framework described in this Section. To begin, a court must first determine the particular form that prospective relief will take. Most cases should use ongoing royalties instead of lump sums.¹³¹ Additionally, because most cases involving noninjunctive prospective relief employ a reasonable royalty as the measure of past damages, a court can use this information as a convenient starting point for prospective relief.¹³² Thus, a court issuing an ongoing royalty should start with the reasonable royalty rate as a baseline. The court must then consider each of the following five factors in order to fully vet the ongoing royalty:

1. The market for the patent has, or is substantially certain to, expand or contract;
2. The likelihood that the infringer would explore other markets;
3. The availability and cost of noninfringing alternatives;
4. The capacity of the infringer to design around the patented technology, and the cost at which the infringer could do so; and
5. The expert testimony of qualified experts.

When combined with a court's reasonable royalty determination, these factors accurately guide the court and the parties to examine the future

130. See Albert W. Alschuler & Andrew G. Deiss, *A Brief History of the Criminal Jury in the United States*, 61 U. CHI. L. REV. 867, 926 (1994) (“[Courtroom experts] sometimes are called ‘saxophones’ because they play tunes for those who pay them.”); Arti K. Rai, *Engaging Facts and Policy: A Multi-Institutional Approach to Patent System Approach*, 103 COLUM. L. REV. 1035, 1099 (2003) (“It is by no means clear . . . a ‘battle of the experts’ represent[s] the best mechanism for educating lay persons about the relevant science.”).

131. See BLAIR & COTTER, *supra* note 61, at 198-99 & fig.7.5; Section III.A.

132. Reasonable royalties are often used because lost profits are so difficult to prove, especially in the type of case where injunctive relief will be denied, including those cases with non-practicing and non-competing patent holders. See *supra* note 125 and accompanying text.

markets for the patented invention as well as the capabilities of the infringer to design around. Similarly, these factors should assuage the Federal Circuit's worries concerning ongoing royalties because they force a court to thoroughly explain an ongoing royalty determination. This prevents the unsatisfying opinions of the district courts in *Paice* and *Amado*, where the district courts simply used the past damages award for the ongoing royalty rate without considering any forward-looking economic factors. In the footsteps of Judge Rader's *Paice* concurrence, these factors also force a court to examine the potential ways in which a reasonable royalty differs from an ongoing royalty.¹³³

IV. CONCLUSION

The Federal Circuit's decisions in *Paice* and *Amado* show the uncertainty involved in an ongoing royalty determination. Though the court in each case acknowledged the potential validity of an ongoing royalty, neither decision set forth a comprehensive framework for the lower courts to follow. Rather, the Federal Circuit seemed to indicate three main points: (1) a court may not simply copy a reasonable royalty and apply the same rate, without further explanation, to future infringement; (2) a court cannot invoke the willfulness doctrine as a general enhancement to the reasonable royalty for purposes of future infringement; and (3) a proper ongoing royalty must take into account any changes in bargaining positions and economic conditions that may affect the damages inquiry. This Note explains (1) and (2), while setting forth the essential factors that a court should consider in order to satisfy (3). Even with these essential factors in hand, there is no simple solution or formula that can quickly and easily dispense of a particular case. Rather, ongoing royalties must be determined on a case-by-case basis because the ongoing royalty inquiry is not a static, formulaic determination. Instead, the determination requires a nuanced and fully-reasoned approach. The framework suggested in Section III.C facilitates this approach, while avoiding the overly simplistic analyses that the Federal Circuit admonished in *Paice* and *Amado*.

133. *Paice*, 504 F.3d at 1317 (Rader, J., concurring).