CHAPTER 5
LOST PROFITS DAMAGES

I. INTRODUCTION

To promote the patent system's incentives to innovate, patent law sets the goal of calibrating compensatory damages to replicate the market reward that would have been earned absent infringement. As Chapter 4 discusses, damages that undercompensate patentees according to that standard undermine the patent system's incentives to innovate. Damages that overcompensate patentees can distort competition and decrease innovation.

One way a patentee can innovate is to develop and commercialize the invention itself. For a patentee producing a patented product, the primary importance of the patent is often the right it confers to exclude competitors from making and selling a competing product incorporating the patented technology. Often the most effective way to remedy infringement in this context is by awarding the patentee its profits on sales of the patented product that it lost due to the infringement.

To accurately replicate the market reward that the patentee would have earned by practicing its invention, the lost profits damages calculation must account for competition that the patentee's product would have faced if the infringer had sold a noninfringing alternative that did not incorporate the patented technology. Denying a patentee lost profits damages based on the availability of any acceptable alternative, as the seminal *Panduit* case seems to suggest, can undercompensate the patent holder.[1] But ignoring competition from alternatives that would have occurred in the absence of infringement, and awarding lost profits based on all infringing sales, can overcompensate it. Both outcomes can harm innovation and consumers.[2]

Determining how the market would have rewarded the invention absent infringement can be done by assessing consumer preference for the patented technology and the degree of substitutability between the patented technology and noninfringing alternatives.[3] That assessment can identify the number of consumers that would have purchased the patented product in the face of competition and the price they would have paid. The analysis and economic tools are similar to those used in antitrust cases to reconstruct a market and measure the effects of a proposed merger. The case law governing lost profits damages has moved toward this more economically grounded analysis since the *Panduit* case in 1978. However, additional

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[1]Panduit Corp. v. Stahlin Bros. Fibre Works, Inc., 575 F.2d 1152, 1156 (6th Cir. 1978) (requiring an absence of suitable noninfringing alternatives).

[2]*See* Chapter 4, Section III.

[3]For a comprehensive discussion applying economic analysis to the calculation of patent damages, *see* ROGER D. BLAIR & THOMAS F. COTTER, INTELLECTUAL PROPERTY: ECONOMIC AND LEGAL DIMENSIONS OF RIGHTS AND REMEDIES 214–228 (2005); Roger D. Blair & Thomas F. Cotter, *Rethinking Patent Damages*, 10 TEX. INTELL. PROP. L.J. 1 (2001).

improvements, including rejection of rigid rules such as the "entire market value rule" and the requirement for dual awards of lost profits and reasonable royalty damages, would increase the accuracy of damage awards. Such a result would better align patent damages law and competition policy, to the benefit of consumers.

II. NONINFRINGING ALTERNATIVES IN A LOST PROFITS CALCULATION

A. The *Panduit* Test

To receive lost profits damages, a patentee must prove that, but for the infringement, it would have earned the lost profits it seeks, and that this loss was a foreseeable consequence of infringement. Infringing competition can reduce the patentee's profits in several ways, including by diverting sales from the patentee's product, eroding the patentee's sales price, and causing the patentee to lose sales of related, non-patented products.[4] The *"Panduit* test" provides a commonly-used framework with which patentees can establish entitlement to lost profits damages. It requires the patentee to prove:

(1) there was demand for the patented product in the relevant market during the period at issue;
(2) there were no suitable noninfringing alternatives to the patented product;
(3) the patentee had the manufacturing and marketing capacity to meet the demand claimed; and
(4) the amount of profit it would have made.[5]

Panduit appears to create an all-or-nothing test: in the absence of noninfringing alternatives, and assuming the patentee satisfies the other criteria, the patentee receives lost profits on *all* the infringer's sales. When noninfringing alternatives are available, the patentee receives *no* lost profits.[6] Later cases, however, have adopted a more flexible approach that allows a patentee to recover lost profits on some, but not all, of the infringer's sales. For instance, in *State Industries v. Mor-Flo Industries*, the court awarded lost profits damages on the portion of infringing sales that corresponded to the patentee's market share.[7] The analysis

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[4]*See* Rite-Hite Corp. v. Kelly Co., 56 F.3d 1538, 1546 (Fed. Cir. 1995); TWM Mfg. Co. v. Dura Corp., 789 F.2d 895, 902 (Fed. Cir. 1986) (price erosion).

[5]*Panduit Corp.*, 575 F.2d at 1156.

[6]*Id.*

[7]883 F.2d 1573, 1578 (Fed. Cir. 1989); *see also* Micro Motion, Inc. v. Kane Steel Co.. 894 F.2d 1318 (Fed. Cir. 1990).

assumed that the remainder of the infringer's customers likely would have chosen alternative products. The court described this market share calculation as an alternative to the *Panduit* test.[8]

Panelists and commentators have criticized the *Panduit* test because the "factors [are] stated as . . . necessary conditions" for a lost profits award, when in fact "you can have lost profits, even if one or more of them aren't satisfied."[9] One commentator argues that courts have at times imposed unrealistic evidentiary burdens on patentees to establish the precise extent of their lost profits, thereby relegating them to reasonable royalty recoveries that are not designed to remedy their losses.[10] Panelists proposed an approach for calculating lost profits focused on "[i]dentify[ing] the defendant's next best alternative to infringing" and then determining "the market outcome in the 'but for' world where it pursued [that] alternative instead of infringing."[11] Further development in the case law along these lines, toward an economically grounded calculation of lost profits and away from rigid rules like the *Panduit* test, would increase the accuracy of lost profit damage awards and help fully compensate patentees. Moreover, courts should recognize that a lost profits determination is "not an exact science"[12] and permit plaintiffs to "approximate, if necessary, the amount to which the patent owner is entitled."[13]

> ***Recommendation***. In assessing how the market would have rewarded the invention absent infringement, courts should allow a patentee flexibility in creating the "but for" world to address different losses and avoid

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[8]Bic Leisure Prods., Inc. v. Windsurfing Int'l, Inc., 1 F.3d 1214, 1219 (Fed. Cir. 1993) (allowing "a patentee to recover lost profits, despite the presence of acceptable, noninfringing substitutes, because it nevertheless can prove with reasonable probability sales it would have made 'but for' the infringement"); *see also* Grain Processing Corp. v. American Maize-Prods., 185 F.3d 1341, 1349-50 (Fed. Cir. 1999) (recognizing that but for infringement, the defendant would have participated in the market by using an available, noninfringing alternative); *In re* Mahurkar Double Lumen Hemodialysis Catheter Patent Litig., 831 F. Supp. 1354, 1390 (N.D. Ill. 1993) (Easterbrook, J., sitting by designation) (recognizing that absent infringement, the patentee may have made additional sales at a higher prices).

[9]Leonard at 48 (2/11/09); Comment of John W. Schlicher at 53 (5/15/09) ("efforts to apply [the *Panduit* test] have largely been unfruitful").

[10]Mark A. Lemley, *Distinguishing Lost Profits from Reasonable Royalties*, 51 WM. & MARY L. REV. 655, 657-61 (2009). The same article argues that courts have inflated reasonable royalty damages in an attempt to compensate patentees for denied lost profit claims. *Id.* at 661-69. Chapter 6 discusses the detrimental effects of inflating reasonable royalty damages for this reason.

[11]Comment of Greg Leonard at 7-8 (3/9/09); Blair & Cotter *supra*, note 3 at 15; Vincent E. O'Brien, *Economics and Key Patent Damages Cases*, 9 U. BALT. INTELL. PROP. L.J. 1, 6 (2000); *see also* Levko at 59 (2/11/09) (noting that the "but for" world should broadly look at market definition).

[12]King Instrument Corp. v. Otari Corp., 767 F.2d 853, 863 (Fed. Cir. 1985).

[13]Del Mar Avionics, Inc. v. Quinton Instrument Co., 836 F.2d 1320, 1327 (Fed. Cir. 1987).

undercompensation. Patentees should not be denied an opportunity to establish lost profits through application of rigid rules that do not reflect sound economic principles or imposition of evidentiary requirements beyond what is required for the court to make a reasonable approximation of the patentee's loss.

An economically grounded approach to calculating lost profits damages focuses on the market for the patentee's product. It generally requires considering the sales and prices that the patentee actually made and comparing them to the sales it would have made in the "but for" world where the infringer sold a noninfringing alternative, if one is available. That comparison involves quantifying the number of sales the patentee lost due to infringement and estimating the extent of any price erosion.[14] This analysis must consider the extent of consumer preferences for the patented feature over alternatives, and not simply treat alternatives as falling on either side of a bright line dividing the acceptable from the unacceptable. Instead, the analysis recognizes that the "degree of substitutability" between the patented product and the noninfringing substitute will affect the extent of the loss caused by infringement, as opposed to competition generally.[15]

At one end of the spectrum, consumers freely substitute alternatives for the patented product. The infringer could have made nearly as many sales by offering the alternative. In such a case, the patentee lost few sales due to infringement and should receive little lost profits damages.[16] The patentee's recovery is limited because its invention contributes relatively little value over alternatives, and the damages should reflect this fact. At the other end of the spectrum, consumers strongly prefer the patented product over alternatives and will pay higher

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[14]*See, e.g.*, Gregory J. Werden, Luke M. Froeb & Lucian Wayne Beavers, *Economic Analysis Lost Profits from Patent Infringement With and Without Noninfringing Substitutes*, 27 AIPLA Q.J. 305, 307-08 (1999); Gregory K. Leonard, *Applying Merger Simulation Techniques to Estimate Lost Profit Damages in Intellectual Property Litigation, in* ECONOMIC APPROACHES TO INTELLECTUAL PROPERTY, POLICY, LITIGATION, AND MANAGEMENT 112-13 (Gregory K. Leonard & Lauren J. Stiroh eds., 2005). The analysis should also recognize that at lower prices, the patentee may sell more products, which will affect the amount of profits lost by infringement. Gregory J. Werden, Lucian Wayne Beavers & Luke M. Froeb, *Quantity Accretion: Mirror Image of Price Erosion from Patent Infringement*, 81 J. PAT. & TRADEMARK OFF. SOC'Y 479 (1999); *see also* Comment of John W. Schlicher at 54 (5/1/09).

[15]*In re Mahurkar Double Lumen Hemodialysis Catheter Patent Litig.*, 831 F. Supp. at 1390 ("Competition is not an all-or-nothing proposition. There are degrees of substituability."); Werden et al., *supra* note 14, at 310 (noting that "[i]n some sense, there are always substitutes for the patented product").

[16]*See* Grain Processing Corp. v. American Maize-Prods. Co., 893 F. Supp. 1386, 1392 (N.D. Ind. 1995) (Easterbrook, J., sitting by designation), *aff'd in part, vacated in part*, 108 F.3d 1392 (Fed. Cir. 1997) (awarding no lost profits damages due to availability of alternative); *but see* Jerry A. Hausman, Gregory K. Leonard & J. Gregory Sidak, *Patent Damages and Real Options: How Judicial Characterization of Noninfringing Alternatives Reduces Incentives to Innovate*, 22 BERKELEY TECH. L.J. 825, 852-53 (2007) (arguing that "the district court's conclusion in *Grain Processing* that no lost profits existed if the infringer were assumed to have adopted the noninfringing technology is at odds with standard economic theory").

prices for it. In the world without infringement, the patentee likely would have made most of the infringer's sales at a higher price, earning a large return on its invention. It should receive substantial lost profits damages adequate to compensate for the market reward it would have earned absent infringement. In both cases, the remedy reflects the value of the invention, providing proper incentives for invention and innovation. Many patented products and their alternatives fall between these two extremes, but these also are entitled to lost profits damages when proven.[17]

Economic analysis of the type used in antitrust merger review can help determine where alternatives fall along this spectrum, the number of sales lost to the infringing product, and the price erosion caused by infringement.[18] Measuring the cross-elasticity of demand between an infringing product and noninfringing alternatives can determine their "degrees of substitutability."[19] Economists have explained that "[s]imulating damages from patent infringement is quite similar to simulating the effects of a merger. Rather than extrapolating from the lower-price, pre-merger equilibrium to the higher-price, post-merger equilibrium, one extrapolates from the lower-price, with infringement equilibrium to the higher-price, but-for-infringement equilibrium."[20]

B. The Entire Market Value Rule

The law of lost profits damages recognizes that a patented invention may be only one component of a complex product. In that case, not all of the infringer's profit, or the patentee's lost profits, is necessarily attributable to the patented invention. The case law traditionally addresses this issue by "apportioning" the potential damages according to the value the invention, such as a mop head, contributes to the product, such as a mop.[21] Modern case law applies the "entire market value rule" to determine when to award lost profits damages based on the entire

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[17]*See* O'Brien, *supra* note 11, at 6. *C.f.*, Lemley, *supra* note 10, at 671-72 (arguing that a patentee's difficulty in proving precise amount of lost profits damages, as opposed to entitlement to them, should not disqualify it from receiving them).

[18]Blair & Cotter, *supra* note 3, at 15-16 ("modern economic analysis does provide some techniques for estimating losses" based on construction of a market absent infringement); *see also* Marion B. Stewart, *Calculating Economic Damages in Inellectual Property Disputes: The Role of Market Definition*, 77 J. PAT. & TRADEMARK OFF. SOC'Y 321 (1995).

[19]Blair & Cotter, *supra* note 3, at 13-14, n.34 (explaining relationship of cross-elasticity of demand to lost profits).

[20]Werden et al., *supra* note 14, at 307-08.

[21]Seymour v. McCormick, 57 U.S. 480, 489-91 (1853) (explaining that damages based on an entire machine when the patent covers only a component could subject the infringer to duplicative and excessive damages); *see also* Garretson v. Clark, 111 U.S. 120, 121 (1884) (requiring apportionment of damages from sales of a mop based on infringement of patent covering improved mop head).

value of the patented product. The entire market value rule applies when (1) the patented feature is "the basis for customer demand"[22] of the infringing product and (2) the patented and unpatented components together "constitute a functional unit."[23] For instance, in *Golden Blount, Inc. v. Robert H. Peterson Co.*, the Federal Circuit allowed lost profits damages based on the entire market value of an artificial fireplace where only the gas burner was patented. The court upheld a finding that the burner, logs and grate worked together as a functional unit and that the ember burner was the basis for customer demand.[24]

The entire market value rule is not needed in an economic assessment of lost profits. Indeed, it distracts fact-finders from a careful reconstruction of a market lacking infringement. Courts should reject it. The rule's focus on whether a feature is the "basis for customer demand," and allowing only a "yes" or "no" answer to that question, prevents courts and juries from giving adequate consideration to the "degrees of substitutability" that may exist with respect to noninfringing alternatives.[25] In doing so, it inhibits an appreciation of the differences among consumers and their preferences for different alternatives. The "functional unit" prong of the

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[22] *State Indus., Inc.*, 883 F.2d at 1580. This "basis of customer demand" standard as sometimes applied is arguably more lenient than statements of earlier cases requiring that "the entire value of the whole machine, as a marketable article, is properly and legally attributable to the patented feature" for damages to be based on the whole product. *Garretson*, 111 U.S. at 121 (*quoting* Garretson v. Clark, 10 F. Cas. 40, 44 (C.C.N.Y. 1878). *Compare State Indus., Inc.*, 883 F.2d at 1580 (allowing lost profits damages based on entire water heater where invention related to foam insulation) *with* Marconi Wireless Tele. Co. v. United States, 99 Ct. Cl. 1, 21 (Ct. Cl. 1942), *aff'd in part, vacated in part*, 320 U.S. 1 (1943) (holding that patentee can recover damages based on an entire product if patented feature "was of such paramount importance that it substantially created the value of the component parts").

[23] *Rite-Hite Corp.*, 56 F.3d at 1550 (lost profits damages may be based on the entire market value of a product only where "the patented and unpatented components were analogous to a single functioning unit" and may not be extended to include unpatented items "that have essentially no functional relationship to the patented invention and that may have been sold with an infringing device only as a matter of convenience or business advantage.").

[24] 438 F.3d 1354, 1371-72 (Fed. Cir. 2006). *See also* Tec Air, Inc. v. Denso Mfg. Michigan, Inc., 192 F.3d 1353, 1361 (Fed. Cir. 1999) (damages based on entire assembly where infringing fans were sold with noninfringing radiator and condenser).

[25] The "basis for consumer demand" standard is not a good proxy for those instances in which no alternatives for the patented invention exist such that the patentee would have made all infringing sales. The standard has been liberally applied in some cases, and it fails to focus on the operative economic question of noninfringing competition. *See Golden Blount, Inc.*, 438 F.3d at 1371 (allowing damages based on entire artificial fireplace when only gas burner was patented, without examining noninfringing competition in artificial fireplace market); *Tec Air, Inc.*, 192 F.3d at 1361 (damages based on entire assembly where infringing fans were sold with noninfringing radiator and condenser because consumer demand was based on performance of entire assembly).

rule makes the determination of damages hinge on a distinction that is irrelevant to reconstruction of a market lacking infringement.[26]

The all or nothing aspect of the entire market value rule detracts from the ability of patent damages to provide compensation to patentees that reflects the value of their inventions, and thereby align with competition policy. A more nuanced economic analysis can help identify the extent to which infringement causes a patentee to lose profits whether the patent at issue claims the entire infringing product or one component of that product. When consumers view a patented component as a valuable feature of a larger product, they are less likely to be satisfied with similar products containing noninfringing alternative components. The more valuable the patented feature is to consumers, the larger the portion of the infringer's sales that can be attributed to infringement. However, when consumers view a patented component as a minor feature that they would forgo at higher prices or substitute with noninfringing alternatives, infringement causes the patentee to lose fewer sales.[27]

Under this economic analysis, the infringer's sales are effectively "apportioned" according to the value of the invention. This approach provides a more direct and accurate measure of a patentee's harm from infringement when one component of a product is patented than does an attempt to measure that component's relative contribution to a product or to apply the entire market value rule.

> ***Recommendation.*** Courts should reject the entire market value rule as a basis for awarding a patentee lost profits damages based on all infringing sales, and instead require proof of the degree of consumer preference for the patented invention over alternatives.

C. Dual Awards of Lost Profits and Reasonable Royalties

When courts have awarded lost profits damages based on a portion of the infringing sales, they also have sometimes awarded reasonable royalty damages on the remaining portion of infringing sales.[28] Those cases refer to Section 284 of the Patent Act in reasoning that a patentee

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[26] *See* Juicy Whip, Inc. v. Orange Bang, Inc., 382 F.3d 1367, 1371-73 (Fed. Cir. 2004) (remanding for consideration of whether patentee was entitled to damages based on sales of unpatented syrup and because syrup and patented juice dispenser functioned together "to produce the visual appearance that was central to Juicy Whip's '405 patent"). If a patentee can prove that it would have made sales of an unpatented product along with a patented product but for the infringement, examining whether they function as a unit may be useful in determining whether lost sales of the unpatented product were "foreseeable" and compensable. *See* Blair & Cotter, *supra* note 3, at 89 (proposing this limited use of the functional unit test); *Rite-Hite Corp.*, 56 F.3d at 1546 (requiring that lost profits be foreseeable to be compensable).

[27] *See* Blair & Cotter, *supra* note 3, at 17, 26-28; Leonard Comment at 8-9 (3/9/09).

[28] *State Indus., Inc.*, 883 F.2d at 1580; *Rite-Hite Corp.*, 56 F.3d at 1554-55 (awarding lost profits damages on all but 502 sales and awarding reasonable royalties on those).

is entitled to "no less than a reasonable royalty" on all of an infringer's sales, even when it has received its profits lost due to infringement.[29] In many instances, dual awards of lost profits and reasonable royalty damages are inappropriate and courts should not award them.[30]

When a patentee receives lost profits damages on lost sales amounting to only a portion of the infringer's sales, the award recognizes that, but for infringement, the infringer would have sold an alternative to the patented invention. Putting the patentee in the position it would have been but for the infringement does not require compensating it for sales the infringer would have made of noninfringing alternatives. Awarding the patentee reasonable royalty damages on those sales in addition to lost profits overcompensates it compared to the market reward for the invention, because it ignores competition that the patented invention faced from noninfringing alternatives.[31] Awarding lost profits damages based on a portion of the infringer's sales can fully compensate the patentee for infringement, as required by Section 284.

> ***Recommendation.*** Courts should reject dual awards of lost profits and reasonable royalty damages when competition from alternatives would have prevented the patentee from making all the infringer's sales in a world but for infringement.

III. CONCLUSION

The guiding principle in the calculation of lost profits damages is the construction of the hypothetical market but for infringement. In that market, the patented invention may sometimes compete with noninfringing alternatives. Accurately calculating damages in the face of that competition requires an examination of consumer preferences for the patented invention over alternatives. Economic tools, including those frequently used in antitrust analysis, can support that calculation.

The case law has evolved to recognize the importance of "the realities of the market."[32] But further flexibility in the legal rules that apply to lost profits damages would allow a more economically grounded calculation, leading to more accurate awards and full compensation of

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[29] *Rite-Hite Corp.*, 56 F.3d at 1554.

[30] One situation in which dual awards might be appropriate is when markets for the patented product are separated by geography or type of use. A patentee may seek to earn royalties in one market (making reasonable royalty damages appropriate) but sell its invention exclusively in another (making lost profits appropriate). O'Brien, *supra* note 11, at 21 n.74.

[31] *See* O'Brien, *supra* note 11, at 21-22; Comment of John W. Schlicher at 54 (5/1/09) (when law insists that patentee recover damages on every infringing unit sold, the patentee is better off financially than it would have been absent infringement).

[32] SmithKline Diagnostics, Inc. v. Helena Lab. Corp., 926 F.2d 1161, 1166 (Fed. Cir. 1991) (considering whether "others would likely have captured sales made by the infringer, despite a difference in the products").

patentees. Patentees that have proven entitlement to lost profits damages should not be denied that compensation and limited to reasonable royalties based on overly-rigorous requirements to show the precise amount of damages.

To achieve accurate awards, calculation of lost profits damages must also take account of competition the patented product would have faced but for infringement. Courts should reject as not based on sound economics the entire market value rule and dual awards of lost profits and reasonable royalty damages in most situations. Additional focus on creating the world but for infringement, including a full appreciation of the role of noninfringing alternatives in that world, will help compensate patentees through damages as the market would have done, avoiding the under and overcompensation that can harm innovation, competition and consumers.

CHAPTER 6
THE HYPOTHETICAL NEGOTIATION IN REASONABLE ROYALTY DAMAGES

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I. INTRODUCTION

Much of the controversy in the patent community concerning damage awards has focused on whether the law governing reasonable royalty damages appropriately compensates patentees. Different perspectives on this question have fueled a debate on the wisdom of legislative changes to reasonable royalty damages law as part of a broader patent law reform effort.[1] Companies fall on opposite sides of this question depending on a number of factors, including whether they view themselves as more likely defendants or plaintiffs in patent litigation, whether they use patents primarily defensively or offensively, how likely it is that a patent in their industry might confer market power, and how many patents typically cover a single product.

Different sides of the debate have at times looked to median damage awards as evidence of both the presence and the absence of a problem. But medians cannot answer the question of whether patent damages law appropriately compensates patentees. They supply no information about the accuracy of individual awards or the effect of very large awards that arguably motivate some litigation. That said, several factors suggest that a careful study of the economic underpinnings of reasonable royalty damages law would be beneficial. On the one hand, full compensation is important to incentivize invention and support licensing in a growing open technology paradigm.[2] On the other hand, dramatic increases in litigation in the information technology (IT) industries and the rise in business models that use patents only to extract rents, if driven by awards that overcompensate patentees, could deter innovation and disrupt competition in technology markets.[3]

As discussed in Chapter 4, damages law appropriately compensates patentees for infringement when it aligns damage awards with the economic value of the invention by replicating the market reward. When a patentee cannot or chooses not to prove lost profits or other direct harm, the market reward is the royalty to which a willing licensor and willing licensee would agree in a hypothetical negotiation. But courts sometimes reject, either implicitly or explicitly, a limitation based on the maximum amount a willing licensee would pay. In doing so, they often seem motivated by concerns about compensating patentees for unproven direct harm and deterring infringement. Those concerns are better addressed through other areas of remedies law, including lost profits damages, enhanced damages and injunctions. Allowing those concerns to distort the reasonable royalty damages calculation risks overcompensating patentees in litigation as compared to the market and creating problems such as higher prices, increased patent speculation, and decreased innovation.

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[1] S. REP. No. 111-18, at 3 (2009).

[2] *See* Chapter 1.

[3] *See* Chapter 2.

This Chapter and Chapter 7 seek to derive an economically grounded approach to calculating reasonable royalty damages and to compare that approach to the rules developed through case law. Ensuring that the legal rules reflect an understanding of the economics underlying the market in which technology competes will help align a patentee's compensation with the economic value of the patented invention, and align patent law with competition policy.

II. RECENT CONTROVERSIES SURROUNDING REASONABLE ROYALTY DAMAGE AWARDS

A. Support for Damages Reform

Those who complain about the current state of damages law come mainly from the IT industries. They argue that patent value has become increasingly divorced from the economic value of the underlying technology in recent years because of excessive damages awards.[4] From 2002-2009, there were at least eleven damage awards over $100 million and one that was over $1 billion, representing a marked increase in landmark damage awards compared to 20 years ago.[5] While some very large awards have been overturned,[6] "outlier" cases still raise concerns because they inform and influence the licensing and settlement negotiations that resolve the vast majority

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[4]*See, e.g.*, Yen at 47 (12/5/08) ("Increasingly, activity in the marketplace is driven not by increased innovation but by efforts to exploit imbalances in a patent system that overvalues patents, particularly weak ones, and thereby actually suppresses marketplace innovation."); CCIA Comment at 6-7 (2/5/09); Doyle at 143 (5/5/09) (the current damages system "encourages what I would consider opportunistic litigation that has little relation to the value of a patent, its patent-worthiness, its validity, let alone whether or not it's infringed").

[5]Paul Janicke, *Patent Damages, Patent Verdicts from 1-1-05 to 1-6-09*, presented at FTC Hearing: The Evolving IP Marketplace (Feb. 11, 2009), *available at* http://ftc.gov/bc/workshops/ipmarketplace/feb11/docs/janicke-medianverdits.pdf; Janicke at 9 (2/11/09) (explaining that these numbers are "only what the jury foreman announced" and do not reflect enhancements (e.g., for willfulness or interest) or subsequent judicial actions reducing or vacating the award). *See also* Levko at 21 (2/11/09) (reporting that there had been "something like 22 cases" with awards over $100 million (in 2008 dollars) in 14 years, including six in 2008 alone); PricewaterhouseCoopers, *2010 Patent Litigation Study, The Continued Evolution of Patent Damages Law: Patent Litigation Trends and the Impact of Recent Court Decisions on Damages*, at 8, Chart 2c (Sept. 2010), (listing eight cases in which the initially adjudicated damage award exceeded $200 million since 2007 (and noting that some had subsequently been vacated or otherwise modified)), *available at* http://www.pwc.com/us/en/forensic-services/publications/2010-patent-litigation-study.jhtml.

[6]*See, e.g.*, Innovation Alliance Comment at 10 (2/6/09) ("With few exceptions, the largest jury verdicts awarded each year are typically reduced or overturned upon appeal, as in the *Alcatel-Lucent* case.") (*citing* Innovation Alliance, *Moving Beyond the Rhetoric: Jury Damage Verdicts in Patent Infringement Cases 2005 – 2007* (2008), *available at* http://www.innovationalliance.net/files/JURY%20DAMAGE%20VERDICTS%20IN%20PATENT%20INFRINGEMENT%20CASES%5B1%5D.pdf).

of patent disputes.[7] (Appendix A reviews available statistics on patent litigation outcomes and damages awards.) Supporters of reform also point to the ten-fold disparity between damage awards made by juries compared to judges and the high median award of $31 million in the telecommunications sector as evidence of a problem.[8]

Panelists assert that these awards have generated a "lottery-ticket mentality"[9] that encourages patent assertion entities (PAEs)[10] to purchase patents solely for the purpose of asserting them against products that were developed without any input from the inventors, i.e., the ex post licensing described in Chapter 2. Indeed, all panelists for high-tech companies reported steep increases in patent litigation almost entirely attributable to suits brought by PAEs.[11] They argue that this increased ex post litigation imposes a substantial burden on manufacturing companies and deters innovation by diverting resources and increasing the risk associated with introducing new products.[12]

The cases presenting the greatest risk for excessive damage awards, according to panelists, are those in which the patented invention is one component of many in a complex

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[7]*See* Squires at 195 (12/5/08); Reines at 33 (2/11/09) (emphasizing that settlements are affected by trial outcomes through "a magnification process where the anomalous outcomes at trial or fear of anomalous outcomes at trial can drive a whole range of decision-making"); NERA Economic Consulting Comment at 4-5 (3/9/09) (reasoning that a company will take into account even a relatively low probability of an excess damage award in its decision making and market behavior).

[8]Coalition for Patent Fairness and Business Software Alliance Comment at 9 (2/5/09); PricewaterhouseCoopers, *A Closer Look: 2008 Patent Litigation Study, Damages Awards, Success Rates and Time-to-Trial*, at 3, Chart 2C (2008), *available at* http://www.pwc.com/en_US/us/forensic-services/assets/2008_patent_litigation_study.pdf.

[9]Squires at 166 (12/5/08); *see also* Janicke at 10 (2/11/09) ("these [very large verdicts] are the [ones] that spur the filing of patent litigation, hundreds of millions of dollars").

[10]This report uses the term "patent assertion entity" rather than the more common "non-practicing entity" (NPE) to refer to firms whose business model focuses on purchasing and asserting patents. See Chapter 2 for a discussion of the different types of non-practicing entities and their impact on innovation and competition.

[11]*See infra* Chapter 2, Section IV.A.

[12]Yen at 54 (12/5/08) (stating that "[t]he money to pay unjustified settlements is taken away from R&D and promising technologies, and the added costs ultimately are passed on to the consumer, and more troubling perhaps is the lost opportunity for new products and services"); Underweiser at 159 (2/11/09) (explaining that "transaction costs" from litigation mean "your products are going to cost more" and that "you won't have the innovations making their way into products"); McCurdy at 42 (12/5/08); Software & Information Industry Association Comment at 2-3 (2/5/09); Coalition for Patent Fairness and Business Software Alliance Comment at 3, 7-8 (2/5/09).

product.[13] IT products, such as personal computers and cell phones, are covered by thousands of patents. As discussed in Chapters 2 and 3, the notice function is poorly served in these circumstances, making it unfeasible for manufacturers to identify all patents that might read on a product.[14] Proponents of reform explain that patentees often seek damages based on a percentage of the whole product even though the patent's inventive contribution relates to a very small aspect of the product. One proposed solution calls for damages rules that "apportion" the award.[15]

B. Opposition to Damages Reform

Panelists and commentators representing a variety of industries and business models strongly warned against adopting any change in damages law intended to systematically lower awards. They argued that reducing the value of patents or injecting additional uncertainty and complexity into damages calculations would undermine the patent system's incentives to invest in risky research and development in promising industries. Lower patent values would also encourage infringement rather than licensing, they worried, reducing incentives to invent and the opportunity to engage in technology transfer licensing.[16]

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[13]Cotter at 134, 198 (12/5/08) (describing how hold-up can occur in the context of "a patent on a component"); Lemley at 253 (5/5/09) ("Most of the discussion here has been . . . pointing in the direction that the problem with reasonable royalty damages is that they are too high in many-component industry cases for a variety of reasons."); NERA Economic Consulting Comment at 19-23 (3/9/09).

[14]*See* Chapter 2, Section III.A; Chapter 3, Section III.

[15]Doyle at 210 (5/5/09) ("it seems to me that apportionment, just by itself, as a rule standing alone is the only thing that anyone's come up with that has half a chance of focusing the discussion"); Schlicher at 210 (5/5/09) (agreeing with Doyle, explaining that the award should be an "approximation of the value of the invention given its advantages"); Squires at 167-68 (12/5/08) ("where the inventive contribution is one of many components in a complex product or service, . . . then valuation should be correlated to the component"); Software & Information Industry Association Comment at 7 (2/5/09); Coalition for Patent Fairness and Business Software Alliance Comment at 6 (2/5/09). *Cf.* Lemley at 215 (5/5/09) ("courts always already do apportionment in a reasonable-royalty case, they just don't do it very well"); Thomas at 149 (12/5/08) ("Apportionment is part of our law . . . . Many of us believe that it's been unevenly applied . . . .").

[16]Rhodes at 196 (2/11/09) (if you "decrease damages, you do lose part of the deterrent [e]ffect against infringement"); Layne-Farrar at 51 (2/11/09) (observing that we "don't want to . . . encourage under-the-radar infringement"); PhRMA Comment at 14, 18-20 (2/10/09); BIO Comment at 2 (5/15/09); NanoBusiness Alliance Comment (2/5/09) ("Changes which reduce our ability to receive adequate compensation for infringement of those patents will make it difficult to protect our intellectual property, and therefore will discourage investment in our field."); National Venture Capital Association Comment at 2 (2/10/09); Epstein at 169 (5/4/09) ("I think passing significant changes to damages law is the fastest way to shut down the overall licensing and secondary patent marketplace.").

Panelists opposed to changes in damages law dispute the argument that recent awards indicate any problem. They point out that median damage awards (adjusted for inflation) have remained stable since 1995 at approximately $5 million, an amount that is modest compared to litigation costs.[17] They also explain that where a jury's damage award is excessive, courts can and have corrected it.[18] The current legal rules are effective and flexible for addressing the wide variety of fact scenarios that arise in damages calculation, they maintain. In particular, those factors track the considerations that influence real-world licensing negotiations[19] and allow consideration of the value added by a patented component in an infringing product.[20]

C. The Need to Review Damages Law

Aggregated statistics alone cannot answer the question of whether patent damages law appropriately compensates patentees. As one commentator cautioned, relying too much on

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[17]PricewaterhouseCoopers, *supra* note 8, at 2, Chart 2a (reporting that the "median annual damages award has remained fairly stable over the last 13 years," and that "[t]he median was $3.9 million from 1995 through 2000, and $3.8 million from 2001 through 2007" in 2007 dollars). *See also* PricewaterhouseCoopers, *supra* note 5, at 2, Chart 2a (reporting that between 1995 and 2009 annual median awards averaged $5.2 million and ranged from $2.2 million to $10.5 million (in 2009 dollars), but showed "no discernable trend" over that period); Janicke at 10 (2/11/09) (reporting a median jury verdict of $5.3 million for the period January 2005 through January 2009); PhRMA Comment at 17 (2/10/09); Innovation Alliance Comment at 10 (2/6/09).

[18]Innovation Alliance Comment at 10 (2/6/09); Innovation Alliance, *Moving Beyond the Rhetoric, Jury Damage Verdicts in Patent Infringement Cases 2005-2007* (2008), *available at* http://www.innovationalliance.net/files/JURY%20DAMAGE%20VERDICTS%20IN%20PATENT%20INFRINGEMENT%20CASES%5B1%5D.pdf (reporting that from 2005 to 2007, there were 47 patent cases where the jury found damages of $2 million or more, and in 12 cases, the damage verdict was set aside or the trial judge found the damages were not supported by the evidence); PhRMA Comment at 13, 17 (2/10/09); Chief Judge Paul R. Michel of the Court of Appeals for the Federal Circuit argued that judicial review of excessive jury awards shows that the system is working, not that it is broken. C.J. Michel at 116-17 (12/05/08); *but see* Daralyn J. Durie & Mark A. Lemley, *A Structured Approach to Calculating Reasonable Royalties*, 14 LEWIS & CLARK L. REV. 627, 634 (2010) (surveying 267 cases in which damages were awarded, and finding only three in which the district court granted JMOL on the issue of damages).

[19]Rhodes at 237-38 (2/11/09) (the *Georgia-Pacific* factors "mirror a lot of the considerations that take place in actual licensing negotiations" and "are trying to replicate what type of dynamic" would exist in the hypothetical negotiation); Johnson at 243-44 (2/11/09) (pharmaceutical company representative explaining that when his company "sit[s] down to negotiate [licences], we use methodologies that are very much like the *Georgia-Pacific* factors").

[20]Johnson at 268 (2/11/09) (pharmaceutical company representative suggesting that the award should be based on "compar[ing the invention] with its closest non-infringing alternat[ive]"); PhRMA Comment at 20 (2/10/09) (when the patented invention is a small component of a product, "a reasonable royalty would be determined by assessing the value to the infringer of using the patented invention over the closest non-infringing substitute").

medians "tell[s] you very little about the awards that matter most, those for the very few, very valuable inventions."[21] Moreover, it is an impossible and unproductive task to attempt to determine whether a sampling of awards is incorrect in the sense that they made a patent holder better or worse off in court than it would have been in the marketplace.[22]

That said, a review of the available statistics on reasonable royalty awards, combined with the recent controversy in the patent community, suggests that a study of the relationship between the legal rules governing damages and the economic principles that should guide damages calculations would be beneficial. On the one hand, it is essential to ensure that the laws governing patent damage awards protect incentives to invent and innovate by affording compensation equal to the loss caused by infringement. On the other hand, recent very large damage awards for minor components of complex products and dramatic, industry-specific increases in patent litigation do raise questions of whether damages law is sufficiently economically grounded. The question seems most pressing in that subset of cases where the invention is one component of a complex product. Some panelists asserted that excessive reasonable royalty awards result from a failure to use economically correct approaches to calculation and legal rules that "obscure[] the effort to match damage awards to the economic values of inventions."[23]

III. OVERVIEW OF REASONABLE ROYALTY DAMAGES LAW

Section 284 of the patent statute mandates that patentees recover "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 . . . ."[24] A reasonable royalty is available as a remedy in all cases where the patentee has not proven entitlement to lost profits caused by the infringement.[25] Reasonable royalties may be awarded to a patent owner that was injured and competed but was unable to establish lost sales, one that licensed exclusively, or one that licensed broadly, leading one author to call them a "catch-all category of patent damages."[26]

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[21]John Schlicher Comment at 39 (5/15/09).

[22]Douglas G. Kidder & Vincent E. O'Brien Comment at 1 (5/5/09).

[23]Schlicher Comment at 4, 38 (5/15/09); *see also* NERA Economic Consulting Comment at 19-20 (3/9/09) (discussing specific unreliable approaches to determining reasonable royalty damages).

[24]35 U.S.C. § 284.

[25]Rite-Hite Corp. v. Kelley Co., 56 F.3d 1538, 1554 (Fed. Cir. 1995) ("A patentee is entitled to no less than a reasonable royalty on an infringer's sales for which the patentee has not established entitlement to lost profits.") (en banc); JOHN M. SKENYON, CHRISTOPHER S. MARCHESE & JOHN LAND, PATENT DAMAGES LAW AND PRACTICE § 1:3 (2008).

[26]SKENYON et al., *supra* note 25, § 3:2, at 3-3.

Courts invoke the hypothetical negotiation framework when calculating reasonable royalty damages. The seminal case, *Georgia-Pacific Corp. v. United States Plywood Corp.*, described the proper measure of such damages: "The amount that a licensor (such as the patentee) and a licensee (such as the infringer) would have agreed upon (at the time the infringement began) if both had been reasonably and voluntarily trying to reach an agreement."[27] The case law recognizes that the central tenet of this framework is the willing licensor/willing licensee model, under which the awarded amount must be acceptable to both parties.[28] The royalty must adequately compensate the patentee for permitting the use and still leave the infringer an appropriate level of anticipated profits from using the invention.[29] As discussed below, however, some recent cases seem to reject or ignore that the requirement of a willing licensee places an upper bound on reasonable royalty damages.[30]

Courts apply two assumptions when implementing the hypothetical negotiation. First, the finder of fact must assume that the hypothetical negotiation takes place at the time the infringement began. This timing determines the information available to the parties during the negotiation.[31] Thus, in setting a reasonable royalty rate, considerations such as the infringer's expected profit and available alternatives are "to be determined not on the basis of a hindsight evaluation of what actually happened, but on the basis of what the parties to the hypothetical license negotiations would have considered at the time of the negotiations."[32] Subsequent events may be considered as evidence (a "book of wisdom") shedding light on the expectations that

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[27]Georgia-Pacific Corp. v. United States Plywood Corp., 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970), *modified and aff'd*, 446 F.2d 295 (2d Cir. 1971). Chapter 7, Section II lists the *Georgia-Pacific* factors.

[28]*See, e.g.*, Lucent Techs., Inc. v. Gateway, Inc., 580 F.3d 1301, 1325 (Fed. Cir. 2009) ("The hypothetical negotiation tries, as best as possible, to recreate the ex ante licensing negotiation scenario and to describe the resulting agreement.").

[29]Applied Med. Res. Corp. v. U.S. Surgical Corp., 435 F.3d 1356, 1361 (Fed. Cir. 2006) ("A reasonable royalty is the amount that 'a person, desiring to manufacture [, use, or] sell a patented article, as a business proposition, would be willing to pay as a royalty and yet be able to make [, use, or] sell the patented article, in the market, at a reasonable profit.'") (*quoting* Trans-World Mfg. Corp. v. Al Nyman & Sons, Inc., 750 F.2d 1552, 1568 (Fed. Cir.1984)).

[30]*See* Section IV, *infra*. Monsanto Co. v. Ralph, 382 F.3d 1374, 1383 (Fed. Cir. 2004) (rejecting infringer's argument that a "reasonable royalty deduced through a hypothetical negotiation process can never be set so high that no rational self-interested wealth-maximizing infringer acting ex ante would have ever agreed to it").

[31]Riles v. Shell Exploration and Prod. Co., 298 F.3d 1302, 1313 (Fed. Cir. 2002) (reasonable royalty determination "must relate to the time infringement occurred, and not be an after-the-fact assessment."); Unisplay S.A. v. American Elec. Sign Co., 69 F.3d 512, 518 (Fed. Cir. 1995) (rejecting a royalty based on evidence of likely value at time of trial).

[32]Hanson v. Alpine Valley Ski Area, Inc., 718 F.2d 1075, 1081 (Fed. Cir. 1983).

would have guided the parties during negotiation,[33] but the focus remains on the value at the time infringement began.

Second, courts require the finder of fact to assume that at the time of the negotiation the parties know with certainty that the patent is valid and infringed by the defendant's product or process.[34] This assumption ensures that the patentee, having incurred the risk and burden of trial and prevailed, is fully compensated.[35] As one panelist explained, if the hypothetical negotiation incorporated the risk that the patentee might lose on liability, the damages award would effectively "discount[] twice for the legal risk." The patentee would have run the legal risk once by going through trial to a judgment, and then had its recovery discounted by the legal risk in the determination of the reasonable royalty.[36]

IV. CONCERNS WITH THE HYPOTHETICAL NEGOTIATION FRAMEWORK

As discussed in Chapter 4, the goal of compensatory damages is to put the patentee in the position it would have been but for the infringement by providing the market reward for the invention. The case law rightly equates this goal with the statutory mandate that the patentee receive "damages adequate to compensate for the infringement." The law allows a patentee to show lost profits caused by the infringement. And, as discussed in Chapter 5, the law should allow patentees flexibility in creating the "but for" world so that they can be fully compensated.

However, when a patentee fails to prove lost profits caused by infringement, his legal redress is limited to compensation for the lost opportunity to license the infringer. It is the return available from the right to license the patent that is injured in this case, not the return from the exclusive opportunity to sell a product incorporating the patented invention. A patentee who would not have lost sales or suffered other direct damages from infringement would rationally

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[33] Sinclair Refining Co. v. Jenkins Petroleum Co., 289 U.S. 689, 698 (1933) (post-infringement evidence represents a "book of wisdom" providing "[e]xperience [that] is then available to correct uncertain prophecy").

[34] *See, e.g.*, *Lucent Techs.*, 580 F.3d at 1325 ("The hypothetical negotiation also assumes that the asserted patent claims are valid and infringed.").

[35] *See* Rite-Hite Corp. v. Kelley Co., 774 F. Supp. 1514, 1535 (E.D. Wis. 1991) ("In negotiating a settlement, the typical patentee is constrained by the risk and expense of litigating a patent suit. Risk and expense are not factors in the hypothetical royalty negotiation, because the patentee is presumed to know that the patent is valid and infringed."), *aff'd in part, vacated in part on other grounds*, 56 F.3d 1538, 1554 (Fed. Cir. 1995) (en banc).

[36] Cotter at 85 (2/11/09). *See also id.* at 83-85; Thomas F. Cotter, *Patent Holdup, Patent Remedies, and Antitrust Responses*, 34 J. CORP. L. 1151, 1182-83 & n.156 (2009).

want to license the patent at the maximum rate the infringer would pay.[37] That rate will not be more than the incremental value of the invention compared to available alternatives because, at higher rates, the infringer would choose an alternative.[38] A patentee would be unwilling to license at this rate only if it expected greater returns from marketing the invention itself. But in that case, the patentee would have a claim to lost profits. Thus, absent proof of lost profits caused by infringement, the appropriate measure of compensatory damages is the hypothetical negotiation amount between a willing licensor and willing licensee.

Despite this reasoning, two lines of cases allow or comment favorably on damage awards that arguably added to or exceeded a reasonable royalty determined using the hypothetical negotiation framework. In the first line of cases, the Federal Circuit affirmed awards adding to the hypothetical negotiation amount. In *H.M. Stickle v. Heublein*, the court stated that a "trial court may award an amount of damages greater than a reasonable royalty so that the award is 'adequate to compensate for the infringement.'"[39] In *Maxwell v. J. Baker, Inc.*, the court upheld a damage award where the district court had instructed the jury to determine two awards – a reasonable royalty award based on the hypothetical negotiation, and an additional award to the extent needed to provide "adequate compensation."[40] The opinions do not, however, describe the economic basis of any harm that the patentee might have suffered for which compensation is required beyond the absence of royalty payments for the infringing use.[41]

A second line of cases purports to apply the hypothetical negotiation framework, but arguably allows damage awards exceeding amounts to which a willing licensee would have

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[37]The negotiated royalty between the patentee and licensee (hypothetical or otherwise) may be less than the maximum amount the licensee is willing to pay, depending on the bargaining power of the parties. *See* SUZANNE SCOTCHMER, INNOVATION AND INCENTIVES 137 (2004).

[38]*See* Chapter 7, Section III.A.

[39]H. M. Stickle v. Heublein, Inc., 716 F.2d 1550, 1563 (Fed. Cir. 1983); *see also*, King Instruments Corp. v. Perego, 65 F.3d 941, 951 n.6 (Fed. Cir. 1995) (listing "discretionary awards of greater than a reasonable royalty" as one response to the problem of inadequate reasonable royalty awards); *but see* Mahurkar v. C.R. Bard, Inc., 79 F.3d 1572, 1579-80 (Fed. Cir. 1996) (rejecting augmentation of a reasonable royalty damage award to cover litigation expenses).

[40]Maxwell v. J. Baker, Inc., 86 F.3d 1098, 1109-10 (Fed. Cir. 1996). The court also described the jury verdict as consistent with a reasonable royalty. *Id.* at 1110.

[41]Mark A. Lemley, *Distinguishing Lost Profits from Reasonable Royalties*, 51 WM. & MARY L. REV. 655, 666-67 (2009) (identifying the damages calculation in the *H.M. Stickle* and *Maxwell* cases as "problematic"); Brian J. Love, *The Misuse of Reasonable Royalty Damages as a Patent Infringement Deterrent*, 74 MO. L. REV. 909, 920 (2009) (criticizing *Maxwell* decision for allowing damage award that was double what a jury identified as a reasonable royalty).

agreed.[42] In *Golight, Inc. v. Wal-Mart Stores, Inc.*,[43] the Federal Circuit affirmed a reasonable royalty award that was nearly four times greater than the infringer's forecasted profit. The court explained that "'[t]here is no rule that a royalty be no higher than the infringer's net profit margin.'"[44] In *Monsanto v. McFarling* and *Monsanto v. Ralph*, the Federal Circuit affirmed a single use royalty rate that made it more expensive for a farmer to save infringing soybean seeds from crops that he grew and replant them than it would have been to buy new seeds and plant those.[45] Certainly a willing licensee farmer would reject that licensing offer and buy new seeds instead.[46]

The cases identify two concerns that may motivate courts to allow damage awards beyond what a willing licensor and licensee would have agreed to in a hypothetical negotiation: the counterfactual nature of the hypothetical negotiation and the insufficient deterrent to infringement provided by reasonable royalty damages. As described below, these concerns do

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[42]One commentator notes that "recent cases have highlighted that, as a legal matter, reasonable royalty awards may exceed the amount the parties would have agreed to" in the hypothetical negotiation. He explains that such "decisions make no economic sense." Cotter, *supra* note 36, at 1185 n.163 (*citing* Mars, Inc. v. Coin Acceptors, Inc., 527 F.3d 1359 (Fed. Cir. 2008)), Golight, Inc. v. Wal-Mart Stores, Inc., 355 F.3d 1327 (Fed. Cir. 2004), and Monsanto Co. v. Ralph, 382 F.3d 1374 (Fed. Cir. 2004)). *See also* Amy L. Landers, *Let the Games Begin: Incentives to Innovation in the New Economy of Intellectual Property Law*, 46 SANTA CLARA L. REV. 307, 347-354 (2006) (describing *Ralph* and *Golight* cases as ignoring constraints that the requirement of a willing licensor should place on damage awards); Love, *supra* note 41, at 918-19 (criticizing *Monsanto* cases for awarding inflated damages that were higher than the purchase price of seeds).

[43]355 F.3d 1327 (Fed. Cir. 2004).

[44]*Id.* at 1338 (*quoting* State Indus., Inc. v. Mor-Flo Indus., Inc., 883 F.2d 1573, 1580 (Fed. Cir.1989)) (rejecting defendant's contention that the royalty award "left Wal-Mart selling the accused product well below cost" and "should be capped at . . . Wal-Mart's profit forecast for the product," and explaining that defendant's evidence showed what it "might have preferred to pay, which is not the test for damages."). *See also Mars*, 527 F.3d at 1373 (stating "an infringer may be liable for damages . . . that exceed the amount that the infringer could have paid to avoid infringement" and rejecting counter-argument as "wrong as a matter of law"); Chapter 7, Section III.A (discussing *Mars* and the role of alternative technologies in the hypothetical negotiation).

[45]Monsanto Co. v. McFarling, 488 F.3d 973, 978-81 (Fed. Cir. 2007) (affirming $40 royalty per bag of soybean seed costing between $26 and $29); Monsanto Co. v. Ralph, 382 F.3d 1374, 1384 (Fed. Cir. 2004) (affirming royalties of $52-55 per bag of soybeans). The court applied the reasonable royalty damage award in both cases to every bag of infringing seed replanted over a two-year period of infringement. The royalty was based on a single planting of infringing seeds, so it did not encompass the right to save and grow multiple generations of seeds. Thus, the damages royalty is analogous to the purchase of a bag of seed and not an unlimited license to grow multiple generations of seed. *McFarling*, 488 F.3d at 977, 981; *Ralph*, 382 F.3d at 1383 (describing damage award of $52-55 per bag of saved seed as "reasonable royalties for licenses to save and replant for a single year").

[46]*See* additional discussion of *Ralph* in Section IV.A., *infra*.

not justify inflating the reasonable royalty award beyond the maximum amount a willing licensee would have paid, assuming a valid and infringed patent. Doing so can overcompensate patentees by awarding more than the economic value of the invention, which leads to the problems described in Chapters 2 and 4.

A. The Counterfactual Nature of the Hypothetical Negotiation

The case law and some commentators and panelists worry that, due to its counterfactual nature, the hypothetical negotiation is unreliable.[47] The Federal Circuit has characterized the notion of a voluntary agreement between parties in litigation as "absurd,"[48] and "a pretense that the infringement never happened."[49] Indeed, the fact that the parties have litigated the matter through trial is evidence of their inability to reach agreement on payments for use of the patented technology. These points are of course true, and they raise many practical issues for implementing the hypothetical negotiation, which are discussed in Chapter 7. Determining an accurate reasonable royalty award to fully compensate a patentee can be very difficult. But the fact that the parties litigated through trial rather than reaching a licensing agreement does not justify giving short shrift to the willing licensor/willing licensee model or inflating reasonable royalty damages beyond the economic value of the invention.

There are two reasons why the parties may have failed to reach agreement before trial where both otherwise would have been open to a licensing arrangement. Neither should undermine the hypothetical negotiation analysis. First, one or both parties could have had unrealistic expectations about the likely size of the reasonable royalty award. The patentee may overvalue the invention, or the infringer may undervalue it. Since one would expect a license in this situation but for one party's imperfect information, it is appropriate for the court to award a reasonable royalty based upon information offered by the parties about the value of the invention. It falls to the court to set the award based on the expectations of more realistic negotiators.[50]

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[47]Panelists worried about the ability of factfinders to implement the hypothetical negotiation. *See, e.g.*, Rooklidge at 157-58 (5/5/09) (discussing how results from mock trials suggested that juries were not constrained by the structure of the hypothetical negotiation in setting an award); Robinson at 146 (2/11/09) (asking "whether th[is] artificial legal construct really resonates to a typical juror"); Thomas at 146 (12/5/08) ("One of the big questions now is: Is th[e hypothetical negotiation] framework essentially useless?").

[48]Rite-Hite Corp. v. Kelley Co., 56 F.3d 1538, 1554 (Fed. Cir. 1995) (en banc).

[49]Panduit Corp. v. Stahlin Bros. Fibre Works, Inc., 575 F.2d 1152, 1158 (6th Cir. 1978).

[50]*See* Roger D. Blair & Thomas F. Cotter, *Rethinking Patent Damages*, 10 TEX. INTELL. PROP. L. J. 1, 76 (2001); Vincent E. O'Brien, *Economics and Key Patent Damages Cases*, 9 U. BALT. INTELL. PROP. L.J. 1, 27 (2000) (criticizing *Rite-Hite* for justifying a high royalty on the basis that the patentee did not wish to grant a license).

Second, even if the parties had similar views on the value of the invention, they may have had very different views on the validity and infringement of the patent that made them unable to compromise on a litigation risk discount for the reasonable royalty. Again, it appropriately falls to the court to resolve the patent merits and award damages based on ascertained validity and infringement.[51] The parties' failure to reach agreement in either circumstance does not make it necessary to supplement the hypothetical negotiation amount or award more than a willing licensee would pay (assuming validity and infringement) to fully compensate the patentee.

Another important source of courts' unease with the willing licensor/willing licensee model is a concern that the patentee would never accept the maximum royalty the infringer would have paid in a hypothetical negotiation. In some cases, courts have been willing to determine reasonable royalty damages based on what the patentee would have accepted with less concern for what the infringer would pay.[52] That might happen when the patentee could make more selling the invention exclusively than through licensing, but the patentee fails to prove lost profits or chooses not to. One treatise explains that "in the vast majority of damage cases today, the reasonable royalty *damages* awarded are rarely the 'floor' represented by a negotiated royalty."[53] The Federal Circuit, the treatise continues, "routinely affirms 'reasonable royalty awards' that are obviously well in excess of what the parties would have actually" negotiated.[54] Arguably, in these circumstances, the court considers a "reasonable royalty" as not just the award based on the hypothetical negotiation, but as "the money awarded to the patent owner (however it is computed)" in cases where "the patent owner is unable to prove actual damages (i.e. lost profits)."[55] One commentator posits that courts have expanded reasonable royalty damages beyond the hypothetical negotiation amount in order to adequately compensate patentees that fail to meet overly rigorous requirements for proving lost profits damages.[56]

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[51] *See, e.g.*, Lucent Techs., Inc. v. Gateway, Inc., 580 F.3d 1301, 1325 (Fed. Cir. 2009) ("The hypothetical negotiation also assumes that the asserted patent claims are valid and infringed.").

[52] See discussion of *Monsanto Co. v. Ralph*, *infra* notes 59-63.

[53] SKENYON et al., *supra* note 25, § 3:2 at 3-3.

[54] SKENYON et al., *supra* note 25, § 3:5 at 3-18. These include a number of cases in which the award was a substantial percentage of the revenues from the infringing sales. SmithKline Diagnostics, Inc. v. Helena Labs. Corp., 926 F.2d 1161, 1168 (Fed. Cir. 1991) (refusing to award a competing patentee lost profits but upholding a reasonable royalty award of 25% of the infringing product's sales price); Minco, Inc. v. Combustion Eng'g, Inc., 95 F.3d 1109, 1119 (Fed. Cir. 1996) (emphasizing that the patentee and infringer "competed head-to-head" in awarding reasonable royalty of 20% of the infringer's sales price for sales beyond 95% of the patentee's production capacity).

[55] SKENYON et al., *supra* note 25, § 3:2 at 3-3.

[56] Lemley, *supra* note 41, at 661-69. As discussed in Chapter 5, the law of lost profits must be flexible in allowing patentees to demonstrate the harm caused by infringement. Rigid rules that reject claims to lost profits damages based on a lack of precision in proving the amount of damages, rather than entitlement to them, undermines the ability of damages law to fully compensate patentees. *See id.* at 657-61.

Concerns about compensating unproven lost profits damages should not be allowed to inflate a reasonable royalty damage award beyond the maximum amount that a willing licensee would have paid. Arguments that the patentee would reject that maximum amount are based on an assumption that the patentee could have made more by not licensing, which means it sold a product. But if the patentee were better off selling or licensing the invention exclusively, it should be entitled to damages based on lost profits. When a patentee has failed or chosen not to prove its lost profits,[57] allowing amorphous or unproven claims of harm to override the hypothetical negotiation's requirement of a willing licensee risks damage awards that are unconnected to the economic value of the invention.[58] This result misaligns the patent system and competition policy by overcompensating patentees compared to a market absent infringement.

Monsanto v. Ralph[59] illustrates how reasonable royalty calculations that reject the requirement of a willing licensee can overcompensate patentees whose harm is better measured through lost profits. Monsanto developed and patented a series of "Roundup Ready" seeds that it sold to farmers with the restriction that they not save and replant harvested seeds. Ralph did just that, however, and infringed Monsanto's patents. Each time the farmer replanted a bag of saved seed, Monsanto and its distributors lost a sale. Thus, satisfying patent law's overarching goal of putting Monsanto in the position it would have been but for the infringement should have involved calculating its lost profits based on the number of saved bags.[60] In spite of this, Monsanto pursued, and the Federal Circuit affirmed, a reasonable royalty damage award of about $55 applied to each bag of saved infringing soybean seed. That royalty significantly exceeded the approximately $25 cost per bag of new seed, the amount a willing licensee would have paid and, presumably, any profits that Monsanto lost due to the infringement.[61]

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[57]One commentator has asserted that some patentees that have lost profits claims choose to pursue reasonable royalty damages in hope of a larger award. Lemley, *supra* note 41, at 667-68. "Reasonable royalty has now become the more prevalent measurement of damages." Levko at 19 (2/11/09); Aron Levko, *2009 Patent Damages Study: Preliminary Results* 9, presented at FTC Hearing: The Evolving IP Marketplace (Feb. 11, 2009), *available at* http://www.ftc.gov/bc/workshops/ipmarketplace/feb11/docs/alevko.pdf (reporting that reasonable royalties account for 54% of awards since 2000, an increase over prior years).

[58]Lemley, *supra* note 41, at 667-68 ("By importing compensation concepts from lost profits into the reasonable royalty context without importing the strict elements of proof, these courts have turned the reasonable royalty from a floor on patent damages designed to avoid undercompensation into a windfall that overcompensates patentees.").

[59]382 F.3d 1374 (Fed. Cir. 2004).

[60]Ralph did argue that lost profits were shown and those should have been the measure of damages. The court did not respond to this argument. *Id.* at 1383.

[61]*Id.* at 1377-79; *see* n.45, *supra*.

The court reached this result by accepting the "limits" of the hypothetical negotiation where Monsanto was unwilling to license farmers to save and replant seed "at any price."[62] Those limits freed the court to affirm a reasonable royalty award without concern for whether a willing licensee would have paid it.[63] But the impossibility of identifying a bargain between a willing licensor and willing licensee in this case stems not from a flaw in the hypothetical negotiation framework, but from the fact that lost profits are the more appropriate measure of damages for patentees that wish to market their inventions exclusively rather than license them.

In at least one case, *Rodime v. Seagate*,[64] the Federal Circuit rejected a patentee's attempt to incorporate unproven direct harm into a reasonable royalty calculation. The patentee, Rodime, sought consequential business damages beyond the reasonable royalty amount. The patentee argued that the infringer's refusal to take a license deprived it of a revenue stream that would have prevented bankruptcy. The court explained that allowing both consequential business damages and reasonable royalty damages would be improper: "The 'consequential damages' Rodime [the patentee] seeks are merely a species of lost profits. Having elected to pursue only a reasonable royalty, Rodime cannot, in the district court's words, 'bootstrap evidence of its lost profits back into the case by reference to 'reasonable royalties.'"[65] Courts should not allow such "bootstrapping" to support reasonable royalty awards beyond what a willing licensee would pay in the hypothetical negotiation.

B. Deterrents to Infringement

Closely related to the concern about the counterfactual nature of the hypothetical negotiation is the worry that reasonable royalty damages do not deter infringement, but rather allow a patentee's competitor to simply "elect[] to infringe" and thereby "impose a 'compulsory license.'"[66] The case law explains that "the infringer would have nothing to lose, and everything to gain [from choosing to infringe] if it could count on paying only the normal, routine royalty

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[62] *Id.* at 1384.

[63] Ralph argued that the reasonable royalty awarded exceeded his anticipated profits and violated the hypothetical negotiation framework. The Federal Circuit rejected that argument: "[A]lthough an infringer's anticipated profit from use of the patented invention is among the factors to be considered in determining a reasonable royalty, the law does not require that an infringer be permitted to make a profit." *Id.* at 1383.

[64] 174 F.3d 1294 (Fed. Cir. 1999).

[65] *Id.* at 1308.

[66] Panduit Corp. v. Stahlin Bros. Fibre Works, Inc., 575 F.2d 1152, 1158 (6th Cir. 1978).

non-infringers might have paid."[67] Some cases contain overtones of punishing infringers[68] even though compensatory damages for the strict liability offense of infringement are not meant to be punitive. This argument ignores several other deterrents to infringement incorporated within the patent system, and it presents an inappropriate reason to inflate reasonable royalty awards beyond the market reward for the invention.[69]

First, the argument incorrectly assumes that damages following trial will be the "normal, routine royalty." The law, however, requires that the hypothetical negotiation amount incorporate the assumption that the patent is valid and infringed.[70] Therefore, a reasonable royalty should be higher following trial than it would have been before because uncertainties regarding liability have been resolved. Regular licensees would have bargained for a royalty rate reflecting a discount for the probability that they would not have been found liable. The higher royalty paid following litigation will provide some deterrent to infringement and encourage settlement. The cases sometimes call for an "infringer's royalty."[71] A royalty that is higher than established rates because liability is ascertained is appropriate, but inflating damage awards for other reasons unrelated to economic proof is not.

Second, the primary mechanism for deterring intentional infringement is the award of enhanced damages and attorneys fees for willful infringement, which target only intentional and not inadvertent infringement.[72] Attempts to adjust compensatory damages to increase their deterrence value risks making such damages punitive, which is inappropriate for the strict liability offense of infringement in a patent system that suffers from significant uncertainty and

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[67]H.M, Stickle v. Heublein, Inc., 716 F.2d 1550, 1563 (Fed. Cir. 1983) (*quoting Panduit*, 575 F.2d at 1158).

[68]*Ralph*, 382 F.3d at 1384 ("the 'imposition on a patent owner who would not have licensed his invention for [a given] royalty is a form of compulsory license, against the will and interest of the person wronged, in favor of the wrongdoer'") (*quoting Rite-Hite*, 56 F.3d at 1554 n.13) (en banc).

[69]*See generally* Love, *supra* note 41.

[70]*See, e.g.*, Lucent Techs., Inc. v. Gateway, Inc., 580 F.3d 1301, 1325 (Fed. Cir. 2009) ("The hypothetical negotiation also assumes that the asserted patent claims are valid and infringed.").

[71]King Instruments Corp. v. Perego, 65 F.3d 941, 951 n.6 (Fed. Cir. 1995) ("Such an increase, which may be stated by the trial court either as a reasonable royalty for an infringer . . . or as an increase in the reasonable royalty determined by the court, is left to its sound discretion.") (*quoting H.M. Stickle*, 716 F.2d at 1563).

[72]*In re* Seagate Tech., LLC, 497 F.3d 1360, 1371 (Fed. Cir. 2007) (en banc) ("[T]o establish willful infringement, a patentee must show by clear and convincing evidence that the infringer acted despite an objectively high likelihood that its actions constituted infringement of a valid patent . . . . If this threshold objective standard is satisfied, the patentee must also demonstrate that this objectively-defined risk . . . was either known or so obvious that it should have been known to the accused infringer.").

lack of notice. That result could lead to the market distortions of overcompensation discussed in Chapters 2 and 4 and deter innovation by potential targets of infringement suits.

Third, other significant costs and risks of infringement deter intentional infringement and provide motivation to avoid inadvertent infringement. Infringement can lead to substantial litigation costs, including potentially onerous discovery demands and business uncertainty.[73] Moreover, the threat of an injunction provides an especially significant deterrent to knowing infringement. If an adjudged infringer has sunk costs into research and development, or a plant and equipment, to produce the infringing product, it risks losing that investment if it cannot obtain a license.[74]

Some participants raised the concern that, in the wake of the Supreme Court's *eBay, Inc. v. MercExchange, LLC*[75] decision, permanent injunctions will no longer be available to firms that do not practice their patents, and therefore provide less of a deterrent to infringement.[76] As discussed in Chapter 8 and Appendix B, a careful review of the cases demonstrates that the injunction analysis is more refined and nuanced than this argument suggests, allowing non-manufacturing patent owners to obtain injunctions in many scenarios.[77] Moreover, Chapter 8 advocates an injunction analysis that supports the deterrence value of injunctions. Thus, the change in injunction law brought by *eBay* and other concerns that reasonable royalty damages do not deter infringement cannot justify awarding damages beyond the amount resulting from the hypothetical negotiation analysis.

V. CONCLUSION AND RECOMMENDATION

The construct of a hypothetical, voluntarily negotiated agreement is widely used in reasonable royalties determinations. Several panelists agreed that it was a "useful tool,"[78] and perhaps there is no "alternative that is any better."[79] The willing licensor/willing licensee model can provide a patentee with the market reward based on the economic value of the invention by

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[73]Rooklidge at 180 (5/5/09).

[74]*See* Chapter 8, Section IV.B.

[75]547 U.S. 388 (2006).

[76]Innovation Alliance Comment at 10 (2/5/09); Maghame at 233 (2/11/09) (representative of R&D firm expressing concern "that injunctions may no longer be available in a lot of instances"); Lasersohn at 183-84 (2/11/09) (venture capitalist representative stating that "the fact that injunctive relief is less available is a huge issue for us").

[77]*See* Chapter 8, Section II.B. *See also eBay*, 547 U.S. at 393 (explicitly warning against an analysis that would automatically deny injunctions to patentees that do not practice the invention).

[78]Underweiser at 219-21 (2/11/09); *see also* Cotter at 41 (2/11/09).

[79]Loeb at 224-25 (2/11/09); Lasersohn at 232 (2/11/09); O'Brien at 174 (5/5/09).

determining the bargain the parties would have struck in light of competition from alternatives. Admittedly, the calculation is difficult due to its hypothetical nature. But as discussed in Chapter 7, courts and the parties can bring greater economic discipline to this analysis, thereby enhancing its usefulness as a tool for determining the market reward.

> ***Recommendation.*** The Commission recommends that courts award reasonable royalty damages consistent with the hypothetical negotiation analysis and willing licensor/willing licensee model. Concerns about punishing infringement, deterring infringement, the counterfactual nature of the analysis or unproven lost profits that the patentee may have suffered should not inflate the reasonable royalty damage award beyond what a willing licensee would have paid for a patent known to be valid and infringed. Doing so risks awarding patentees more than the economic value of their inventions compared to alternatives and creating problems of overcompensation and market distortion.

CHAPTER 7
CALCULATING REASONABLE ROYALTY DAMAGES

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I. INTRODUCTION

The goal of a reasonable royalty damages calculation is to replicate the market reward (assuming a valid and infringed patent) for the invention in the absence of infringement for a patentee that would not have, or cannot prove that it would have, made the infringer's sales. As discussed in Chapter 6, the proper measure of damages in this case depends on what a willing licensee and licensor would have agreed to in a hypothetical negotiation.

Accurately calculating reasonable royalty damages based on a hypothetical negotiation presents numerous challenges for litigants and courts. An economically grounded approach that reflects an appreciation of the role of competition in establishing the economic value of an invention would increase the accuracy of that determination. Such analysis is important for avoiding undercompensation of patentees, which can undermine incentives to innovate and discourage innovation models based on technology transfer, as described in Chapter 1. Accurate damage determinations are also important for avoiding overcompensation of patentees, which can distort competition among technologies and deter innovation by raising costs and risks for innovators, as described in Chapters 2 and 4. This Chapter suggests several steps courts should take to increase the accuracy of reasonable royalty damage awards. They include: treating the *Georgia-Pacific* factors appropriately; recognizing that alternatives cap the royalty a willing licensee would pay; excluding unreliable expert testimony from evidence; and eliminating the entire market value rule.

II. OVERVIEW OF THE GEORGIA-PACIFIC FACTORS AND THEIR IMPLEMENTATION

A. The Factors

Awards of reasonable royalty damages typically have been based on a list of 15 factors identified by the district court in the *Georgia-Pacific* case.[1] Factor 15 is the hypothetical negotiation amount and the other 14 factors list categories of evidence. The factors are:

1. The royalties received by the patentee for the licensing of the patent in suit, proving or tending to prove an established royalty.

2. The rates paid by the licensee for the use of other patents comparable to the patent in suit.

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[1]Georgia-Pacific Corp. v. United States Plywood Corp., 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970), *modified and aff'd*, 446 F.2d 295 (2d Cir. 1971); *see also* JOHN M. SKENYON, CHRISTOPHER S. MARCHESE & JOHN LAND, PATENT DAMAGES LAW AND PRACTICE § 3:6, at 3–25 (2008) (hypothetical negotiation is "almost always" based on *Georgia-Pacific* factors).

3. The nature and scope of the license, as exclusive or non-exclusive; or as restricted or non-restricted in terms of territory or with respect to whom the manufactured product may be sold.

4. The licensor's established policy and marketing program to maintain his patent monopoly by not licensing others to use the invention or by granting licenses under special conditions designed to preserve that monopoly.

5. The commercial relationship between the licensor and licensee, such as, whether they are competitors in the same territory in the same line of business; or whether they are inventor and promoter.

6. The effect of selling the patented specialty in promoting sales of other products of the licensee; that existing value of the invention to the licensor as a generator of sales of his non-patented items; and the extent of such derivative or convoyed sales.

7. The duration of the patent and the term of the license.

8. The established profitability of the product made under the patent; its commercial success; and its current popularity.

9. The utility and advantages of the patent property over the old modes or devices, if any, that had been used for working out similar results.

10. The nature of the patented invention; the character of the commercial embodiment of it as owned and produced by the licensor; and the benefits to those who have used the invention.

11. The extent to which the infringer has made use of the invention; and any evidence probative of the value of that use.

12. The portion of the profit or of the selling price that may be customary in the particular business or in comparable businesses to allow for the use of the invention or analogous inventions.

13. The portion of the realizable profit that should be credited to the invention as distinguished from non-patented elements, the manufacturing process, business risks, or significant features or improvements added by the infringer.

14. The opinion testimony of qualified experts.

15. The amount that a licensor (such as the patentee) and a licensee (such as the infringer) would have agreed upon (at the time the infringement began) if both had been reasonably and voluntarily trying to reach an agreement.

This list has become "virtually codified" by the Federal Circuit, and serves as a "touchstone" for expert testimony and courts reviewing an award.[2] As one commentator observed, "some courts described the law governing so-called 'reasonable royalty' damages solely by reference to the *Georgia-Pacific* list."[3] Courts frequently cite the district court decision as authoritative.[4] Indeed, standard jury instructions often recite a list of all or nearly all of these factors.[5] Expert witnesses often structure testimony around them, and may feel compelled to opine on each factor to protect their overall assessment from attack.[6]

B. Reactions to the *Georgia-Pacific* Factors

Several panelists and commentators strongly supported the prominence of the *Georgia-Pacific* factors in calculating reasonable royalty damages.[7] They identified the factors' flexibility

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[2]RICHARD F. CAULEY, WINNING THE PATENT DAMAGES CASE: A LITIGATOR'S GUIDE TO ECONOMIC MODELS AND OTHER DAMAGE STRATEGIES 6–7 (2009).

[3]JOHN W. SCHLICHER, PATENT LAW: LEGAL AND ECONOMIC PRINCIPLES § 13:146 (1992).

[4]*See, e.g.*, Minks v. Polaris Indus., Inc., 546 F.3d 1364, 1372 (Fed. Cir. 2008) ("A determination of the royalty stemming from a hypothetical negotiation is often made by assessing factors such as those set forth in *Georgia-Pacific* . . . .").

[5]*See, e.g.*, Skenyon at 103 (2/11/09); Mitchell G. Stockwell, *Implementing eBay: New Problems in Guiding Judicial Discretion and Enforcing Patent Rights*, 88 J. PAT. & TRADEMARK OFF. SOC'Y 747, 759 n.58 (2006) ("Many standard jury instructions for determining a reasonable royalty reference the multi-factor test set forth in *Georgia-Pacific* . . . ."); *see also* Pattern Jury Instructions: Fifth Circuit, Civil Cases § 9.8 (Comm. on Pattern Jury Instructions Dist. Judges Ass'n Fifth Circuit 2006) (*citing* the *Georgia-Pacific* factors) *available at* http://www.lb5.uscourts.gov/juryinstructions/fifth/2006CIVIL.pdf; Uniform Jury Instructions for Patent Cases in the United States District Court for the District of Delaware Instruction 6.11 (1993) (Factors for Determining Reasonable Royalty) (repeating the *Georgia-Pacific* factors); Am. Intell. Property Law Ass'n, Model Patent Jury Instructions, 45–47 (listing substantially all of the *Georgia-Pacific* factors and "[a]ny other economic factor that a normally prudent business person would, under similar circumstances, take into consideration in negotiating the hypothetical license."). *But cf.* Model Patent Jury Instructions for the Northern District of California (Nov. 29, 2007), *available at* http://www.cand.uscourts.gov/filelibrary/5/Model-Patent-Jury-Instructions.pdf (citing *Georgia-Pacific* but not listing factors and advising jury to use the general hypothetical negotiation framework applying the evidence presented).

[6]Brian C. Riopelle, *Direct and Cross-examination of a Damages Expert*, 766 PLI/Pat 781, 806 (2003) (to "bolster [a damages expert's] credibility . . . he should say he considered all the factors set forth in the *Georgia-Pacific* case").

[7]Loeb at 180 (2/11/09); Johnson at 244 (2/11/09); Rhodes at 166 (2/11/09); PhRMA Comment at 16 (2/10/09); Innovation Alliance Comment at 11 (2/5/09) ("*Georgia-Pacific* simply restated the basic principles and methodology that have historically guided courts in matters of patent damages . . . . [They] are rooted in well-established (and arguably incontrovertible) legal and economic principles of compensatory damages generally.").

as an important benefit.[8] The conditions under which parties enter licensing negotiations vary tremendously, and flexibility is important in properly considering them.[9] The discussions of technology transfer licensing in Chapter 1 and ex post licensing in Chapter 2 illustrate how licensing covers an extremely diverse range of technology and economic conditions. Several panelists agreed that the *Georgia-Pacific* factors allow consideration of issues that would govern real-world negotiations in a variety of contexts. For instance, one panelist praised the *Georgia-Pacific* factors as "mirror[ing] a lot of the considerations that take place in actual licensing negotiations," and "replicat[ing] what type of dynamic there would be between the patent holder and one wanting to use the patented invention."[10]

Other panelists, however, were highly critical of the *Georgia-Pacific* case and the manner in which the factors are used in litigation today.[11] In particular, many argued that the list of factors provides little or no guidance to juries.[12] One panelist stated, "the judge throws the grab bag with all the factors to the jury and says, 'Do what you think is right.'"[13] Another explained, "*Georgia-Pacific* provides a list of sometimes overlapping factors (the 'GP factors'), without giving a framework in which to evaluate those factors."[14]

The lack of guidance and framework in the *Georgia-Pacific* approach creates two related problems, according to panelists. First, it permits the patentee to introduce or emphasize information that leads the jury away from an economically grounded analysis based on facts that

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[8]Maghame at 234 (2/11/09) ("you need the flexibility to do a market based evaluation"); Burton at 77, 94 (2/11/09); Levko at 137 (2/11/09); Gauri Prakash-Canjels, Ph.D. Comment at 3 (4/16/09).

[9]Innovation Alliance Comment at 11 (2/5/09) (flexibility is needed so that "courts and juries . . . [can] consider any and all evidentiary factors that would have been deemed relevant by the parties in a hypothetical negotiation"); Lasersohn at 231 (2/11/09) (experts rely on the *Georgia-Pacific* factors because determining economic value is "complicated," varying according to company, competitor, and economic environment); Loeb at 225 (2/11/09).

[10]Rhodes at 237-38 (2/11/09); *id.* at 166 ("the 15 *Georgia-Pacific* factors really do replicate [] real world licensing negotiation"); Johnson at 243-44 (2/11/09) (In negotiating hundreds of licenses per year, one panelist's firm uses "methodologies that are very much like the *Georgia-Pacific* factors.").

[11]Schlicher at 201 (5/5/09) (characterizing the case as a "historical tragedy"); Simon at 243 (2/11/09) (observing that the Second Circuit reduced the award since the *Georgia-Pacific* district court had failed to leave an appropriate profit for the infringer).

[12]Leonard at 47 (2/11/09) (calling the *Georgia-Pacific* factors a "grab bag"); Levine at 37, 132 (2/11/09); Simon at 200 (2/11/09); Chaikovsky at 195 (5/5/09) (describing "the *Georgia-Pacific* factors where I have so many factors and anyone can kind of pick or choose"); Verizon Comment at 8 (3/20/2009).

[13]Janicke at 15 (2/11/09).

[14]NERA Economic Consulting Comment at 18 (3/9/09).

would have informed the licensing decision.[15] One panelist drew a distinction between the facts necessary to support lost profits and reasonable royalty damages: "[L]ost profits tend[] to be constrained by the facts, and reasonable royalty isn't constrained by the facts, but by the imagination of the expert witness."[16] Second, the lack of guidance leads to "basically a free for all"[17] in which juries may render highly unreliable awards[18] that courts may not be able to overturn, given deferential standards for reviewing jury verdicts.[19] One academic stated, "the *Georgia-Pacific* factors . . . can be so easily manipulated by the trier of fact to reach virtually any outcome."[20]

C. The Role of the *Georgia-Pacific* Factors

Courts can improve reasonable royalty damages calculations by emphasizing the hypothetical negotiation and willing licensor/willing licensee model as the conceptual framework against which conduct of the damages trial should be tested.[21] The first fourteen *Georgia-Pacific* factors do not supply that conceptual framework. Rather, they are properly understood as a non-

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[15]Schlicher at 202 (5/5/09) (emphasizing that the *Georgia-Pacific* factors permit evidence on the infringer's total profits and revenue); *see also* O'Brien at 205 (5/5/09) (*Georgia-Pacific* "emphasi[zes] [] the profitability of the product" even though "the value of a component has little to do with the profitability of the product"). *Cf.* Rooklidge at 192 (5/5/09) (emphasizing the substantial prejudicial impact of permitting evidence on the "company's gross revenues or market capitalization").

[16]McKelvie at 193-94 (12/5/09).

[17]Reines at 82 (2/11/09).

[18]Doyle at 209 (5/5/09) (declaring that "*Georgia-Pacific* is notoriously empty of any real meaning here. It certainly hasn't led to predictability of results.").

[19]*See infra* Section IV.B (describing standards of review for jury verdicts).

[20]Cotter at 39 (2/11/09); *see also* Schlicher at 201 (5/5/09) ("Any rule that says consider 15 things and anything else you think is relevant and arrive at a number permits any number."); Simon at 200 (2/11/09) ("[W]hatever a jury comes back [with] can be supported . . . because you can choose all, some or none of those 15 factors.").

[21]Several panelists and commentators suggested the need for a conceptual economic framework to guide reasonable royalty calculations. *See, e.g.*, O'Brien at 205 (5/5/09) ("it would be much better having a conceptual framework . . . as opposed to this list"); Agisim at 254-55 (2/11/09) ("ultimately . . . you need to create an objective standard"); 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, 46 (2009) ("Factors are useless without a coherent theory of reasonable royalty damages that enables judges and juries to understand what they are trying to accomplish by an award and how to go about doing so."); Levine at 37 (2/11/09) (suggesting courts consider "governing principles"); Leonard at 37 (2/11/09) ("What we really need is a framework, a conceptually sound and coherent framework that lays out . . . how you do it, and the valuation principles.").

exhaustive list of categories of evidence potentially relevant to computing a reasonable royalty.[22] Evidence within one of these categories may or may not be useful in proving the willing licensor/willing licensee amount in any particular case.

An increased emphasis on the hypothetical negotiation, with its requirement of a willing licensee,[23] and a better appreciation for the appropriate role of the *Georgia-Pacific* factors will have practical consequences that courts should implement. First, courts should make damages determinations as the trier of fact or review the sufficiency of jury determinations with a focus on what a willing licensee and licensor would have agreed to in the hypothetical negotiation. Second, as further discussed in section IV of this Chapter, courts should not treat evidence as reliable and admissible only because it falls into one of the *Georgia-Pacific* categories. Third, courts should aid juries with instructions that focus attention on the hypothetical negotiation, including the requirement of a willing licensee, as the touchstone for their determination. When jury instructions present a complete or partial list of the *Georgia-Pacific* factors, they provide little guidance. Simply admitting evidence that corresponds to any of the *Georgia-Pacific* categories and charging the jury to use it to come up with a royalty can lead to confusion for juries in making awards[24] and difficulty for courts in reviewing them.[25]

The wide variety of fact scenarios to which the hypothetical negotiation model may apply counsels for a flexible approach when identifying evidence that may inform that determination. However, flexibility must be combined with a framework for testing and using the available evidence. Without such discipline, the *Georgia-Pacific* factors provide a grab bag for use by parties seeking to establish whatever reasonable royalty serves their purposes. Their competing claims may bear little or no relationship to each other or to a credible effort to implement the hypothetical negotiation model.[26] Many courts and parties already apply this discipline, but broader application would help increase the accuracy of reasonable royalty damage awards.

> ***Recommendation.*** Courts should consistently adopt and apply the hypothetical negotiation and willing licensor/willing licensee model as the conceptual framework against which conduct of the damages trial is tested. In particular,

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[22] *See infra* Section II.A for a review of the *Georgia-Pacific* factors.

[23] *See* Chapter 6.

[24] Levine at 37 (2/11/09) ("Sometimes the grab bag of factors is simply presented to the jury, and the jurors have to figure out or sort of divine from that what kind of reward to give.").

[25] Daralyn J. Durie & Mark A. Lemley, *A Structured Approach to Calculating Reasonable Royalties*, 14 LEWIS & CLARK L. REV. 627, 632 (2010) ("the fifteen-factor test makes it extremely difficult for judges to review a jury damage award for substantial evidence, either on judgment as a matter of law (JMOL) or on appeal").

[26] Schlutz at 132 (5/5/08) ("you'll have these experts on the plaintiff side versus the defense side and sometimes the difference in their valuation will be a thousandfold").

courts should recognize that the first fourteen *Georgia-Pacific* factors provide only a list of evidence categories. Implementing this recommendation will have a variety of practical consequences.

III. THE ROLE OF ALTERNATIVE TECHNOLOGIES

The hypothetical negotiation's assumption of a willing buyer and willing seller depends on the existence of royalty rates that are acceptable to both parties. From the patentee's perspective, the damages must at least cover income that would have been earned but for the infringement.[27] From the infringer's point of view, the maximum royalty cannot exceed the increased profits the infringer anticipates based on using the patented invention rather than the next best alternative.[28] A willing licensee and willing licensor would typically reach a price somewhere within this bargaining range, leaving both to profit from the agreement.[29] Even if that is not the case and the licensee pays the bargaining range's maximum amount, competition from alternative technologies plays an important role in establishing the maximum reasonable royalty. Damages determinations that do not give sufficient weight to competition from alternatives risk overcompensating patentees and distorting competition, as discussed in Chapters 2 and 4.

A. Competition from Alternatives Defines a Cap for Reasonable Royalty Damages

In many instances, technologies compete for incorporation into new products, as discussed in Chapters 1 and 2. Product designers choose technologies based in part on technical advantages, consumers' willingness to pay, and costs, some of which may include patent royalties. For some non-core technologies, a high-tech firm "almost invariably ha[s] another option at the time" of its "design decision," which it would choose if a patentee's royalty demand

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[27]It may be that a patentee is only willing to accept an amount that is more than the infringer would pay because the cost of the infringement in terms of lost profits or other direct damages is high. In that case, the patentee should receive lost profits damages rather than an inflated reasonable royalty damages, as discussed in Chapters 4 and 6.

[28]RICHARD B. TROXEL & WILLIAM O. KERR, CALCULATING INTELLECTUAL PROPERTY DAMAGES § 5:18 at 269 (2009) (determining the value of the patented technology requires a comparison of "the gains that the infringer expects to receive from using the infringing technology with the gains that would have been available had the infringer gone forward with the next-best noninfringing alternative").

[29]*See, e.g.*, Gregory K. Leonard & Lauren J. Stiroh, *A Practical Guide to Damages, in* ECONOMIC APPROACHES TO INTELLECTUAL PROPERTY POLICY, LITIGATION AND MANAGEMENT 52-58 (Gregory K. Leonard & Lauren J. Stiroh eds., 2005); *cf.* Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEX. L. REV. 1991, 1995-96 (2007) (analyzing the negotiation of reasonable royalties under various conditions "[u]sing the standard economic theory of Nash bargaining, [in which] the negotiated royalty rate depends upon the payoff that each party would obtain if the negotiations break down, i.e., on each party's threat point in the licensing negotiations").

was excessive.[30] When substitute technology is not available, a product designer may leave the patented feature off its product if revenues attributable to the feature do not justify the royalty demand.[31] Thus, at the time a company is designing a product, the incremental value that a patented technology provides over alternatives (including an alternative product that lacks the patented feature) constrains the royalty.[32] The most a company would be willing to pay for patented technology is the incremental value (i.e., the incremental profit) of the patented technology over the alternative.

Because the incremental value of patented technology over alternatives plays such a crucial role in licensing negotiations, it must play a commensurate role in the hypothetical negotiation that determines reasonable royalty damages. Commentators explain that evaluating the available alternatives is "[e]conomically . . . crucial to establishing what the parties would have agreed to" in the hypothetical negotiation.[33] Indeed, with "sufficient data" the alternative "can be incorporated directly into determining the licensee's maximum willingness to pay."[34] Academics,[35] practitioners,[36] economists,[37] and business representatives[38] acknowledged the

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[30]Simon at 202-03 (2/11/09) .

[31]O'Brien at 173-74 (5/5/09); Fresenius Med. Care Holdings, Inc., v. Baxter Int'l., Inc., No. C 03-01431, 2006 WL 1646113, at *2 (N.D. Cal. June 12, 2006) (allowing evidence that the infringer could have successfully competed without the patented feature, and therefore would not have been willing to pay a high royalty).

[32]Lance E. Gunderson, Stephen E. Dell & Scott W. Cragun, *The "Analytic Approach" as a Technique to Determine a Reasonable Royalty*, *in* ECONOMIC DAMAGES IN INTELLECTUAL PROPERTY: A HANDS-ON GUIDE TO LITIGATION 181, 182 (Daniel Slottje ed., 2006) ("Generally, the maximum royalty amount that licensee would be willing to pay is the excess profit licensee would expect to earn from the infringing products over the return from its [next best alternative].").

[33]Peter B. Frank, Vincent E. O'Brien & Michael J. Wagner, *Patent Infringement Damages*, *in* LITIGATION SERVICES HANDBOOK: THE ROLE OF THE FINANCIAL EXPERT Ch. 22 at 16 (Roman L. Weil, Peter B. Frank, Christian W. Hughes & Michael J. Wagner eds., 2007).

[34] Leonard & Stiroh, *supra* note 29, at 63-64.

[35]Cotter at 138 (12/5/09) ("hypothetical bargain . . . should wind up reflecting the expected value of the patented technology in comparison to the next best alternative"); Janicke at 42 (2/11/09) (proposing "the value added by a particular patent" as the best criterion for reasonable royalties).

[36]Schlicher, at 230-31 (5/5/09) ("damages ought to be the difference between the profits that a company would have made selling a PDA with that memory chip minus the profits the company would have made . . . using the next-best kind of memory chip it would have"); *cf.* Rooklidge at 180 (5/5/09) (suggesting that "comparing the infringing product to the next-best alternative may very well work in the vast majority of cases, but in some cases there may be alternate evidence that's available").

[37]Gilbert at 221 (5/5/09) (central inquiry is "the incremental contribution [of the patented technology] relative to the next-best noninfringing alternative"); Leonard at 127 (2/11/09) (describing how to estimate

importance of the value of the patented technology over alternatives to a reasonable royalty damages analysis.

Recognizing the key economic role of alternatives does not undermine the flexibility of an analysis that considers a broad range of factors, including the relevant *Georgia-Pacific* factors. Some panelists argued that value over alternatives should not become a "single factor" test that unduly inhibits the flexibility of *Geogia-Pacific*.[39] However, the value of patented technology over alternatives determines only the upper end of a bargaining range, whose lower end is determined by the amount that the licensor is willing to accept.[40] Other factors, including the *Georgia-Pacific* factors, may be relevant in constructing the bargaining range and establishing a royalty within it.[41]

1. Case Law Addressing Alternatives

Georgia-Pacific factor nine allows consideration of alternatives.[42] The Federal Circuit has recognized that alternatives represent "a factor relevant to the determination of a proper royalty during hypothetical negotiations," explaining that an infringer would be in "a stronger position to negotiate for a lower royalty rate knowing it had a competitive device 'in the

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"the incremental value that the patented technology gives you as the infringer"); O'Brien at 174 (5/5/09) (opining that "it's not necessarily the maximum, but it's a benchmark").

[38]PhRMA Comment at 20 (2/10/09); Verizon Communications, Inc. Comment at 9 (3/20/09); Johnson at 268 (2/11/09) (a pharmaceutical company representative endorsing "compar[ing] [an invention] with its closest non-infringing alternate").

[39]Burton at 133 (2/11/09); *see also id.* at 77 (2/11/09) (expressing concern about "proposals that put a single factor first or make that the primary one," emphasizing that each case is "different, and it's really important to be flexible in your analysis"); Rhodes, at 238-39 (2/11/09) (pointing out that the *Georgia-Pacific* factors include consideration of the added benefit of the patented invention as compared to prior products, but do constrain the analysis); Lasersohn at 230-32 (2/11/09); Maghame at 258 (2/11/09).

[40]*See, e.g.*, Leonard & Stiroh, *supra* note 29, at 52 (explaining that a reasonable royalty "must be one in which both sides benefit from the bargain").

[41]NERA Economic Consulting Comment at 16 (3/9/09) (describing ways to "determine where within the range the negotiated royalty would fall"); Leonard & Stiroh, *supra* note 29, at 60 (suggesting that some *Georgia-Pacific* factors may be used to assess bargaining power and thus where within the bargaining range the final royalty would lie).

[42]*Georgia-Pacific*, 318 F. Supp. at 1120 ("The utility and advantages of the patent property over the old modes or devices, if any, that had been used for working out similar results.").

wings.'"[43] Some district courts have also acknowledged the importance of alternatives to the reasonable royalty analysis.[44]

A leading case is *Grain Processing Corp. v. American Maize-Products Co.*[45] The district court, Judge Frank Easterbrook sitting by designation, held that the cost difference between using the patented technology and an alternative "effectively capped the reasonable royalty award" since if the patentee "had insisted on a [greater] rate. . . in the hypothetical negotiations" the infringer would have adopted the alternative technology.[46] Judge Easterbrook's award of a three percent royalty represented his "best estimate" of what the parties would have reached in light of the 2.3% cost saving from the patented technology as well as other cost savings associated with a hypothetical license agreement.[47]

The parties did not appeal the royalty amount, so the Federal Circuit did not review it. However, the appeals court stated that Judge Easterbrook "supported [the] royalty amount with

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[43]Zygo Corp. v. Wyko Corp., 79 F.3d 1563, 1571-72 (Fed. Cir. 1996); *see also* Total Containment, Inc. v. Environ Products, Inc., Nos. 96-1138, 96-1151, 1997 WL 16032 (Fed. Cir. Jan. 17, 1997) (unpublished opinion) (observing that "when faced with an unreasonably high license fee for patented technology, the market players ordinarily opt for " the technology).

[44]SmithKline Diagnostics, Inc. v. Helena Laboratories Corp., No. Civ.A. B-83-10, 1989 WL 418791, at *6 (E.D. Tex. June 30, 1989) (a willing licensee "would be less inclined to agree to a high royalty because of the availability of such non-infringing alternatives"); Novozymes A/S v. Genencor Int'l, Inc., 474 F. Supp. 2d 592, 607 (D. Del. 2007) (parties "would consider available, or soon to be available, alternatives" in agreeing to a royalty); *Fresenius*, 2006 WL 1646113, at *2 (alternatives are "a key part" of damages determination); Cardiac Pacemakers, Inc. v. St. Jude Medical, Inc., No. IP 96-1718-C-H/K, 2002 WL 1801525, at *74 (S.D. Ind. July 5, 2002) (an important factor to consider), *aff'd in part, rev'd in part, and remanded*, 381 F.3d 1371 (Fed. Cir. 2004), *vacated*, 315 Fed. Appx. 273 (Fed. Cir. 2009).

[45]185 F.3d 1341, 1350-51 (Fed. Cir. 1999). This decision was the last in a series addressing the proper remedy in the case. *See* Grain Processing Corp. v. American Maize-Products Co., 893 F. Supp. 1386 (N.D. Ind. 1995) (finding infringement, denying lost profits, and awarding a reasonable royalty), *aff'd in part, vacated in part*, 108 F.3d 1392 (Fed. Cir. 1997) (nonprecedential) (reversing and remanding the denial of lost profits), *further decision on remand*, 979 F. Supp. 1233 (N.D. Ind. 1997) (again denying lost profits and awarding a reasonable royalty), *aff'd*, 185 F.3d 1341 (Fed. Cir. 1999) (affirming the denial of lost profits).

[46]*Id.* at 1347 (describing the district court's reasoning regarding a reasonable royalty). *See also Grain Processing*, 893 F. Supp. at 1392-93.

[47]*Grain Processing*, 893 F. Supp. at 1392-93. The benefits of the license included eliminating the risk that the alternative might have turned out to infringe the patent, which had happened in the infringer's initial attempts to design around the patent. *Id.* Judge Easterbrook also cited evidence of comparable royalties and emphasized that "[a]s the infringer, AMP must bear the effects of uncertainty" resulting from the lack of more detailed cost evidence. *Id.*

sound economic data and with actual, observed behavior in the market."[48] The Federal Circuit also explained (in affirming a denial of a lost profit award) that "only by comparing the patented invention to its next-best available alternative(s) – regardless of whether the alternative(s) were actually produced and sold during the infringement – can the court discern the market value of the patent owner's exclusive right, and therefore his expected profit or reward, had the infringer's activities not prevented it from taking full economic advantage of this right."[49]

In spite of its comments in *Grain Processing*, the Federal Circuit more recently suggested that alternatives do not cap reasonable royalty damage awards. In *Mars, Inc. v. Coin Acceptors, Inc.*,[50] the court stated in dicta that it "is wrong as a matter of law to claim that reasonable royalty damages are capped at the cost of implementing the cheapest available, acceptable, noninfringing alternative."[51] The *Mars* court continued, "to the contrary, an infringer may be liable for damages, including reasonable royalty damages, that exceed the amount that the infringer could have paid to avoid infringement."

> ***Recommendation.*** Courts should recognize that when it can be determined, the incremental value of the patented invention over the next-best alternative establishes the maximum amount that a willing licensee would pay in a hypothetical negotiation. Courts should not award reasonable royalty damages higher than this amount.

B. The Timing of the Hypothetical Negotiation

An infringer's ability to choose alternatives to the patented technology and the cost of utilizing those alternatives can depend on the timing of the hypothetical licensing negotiation.[52] In particular, when designing a product, a potential licensee may make many design choices, after which it will make investments (e.g., building manufacturing facilities) that depend on those choices. Costs associated with switching to a different design arise for many reasons, including the expense of retooling a manufacturing facility or ensuring interoperability with related

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[48] *Grain Processing,* 185 F.3d at 1353 n.5.

[49] *Id.* at 1351.

[50] 527 F.3d 1359 (Fed. Cir. 2008).

[51] *Id.* at 1373.

[52] Levine at 73-74 (2/11/09) (explaining that in assessing "the next best alternative . . . [w]hat's really important if you're applying that test properly is the timing," specifically that it not be "after the infringer has incurred a whole lot of switching costs"); Leonard & Stiroh, *supra* note 29, at 57-58; Schlicher at 184-85 (5/5/09).

products. As these switching costs[53] increase, the royalty a willing licensee would pay for permission to use the technology and avoid redesign increases.[54] Thus, if the hypothetical negotiation is deemed to take place after switching costs have increased, the reasonable royalty may be higher than it would have been at the time of the design choice.[55]

A reasonable royalty damages award that is based on high switching costs, rather than the ex ante value of the patented technology compared to alternatives, overcompensates the patentee. It improperly reflects the economic value of investments by the infringer rather just than the economic value of the invention.[56] To address this issue, panelists suggested setting the hypothetical negotiation at the time the decision to use the infringing technology was made.[57] For instance, one panelist suggested that the hypothetical negotiation be made "more rational and more predictable" by framing the question to the jury as: "What is the projected economic value to the defendant of using this technology in light of the other possible alternatives before incurring the [sunk] costs?"[58] The case law on damages places the hypothetical negotiation at "the time infringement began"[59] but does not precisely define that point in time.

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[53]The term "switching costs" is used throughout this chapter to refer to the costs that an infringer would incur as a result of switching from its current design to the best alternative, including any costs of redesign, investments in additional plant or equipment, any difference in incremental production costs, and any difference in consumers' willingness to pay for the product.

[54]Scholars and practitioners have analyzed the potential for patentees to extract higher royalties from infringers that face switching costs by threatening an injunction. *See* Chapter 8, Section IV.B.

[55]The Federal Circuit has acknowledged that the result of the hypothetical negotiation can vary significantly depending on when one assumes it occurred. Integra Lifesciences I, Ltd. v. Merck KGaA, 331 F.3d 860, 869 (Fed. Cir. 2003) ("The correct determination of this date is essential for properly assessing damages. The value of a hypothetical license negotiated in 1994 could be drastically different from one undertaken in 1995 . . . ."), *vacated on other grounds*, 545 U.S. 193 (2005).

[56]Gilbert at 186, 200 (5/5/09) (suggesting that there should be one more factor in determining damage awards "saying something about not attributing value to sunk investments" made by the infringer); Lemley at 182 (5/5/09) (stating that reasonable royalty negotiations should not permit "somebody to capture . . . value that's the result of an irreversible investment made after that technology was chosen").

[57]Badenoch at 130 (2/12/09) (decision point for hypothetical negotiation should be "decision time for the infringement"); O'Brien at 173 (5/5/09) ("I think if you take it back in then when the decision was made, you'd get around a lot of" the hold-up problem).

[58]Cotter at 83 (2/11/09).

[59]*See, e.g.*, Rite-Hite Corp. v. Kelley Co., 56 F.3d 1538, 1545, 1554 (Fed. Cir. 1995) (en banc) (*citing* Hanson v. Alpine Valley Ski Area, Inc., 718 F.2d 1075, 1078 (Fed. Cir. 1983)).

Recommendation. To prevent damage awards based on switching costs, courts should set the hypothetical negotiation at an early stage of product development, when the infringer is making design decisions.[60]

C. Consideration of Alternative Technologies When Establishing a Reasonable Royalty Applied to Standards

The ability of patentees to demand and obtain royalty payments based on the switching costs faced by accused infringers, rather than the ex ante value of the patented technology compared to alternatives, is commonly called "hold-up."[61] One important context in which hold-up may have especially severe consequences for innovation and competition is standardized technology.

In many IT industries, interoperability among products and their components is critical to developing and introducing innovative products that satisfy a range of consumer needs. Frequently, firms achieve this goal by working together in standard setting organizations (SSOs) to jointly adopt industry-wide technical standards. SSOs conduct extensive processes for identifying and evaluating alternative technologies and ultimately choosing those to incorporate into the standard.[62] While firms may not formally commit to using a standard in producing their products, as a practical matter they will generally find it necessary to use standardized technology if it becomes successful in the marketplace.

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[60]This analysis is consistent with infringement case law holding that early stage product development is sufficient for infringement liability. Roche Prods., Inc. v. Bolar Pharms. Co., 733 F.2d 858, 863 (Fed. Cir. 1984) (use of patented compound in experiments designed to enable launch of competing product constituted infringement); Soitec, S.A. v. Silicon Genesis Corp., 81 Fed. Appx. 734, 737 (Fed. Cir. 2003) (unpublished opinion) ("the early stages of process development is nonetheless a violation of patent law").

[61]"Hold-up" is used throughout this report to describe a patentee's ability to extract a higher licensing fee after an accused infringer has sunk costs into implementing the patented technology than the patentee could have obtained at the time of design decisions, when the patented technology competed with alternatives. The patentee's ability to extract hold-up value is based on fear of an injunction (*see* Chapter 8) and potential damages to the extent they overcompensate patentees compared to the ex ante economic value of the technology. "Hold-up" is sometimes used in a more narrow sense, not intended here, to describe situations in which a patent owner fails to disclose his patents to a standard setting organization and attempts to license after an industry is locked into using the standard. *See, e.g.*, U.S. DEP'T OF JUSTICE & FED. TRADE COMM'N, ANTITRUST ENFORCEMENT AND INTELLECTUAL PROPERTY RIGHTS: PROMOTING INNOVATION AND COMPETITION 35 (2007), *available at* http://www.ftc.gov/reports/innovation/P040101PromotingInnovationandCompetitionrpt0704.pdf

[62]*See id.* at 33; Joseph Farrell, John Hayes, Carl Shapiro & Theresa Sullivan, *Standard Setting, Patents, and Hold-Up*, 74 ANTITRUST L.J. 603, 607 (2007) ("Standards and patents are very important in information technology, but not only there."); Krall at 134 (3/18/09) ("The standard setting practice is really a critical part of the technology development process.").

Before the standard is chosen, technologies often compete against each other for inclusion in the standard, but once a particular patented technology is incorporated in a standard, its adoption eliminates alternatives.[63] At that point, a firm with a patent reading on the standard may have market power in the relevant technology market. If so, the patentee can demand a royalty that reflects not only the ex ante value of the technology compared to alternatives, but also the value associated with investments made to implement the standard. Accused infringers may pay royalties based on the costs of switching to another technology. Switching costs can be prohibitively high when an industry standard is involved. For instance, it is often difficult to modify a standard due to the need for newly manufactured products to be "backward-compatible" and interoperable with similar products already owned by consumers.[64] The industry may be locked-in to using the standard. Were patentees able to obtain the hold-up value, this overcompensation could raise prices for consumers while undermining efficient choices made among technologies competing for inclusion in a standard.[65]

Many SSOs attempt to address this problem through disclosure and licensing rules.[66] Disclosure rules typically require participants to disclose patents or patent applications during the standard setting process before a standard is chosen. Licensing rules typically require that participants agree to license disclosed patents on RAND (Reasonable and Non-Discriminatory) or FRAND (Fair, Reasonable and Non-Discriminatory) terms.[67] However, there is much debate over whether such RAND or FRAND commitments can effectively prevent patent owners from imposing excessive royalty obligations on licensees. Panelists complained that the terms RAND and FRAND are vague and ill-defined – particularly with regard to what royalty rate is

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[63]Broadcom Corp. v. Qualcomm, Inc., 501 F.3d 297, 314 (3d Cir. 2007). Sun Microsystems, Inc. Comment at 1 (2/5/09) ("[O]nce a patented technology is incorporated into an adopted standard, implementers of the standard . . . have no choice but to license the patented technology from the patent owner in order to conform to the standard"); *see also* ANTITRUST MODERNIZATION COMMISSION, REPORT AND RECOMMENDATIONS 119-20 (2007), *available at* http://govinfo.library.unt.edu/amc/report_recommendation/amc_final_report.pdf.

[64]U.S. DEP'T OF JUSTICE & FED. TRADE COMM'N, *supra* note 61, at 37-38 ("switching to an alternative standard would require significant additional costs" and could "delay the introduction of a new product"); Farrell et al., *supra* note 62, at 612, 616.

[65]Krall at 135 (3/18/09) ("Once you've got broad industry adoption of a standard, lock-in and investment, irreversible investments in developing products on that standard when somebody comes out and asserts patents against products to that standard, it causes quite a bit of disruption in the technology market and ultimately impacts the consumer."); *cf.* Graham at 140 (4/17/09) (reporting "research show[ing] that patents disclosed to standard setting organizations are much more likely to be litigated").

[66]U.S. DEP'T OF JUSTICE & FED. TRADE COMM'N, supra note 61, at 42.

[67]*Id.*

"reasonable."[68] More generally, these policies cannot constrain those patent holders not participating in the SSO's process.[69] Some SSOs have attempted to avoid these problems by requiring or allowing patentees to announce royalty rates during the standard setting process so that members can consider licensing costs in choosing technologies.[70]

Clarification of patent damages law, especially recognition of the role that the incremental value of patented technology over alternatives plays in capping licensing rates and setting the hypothetical negotiation at the time of design decisions, can help prevent or lessen hold-up of a standard. Were courts to adopt these recommendations, reasonable royalty damages for a patent asserted against a standard would consider alternatives available at the time of setting the standard.[71] Panelists recognized that the law of reasonable royalty damages has a significant effect on the ability of patentees to obtain hold-up value.[72] When a patentee and implementer of standardized technology bargain for a licensing rate, they do so within a framework defined by patent remedies law. That law sets the implementer's liability if negotiations break down and the parties enter patent litigation, and therefore heavily influences the negotiated amount.[73]

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[68] *Id.* at 45-47; *cf.* Van Pelt at 182 (5/4/09) ("one of the frustrations [with RAND requirements] is, well, what's discrimination, because all the companies are different that are getting licensed, so you're not discriminating against."); Layne-Farrar at 215 (5/26/10) (there is "a huge gray area over what licensing terms and conditions are" under RAND or FRAND); Melamed at 235 (5/26/10) ("even for those who participate in [SSO proceedings and] declared patents, we don't know what the FRAND terms will actually end up being").

[69] *See, e.g.*, Melamed at 230-31 (5/26/10); Farrell at 292 (5/26/10); Marasco at 227 (5/26/10).

[70] Business Review Letter from Thomas O. Barnett, Assistant Att'y Gen., U.S. Dep't of Justice, to Robert A. Skitol, Drinker Biddle & Reath, LLP (Oct. 30, 2006) (reviewing policy that required ex ante disclosures of maximum royalties and default license terms), *available at* http://www.usdoj.gov/atr/public/busreview/219380.pdf; Business Review Letter from Thomas O. Barnett, Assistant Att'y Gen., U.S. Dep't of Justice, to Michael A. Lindsay, Dorsey & Whitney, LLP (Apr. 30, 2007) (reviewing policy that permitted ex ante disclosures of maximum royalties and default license terms), *available at* http:// www.usdoj.gov/atr/public/busreview/222978.pdf.

[71] *See* Lemley at 182 (5/5/09) (placing the hypothetical negotiation at the time of standard setting decision could "solve a lot of the hold-up component of damages problems in multi-component industries"); Schlicher at 184-85 (5/5/09) (suggesting that the infringer's options should be assessed as of the date that the standard was set).

[72] Melamed at 211 (5/26/10) (arguing that "damages are not well cabined" and that since "potential damage exposure to the assertion of a patent is . . . very large, there's [] enormous incentive for hold-up); Chandler at 233 (5/26/10) (describing how patentees taking advantage of uncertainty and damages to leverage the system).

[73] Robert H. Mnookin & Lewis Kornhauser, *Bargaining in the Shadow of the the Law: the Case of Divorce*, 88 YALE L.J. 950, 997 (1979) ("[i]ndividuals in a wide variety of contexts bargain in the shadow of the law"). The availability of a permanent injunction will also affect a patentee's ability to demand the hold-up value, as discussed in Chapter 8.

Clarification of reasonable royalty damages law could also help support a definition of "reasonable" licensing fees under a RAND commitment that avoids hold-up. No court has yet directly addressed the definition of RAND, but a manufacturer that believes a patentee's license offer is unreasonable may raise the issue in a contract dispute.[74] In that case, a court may look to reasonable royalty damages law for guidance. Commentators have observed a close relationship between the "reasonable" prong of a RAND commitment and the legal rules for determining reasonable royalty damages.[75] A definition of RAND based on the ex ante value of the patented technology at the time the standard is set is necessary for consumers to benefit from competition among technologies to be incorporated into the standard – competition that the standard setting process itself otherwise displaces.

> ***Recommendation.*** Courts should apply the hypothetical negotiation framework to determine reasonable royalty damages for a patent subject to a RAND commitment. Courts should cap the royalty at the incremental value of the patented technology over alternatives available at the time the standard was defined.

IV. COURTS' GATEKEEPING ROLE IN REASONABLE ROYALTY DAMAGES CASES

Damages evidence in patent cases is frequently presented to the jury through an expert witness who offers opinion on the appropriate damage award. The court acts as a gatekeeper in determining whether that opinion testimony sufficiently satisfies the Federal Rules of Evidence (FRE) to be presented to the jury. Calls for more vigorous gatekeeping in damages cases have received heightened attention in the patent community recently and generated broad agreement among panelists.[76] Increased focus by courts on the need for experts to tie accepted

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[74] *See generally* Mark A. Lemley, *Intellectual Property Rights and Standard-Setting Organizations*, 90 CAL. L. REV. 1889, 1923-27 (2002). More recently, the issue of alleged failure to adhere to RAND as a contract violation has been raised in *Nokia Corp. v. Apple, Inc.*, C.A. 09-791-GMS (D. Del. filed Dec. 11, 2009) (Apple, Inc.'s Answer, Defenses and Counterclaims, at 45-46).

[75] One article has observed that the "fifteen factors in *Georgia-Pacific* that guide reasonable royalty determinations for patent infringement cases are the most obvious starting point for FRAND, and they appear to be readily applicable to reasonable royalties within SSOs." Anne Layne-Farrar, A. Jorge Padilla & Richard Schmalensee, *Pricing Patents for Licensing in Standard-Setting Organizations: Making Sense of FRAND Commitments*, 74 ANTITRUST L.J. 671, 705 (2007). One important distinction, however, is that a RAND royalty should not incorporate the knowledge that the patent is valid and infringed, as reasonable royalty damages following patent litigation do, since the RAND royalty assumes no infringement litigation.

[76] Loeb at 180 (2/11/09); Maghame at 258-59 (2/11/09) (endorsing gatekeeping while emphasizing the need for flexibility); Reines at 111 (2/11/09); Agisim at 256 (2/11/09); NERA Economic Consulting Comment at 23 (3/9/09).

methodologies to the facts of a particular case, as required by the FRE, would strengthen the reliability of damages evidence.

A. The Role of Judge as Gatekeeper for Expert Testimony

The district court judge in any federal trial must determine whether expert witness testimony is reliable under FRE 702.[77] The purpose of this requirement is to "make certain that an expert . . . employs in the courtroom the same level of intellectual rigor that characterizes the practice of an expert in the relevant field."[78] Expert testimony is subject to this judicial scrutiny because it "can be both powerful and quite misleading because of the difficulty in evaluating it."[79]

To meet the threshold of reliability, FRE 702 requires that expert testimony satisfy three criteria. It must be (1) based on sufficient facts or data, (2) the product of reliable principles and methods, and (3) result from reliable application of those principles and methods to the facts of the case.[80] If the testimony fails any of these conditions, the trial court must exclude it. In *Daubert v. Merrell Dow Pharmaceutical, Inc.*, the Supreme Court set out a non-exclusive list of factors for evaluating the reliability of an expert's methodology.[81] In *Daubert*, the Court stated that the focus of the reliability review "must be solely on principles and methodology, [and] not on the conclusions they generate."[82] The Court clairified this statement in *General Electric v. Joiner*, however: "[C]onclusions and methodology are not entirely distinct from one another. . . . [N]othing in either *Daubert* or the Federal Rules of Evidence requires a district court to admit opinion evidence which is connected to existing data only by the *ipse dixit* of the expert." A

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[77]Unlike fact witnesses, qualified expert witnesses may offer opinion on scientific, technical, and other specialized topics. Also unlike fact witnesses, expert witnesses may testify without personal knowledge and rely on otherwise inadmissible hearsay. Fed. R. Evid. 703.

[78]Kumho Tire Co., Ltd. v. Carmichael, 526 U.S. 137, 152 (1999).

[79]Daubert v. Merrell Dow Pharms., Inc., 509 U.S. 579, 595 (1993) (*quoting* Jack B. Weinstein, *Rule 702 of the Federal Rules of Evidence is Sound; It Should Not Be Amended*, 138 F.R.D. 631, 632 (1991)). United States v. Frazier, 387 F.3d 1244, 1263 (11th Cir. 2004) ("[E]xpert testimony may be assigned talismatic significance in the eyes of lay jurors, and, therefore, the district courts must take care to weigh the value of such evidence against its potential to mislead or confuse.").

[80]Fed. R. Evid. 702.

[81]The *Daubert* factors are: (1) whether the expert's theory has been tested; (2) whether the theory has been subject to peer review and publication; (3) the known or potential rate of error of a technique or theory when applied; (4) the existence and maintenance of standards and controls; and (5) the degree to which the technique or theory has been generally accepted in the scientific community. *See Daubert*, 509 U.S. at 594

[82]*Id.*, 509 U.S. at 595.

court may conclude that "there is simply too great an analytical gap between the data and the [expert's] opinion proffered," and exclude the expert's evidence on that ground.[83]

The three requirements of FRE 702 reflect *Joiner's* clarification that an expert's testimony must meet standards beyond being the product of a reliable methodology.[84] Courts must also exclude expert testimony as unreliable when it is not based on sufficient facts or the methodology has not been reliably applied to the facts of the case.[85] Expert testimony that is unreliable for these reasons may also be unpersuasive, but a court should not abdicate its role in evaluating reliability on the grounds that it may not weigh the evidence.[86] The requirement of reliability establishes a threshold that evidence must meet, as determined by the judge, before a jury is allowed to weigh it.[87]

B. The Need to Apply Gatekeeping to Reasonable Royalty Evidence

The legal standards governing judicial gatekeeping against unreliable expert testimony apply in full measure to expert opinion testimony on patent damages.[88] Indeed, vigorous application is essential for achieving accurate damage awards. As a recent handbook for federal district court judges explains, "[n]o issue in a patent trial cries out for strict application of the gatekeeping tools of Federal Rule of Evidence 702 and the Supreme Court's *Daubert* decision

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[83]Gen. Elec. Co. v. Joiner, 522 U.S. 136, 146 (1997) (upholding district court's decision to exclude expert testimony because animal and epidemiological studies upon which experts relied were not sufficient to support their conclusions, although neither court attacked reliance on such studies as an inappropriate methodology).

[84]*See* Fed. R. Evid. 702 Advisory Committee's Note (2000) ("[t]he trial court's gatekeeping function requires more than simply taking the expert's word for it").

[85]Naeem v. McKesson Drug Co., 444 F.3d 593 (7th Cir. 2006) (excluding testimony as unreliable where expert offered general observations about employment practices but did not base opinion on the controlling employment policy manual).

[86]Deputy v. Lehman Bros., Inc., 345 F.3d 494, 506 (7th Cir. 2003) (vacating district court decision to exclude expert witness testimony on credibility grounds, but remanding for consideration of whether expert's opinion was supported by sufficient data to be reliable).

[87]*See* Knight v. Kirby Inland Marine, Inc., 482 F.3d 347, 355 (5th Cir. 2007) ("hold[ing] that the district court did not abuse its discretion in excluding [] testimony upon reasonably concluding that the analytical gap between the studies on which he relied and his conclusions was simply too great and that his opinions were thus unreliable"); Moore v. Ashland Chem., Inc., 151 F.3d 269, 276 (5th Cir. 1998) (en banc).

[88]Micro Chem., Inc. v. Lextron, Inc., 317 F.3d 1387, 1391 (Fed. Cir. 2003). Lack of reliability has and should be used to exclude expert testimony on lost profits damages also. DSU Med. Corp. v. JMS Co., 471 F.3d 1293, 1309 (Fed. Cir. 2006). Expert testimony on lost profits has been subject to less recent controversy, and so this section focuses on reasonable royalties.

more than damages."[89] For reasonable royalty damages, the jury's difficult task of evaluating technical testimony is compounded by the need to weigh evidence in the context of a hypothetical legal construct, the willing licensor/willing licensee model.[90]

In spite of this, panelists reported that district courts rarely exercise their gatekeeping authority in patent damages matters.[91] According to one panelist, rather than exclude evidence on a *Daubert* motion, courts often prefer to admit the evidence and allow the jury to make a decision that will be subject to post-trial review.[92] Two recent contrasting decisions by the Federal Circuit illustrate a common rationale for admitting problematic expert damages testimony, and a better approach. Courts often admit testimony under *Daubert* that they deem to be based upon a common methodology, such as the hypothetical negotiation or *Georgia-Pacific* factors. But this analysis is insufficient to judge whether expert testimony can reliably assist the trier of fact in determining the royalty a willing licensee would pay and a willing licensor would accept for the patent at issue as used in the infringing device. That judgment requires careful consideration of whether the expert reliably applied the methodology to the facts of the case.

The Federal Circuit's December 2009 decision in *i4i v. Microsoft* provides an example of the courts' hesitancy to exclude expert damages testimony from trial. For an improvement to the XML editor of Microsoft Word, i4i's damages expert calculated reasonable royalty damages of

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[89]Compensatory Damages Issues in Patent Infringement Cases: A Handbook for Federal District Court Judges, at 21 (Jan. 2010), *available at* http://www.nationaljuryinstructions.org/documents/DamagesHandbookFinal.pdf

[90]*Id.* at 23. *See also* J. Robinson at 146 (2/11/09) (questioning whether the "artificial, legal construct" of the the hypothetical negotiation "really resonates to a typical juror" who knows little about the market apart from the case) Gilbert at 200-01 (5/5/09) (questioning "why we have juries doing" damage determinations in this and other contexts, in light of their lack of experience); Rooklidge at 156-57 (5/5/09) (discussing how results from mock trials suggested that juries take actions that "are wholly unrelated to the law" governing reasonable royalties).

[91]Leonard at 116 (2/11/09) (asking, "Why isn't *Daubert* used more in IP cases?"); Durie & Lemley, supra note 25, at 635 (reporting that a search of decisions had uncovered only about 40 district court opinions and 10 Federal Circuit court opinions ruling on *Daubert* motions regarding reasonable royalty determination); Reines at 110 (2/11/09) ("the stronger your [*Daubert*] motion, the more the judge looks at you and say[s]: 'Well, great, you'll have a great cross examination, that should be a lot of fun for you.'"). *But see* J. Robinson at 148-50 (2/11/09) (criticizing the excessive reliance on *Daubert* motions in IP cases).

[92]Reines at 116-17 (2/11/09). Judge Robinson noted, however, that many challenges to expert testimony are routine and not well-supported. J. Robinson at 149 (2/11/09). She also expressed concern that granting *Daubert* motions based on substantive differences in the expert's views can be "contrary to both [*Daubert*] itself and to the true economic realities that the parties have a right to present to a jury." *Id.* at 150.

$200 million.[93] Microsoft challenged the expert's testimony as unreliable, but the Federal Circuit affirmed the award, explaining that the testimony was based on a hypothetical negotiation and the *Georgia-Pacific* factors, which was recognized as an acceptable methodology.[94] The expert determined a royalty rate of $98 per unit by taking the price of a "high-end" XML product ($499) as a benchmark, multiplying by Microsoft's profit margin (76%), attributing 25% of that amount to i4i by invoking a rule of thumb, and adjusting upward based on the *Georgia-Pacific* factors.[95] The court did not analyze whether there was sufficient evidence tying the choice of benchmark and calculation steps to a hypothetical negotiation for incorporating the particular invention at issue into Microsoft Word. Instead, the court repeated i4i's assertions that the 25% rule was "'well-recognized' and 'widely used'" and that use of the "high-end" product's price was justified, among other reasons, due to a focus on customers "who 'really needed'" an XML editor.[96] In addition, the court cited "vigorous cross-examination" and "presentation of contrary evidence" as the means to attack "shaky" expert testimony.[97]

In contrast, the January 2011 Federal Circuit opinion, *Uniloc v. Microsoft*, discusses at length the need for courts to consider whether a damages expert reliably applied a common methodology to the facts of the case in assessing admissibility of expert testimony. As a consequence of carefully considering this requirement of FRE 702, the court found that testimony based upon a "25% rule of thumb," discussed below, was unreliable and inadmissible. The court relied on *Joiner* when explaining that "a major determinant of whether an expert should be excluded under *Daubert* is whether he has justified the application of a general theory to the facts of the case."[98] The court elaborated, "evidence purporting to apply [to any of the *Georgia-Pacific* factors] must be tied to the relevant facts and circumstances of the particular case at issue and the hypothetical negotiations that would have taken place in light of those facts and circumstances at the relevant time."[99]

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[93] i4i Ltd. P'ship v. Microsoft Corp., 598 F.3d 831, 853 (Fed. Cir. 2010), *cert. granted*, 79 U.S.L.W. 3326 (U.S. Nov. 29, 2010) (No. 10-290). The patent covered an improvement in a method of editing documents containing markup language such as XML that stems from storing a document's content and metacodes separately.

[94] *Id.* at 854. ("Microsoft's disagreements are with Wagner's conclusions, not his methodology.").

[95] *Id.* at 853-54. He then multiplied that rate times an estimated 2.1 million infringing uses of Word identified through a survey to reach $200 million in damages. *Id.* at 854-55. Word sold for between $97 and $299. Microsoft claimed that it charged at most $50 more for versions of Word that included an XML editor. *Id.*

[96] *Id.* at 853.

[97] *Id.* at 856 (*quoting Daubert*, 509 U.S. at 596).

[98] Uniloc USA, Inc. v. Microsoft Corp., Nos. 2010-1035, 2010-1055, 2011 WL 9738, at *20 (Fed. Cir. Jan. 4, 2011).

[99] *Id.* at *21.

Recommendation. In their gatekeeper role of enforcing FRE 702, courts should test the admissibility of expert testimony on damages by evaluating whether it will reliably assist the trier of fact in determining the amount a willing licensor and willing licensee would have agreed to as compensation for use of the patented invention in the infringing product.[100] Courts should not deem evidence as relevant, reliable and admissible solely because it falls within one of the *Georgia-Pacific* factors.

Recommendation. Consistent with FRE 702, courts should require a showing that a damages expert's methodology is reliable, that he reliably applies the methodology to the facts of the case, and that the testimony is based on sufficient data. Evidence based on a reliable methodology that does not satisfy the other two prongs should not establish admissibility.[101] Subjecting jury damage awards to post-trial review should complement, rather than substitute for, active gatekeeping because of the broad latitude that juries have to determine an award based on the evidence presented and the deferential standards for overturning a jury verdict.[102]

C. Applying FRE 702 to Two Methodologies of Damages Calculations

A review of the issues surrounding the admissibility of expert testimony on two common methodologies of damages calculations – royalty rates on licenses claimed to be comparable to the hypothetically negotiated license and the 25% rule of thumb – illustrates the importance of active gatekeeping through rigorous enforcement of FRE 702's requirements. One commentator, in urging courts to exclude testimony that was not consistent with economic principles, argued that "unreliab[ly] large reasonable royalty outcomes typically arise when a plaintiff's expert uses one of the unreliable approaches to determining the reasonable royalty, *e.g.*, blind application of

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[100]Expert testimony on damages must be based on "sound economic and factual predicates." Riles v. Shell Exploration & Prod. Co., 298 F.3d 1302, 1311 (Fed. Cir. 2002); *see* Cornell Univ. v. Hewlett-Packard Co., No. 01-CV-1974, 2008 WL 2222189, at *2 (N.D.N.Y. May 27, 2008) (Rader, J. sitting by designation) ("Where, as here, such sound economic and factual predicates are absent from a reasonable royalty analysis, a district court must exercise its discretion to exclude the proffered testimony.").

[101]Knight v. Kirby Inland Marine, Inc., 482 F.3d 347, 355 (5th Cir. 2007) ("[T]he expert's testimony must be reliable at each and every step or else it is inadmissible. 'The reliability analysis applies to all aspects of an expert's testimony: the methodology, the facts underlying the expert's opinion, the link between the facts and the conclusion, et alia.'") (*quoting* Heller v. Shaw Indus., Inc., 167 F.3d 146, 155 (3d Cir. 1999)).

[102]Generally a district court will review a verdict on a motion for JMOL under a "substantial evidence" test, Lucent Techs., Inc. v. Gateway, Inc., 580 F.3d 1301, 1336 (Fed. Cir. 2009), and will grant a new trial "only if the verdict is against the clear weight of the evidence." *Id.* at 1309 (*quoting* Pavao v. Pagay, 307 F.3d 915, 918 (9th Cir. 2002)). *See infra*, Section VI.

rules of thumb or benchmarks, instead of the economic analysis of the hypothetical negotiation taking into consideration the defendant's alternatives and customer preferences."[103]

1. Comparable Licenses and Averages

Looking to patent licenses that are "comparable" to the license for the infringed patent that would result from the hypothetical negotiation is a common methodology for setting reasonable royalty damages.[104] *Georgia-Pacific* points to such evidence as helpful in factor two.[105] But such evidence can reliably assist the trier of fact only if the patented invention and its infringing use are sufficiently similar to those of the comparable license. Key attributes for evaluating similarity include the technology, the rights licensed (one patent or a portfolio), royalty type (running royalty or lump sum) and terms of the license (one product or many).[106]

Such truly "comparable" licenses are rare, according to panelists.[107] They criticized many uses of comparable licenses in damages litigation: "[a] lot of comparables just plain aren't comparable, but it's hard for a jury to really see that."[108] The district court decision reviewed by the Federal Circuit in *Lucent v. Gateway* illustrates the problematic way that allegedly comparable licenses are sometimes used to prove reasonable royalty damages.[109] The calendar function of Microsoft's email program, Outlook, was found to infringe a patent covering a date-picker function. The patented invention was "a tiny feature of one part of a much larger software

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[103]NERA Economic Consulting Comment at 20 (3/9/09); Rhodes at 239 (2/11/09) (agreeing "there is room for improvement" regarding use of comparable licenses and rules of thumb, but favoring common law development rather than legislation).

[104]*See, e.g.*, American Original Corp. v. Jenkins Food Corp., 774 F.2d 459, 462 (Fed. Cir. 1985) (using the rate in licenses granted for a patent on prior art alternative processes as a reasonable royalty for the process patent at issue).

[105]Georgia-Pacific Corp. v. United States Plywood Corp., 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970), *modified and aff'd*, 446 F.2d 295 (2d Cir. 1971).

[106]*Lucent Techs.*, 580 F.3d at 1325 ("licenses relied on by the patentee" must be "sufficiently comparable to the hypothetical license at issue").

[107]Krall at 100 (3/18/09) ("There's no real comparable market data. You can't do a comparable analysis like when you're selling your home about what other prices are in your neighborhood."); Millien at 79 (12/5/08) (same).

[108]Burton at 94 (2/11/09) (explaining that juries "don't work with technologies day in and day out, and even judges often don't, and it's very challenging to understand when someone puts forward something that's a comparable, why it is and isn't").

[109]580 F.3d 1301 (Fed. Cir. 2009). The opinion considers whether a jury award of $358 million is supported by substantial evidence, not whether the licensing evidence and related expert testimony was properly introduced, because the defendants did not move to exclude that evidence. *Id.* at 1325.

program."[110] The patentee offered as a comparable license, among others, an agreement under which Dell licensed IBM's patent portfolio for the purpose of manufacturing a full line of personal computers.[111] The jury awarded damages that exceeded the payment under the Dell/IBM agreement and the district court upheld the award.[112]

The Federal Circuit has recently applied a more rigorous review of damage awards that considers whether licenses offered as "comparable" are sufficiently similar to support a jury verdict. The appellate court vacated the damage award in *Lucent v. Gateway* because the licenses offered as evidence were "vastly different" from the hypothetical license.[113] In *ResQnet.com. v. Lansa*, the court vacated a damage award based on testimony by the patentee's expert because the testimony did not "link" allegedly comparable licenses to the infringed patent.[114] The court vacated a third damage award based on inadequate comparable licenses in *Wordtech Systems v. Integrated Networks Solutions*.[115]

While the methodology of looking to comparable licenses may be generally sound, for an expert to reliably apply that methodology, he must explain the similarities between the licensed patent, the infringed patent, and their uses. Expert testimony that makes little attempt to explain why the comparable license serves as a good proxy for the hypothetical negotiation cannot meet the threshold of reliability under FRE 702.[116] For instance, allowing expert testimony based on

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[110] *Id.* at 1332.

[111] *Id.* at 1328.

[112] Lucent Techs., Inc. v. Gateway, Inc., 580 F. Supp. 2d 1016 (S.D. Cal. 2008), *aff'd in part, vacated in part and remanded*, 580 F.3d 1301 (Fed. Cir. 2009). Of the licenses relied upon by the patentee's damages expert, at $290 million the IBM/Dell agreement bore a lump-sum royalty closest to the $358 million jury award. *Id.* at 1328.

[113] *Id.* at 1328.

[114] ResQnet.com, Inc. v. Lansa, Inc., 594 F.3d 860, 869-70 (Fed. Cir. 2010) (explaining that "[t]his court has long required district courts performing reasonable royalty calculations to exercise vigilance when considering past licenses to technologies other than the patent in suit" while rejecting reliance on "licenses with no relationship to the claimed invention").

[115] 609 F.3d 1308, 1320 (Fed. Cir. 2010). *Cf.* i4i Limited P'ship v. Microsoft Corp., 598 F.3d 831, 857 (Fed. Cir. 2010), *cert. granted*, 79 U.S.L.W. 3326 (U.S. Nov. 29, 2010 (No. 10-290) (refusing to overturn a damages award under the "highly deferential" standard applicable to a motion for a new trial).

[116] "[E]xperts' work is admissible only to the extent that it is reasoned, uses the methods of the discipline, and is founded on data. Talking off the cuff – deploying neither data nor analysis – is not an acceptable methodology." Lang v. Kohl's Food Stores, Inc., 217 F.3d 919, 924 (7th Cir. 2000); IP Innovation, LLC v. Red Hat, Inc. 705 F. Supp. 2d 687, 691 (E.D. Tex. 2010) (Rader, J. sitting by designation) (excluding expert testimony that relied on evidence of average royalties in various industries in part because the expert "offer[ed] no evidence that the alleged industry agreements are in any way comparable to the

patents or portfolios that cover whole products when the infringed patent covers only one feature of a complex product risks a jury award that overcompensates the patentee.[117] Indeed, the Federal Circuit recently suggested in *Uniloc* that expert testimony based on prior licenses is not admissible unless there is "a basis in fact to associate the royalty rates used in prior licenses to the particular hypothetical negotiation at issue."[118]

The use of average royalty rates as a proxy for the hypothetical negotiation amount suffers the same weaknesses as the use of comparable licenses. Without some demonstration of similarity between the infringed patent and the licensed patents represented in the sample, including the license terms and the circumstances in which they are used, the average royalty rate is not helpful in constructing the hypothetical negotiation. Panelists were critical of this approach.[119]

> ***Recommendation.*** Courts should admit expert testimony based on comparable licenses only upon a reliable showing of similarity between the licensed patent and the infringed patent, and between the non-price terms of the comparable license and hypothetical license. That showing should be sufficient to support an inference that the royalty rate for the comparable license provides a reliable indicator of the royalty that would be reached in the hypothetical negotiation.

2. Rule-of-Thumb Evidence

District courts also have allowed expert testimony based on "rule-of-thumb" evidence in which the reasonable royalty is set at 25% of the expected profit for the infringing product.[120] In doing so, courts have cited *Georgia-Pacific* factor 12 which considers "[t]he portion of the profit or of the selling price that may be customary in that particular business or in comparable

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patents-in-suit," and finding the evidence "irrelevant or unreliable").

[117]Burton at 94-95 (2/11/09) ("[T]hat can be an area of significant abuse, particularly if you haven't . . . matched your royalty base, with your rates, so you're seeing comparables at 5 percent when you should be 1/10th of 1 percent on this particular base.").

[118]Uniloc USA, Inc. v. Microsoft Corp., Nos. 2010-1035, 2010-1055, 2011 WL 9738, at *21 (Fed. Cir. Jan. 4, 2011).

[119]One described a "ludicrous" instance in which an expert relied on an average of licenses within the same four digit SIC code, and compared this approach with opening a store that sells only shoes of the average size. Leonard at 115-16 (2/11/09).

[120]Inline Connection Corp. v. AOL Time Warner, Inc., 470 F. Supp. 2d 424, 432 n.38 (D. Del. 2007); *see also* Civix v. Expedia, No. 03-C-3792, 2005 U.S. Dist. LEXIS 45948 (N.D. Ill. Oct. 25, 2005); Uniloc USA, Inc. v. Microsoft Corp., 632 F. Supp. 2d 147, 150 (D.R.I. 2009) ("Microsoft claims [the expert's] methodology for concocting the reasonable royalty is just not 'good science.' But this is like saying Alice did not serve Earl Gray at her tea party. Maybe so, but . . . it is close enough . . . ."), *vacated in part and remanded*, 2011 WL 9738 (Fed. Cir. Jan. 4, 2011).

businesses to allow for use of the invention or analogous inventions."[121] A proponent of the 25% rule explains that it is a tool that should not be used in all contexts, and when used, the percentage can be adjusted according to the facts: "Ultimate royalty rates often are higher or lower than 25 per cent of fully loaded profits, depending on a host of quantitative and qualitative factors that can and should affect a negotiation (or litigation)."[122]

Panelists roundly criticized the rule-of-thumb methodology.[123] Many challenged the rule's rigidity and lack of connection to the facts of a particular case: "it's only happenstance and luck if a rule of thumb is right in a particular circumstance, and yet people put rules of thumb forward as if they're gospel."[124] Another panelist explained, "it defies economic logic to claim that this 'rule' fits every set of facts. For example, the rule would apparently give the same answer for both a 'large' component and a 'small' component, which makes no economic sense."[125] One commentator calls the 25% rule "an exercise in arbitrary business analysis" because "it does not relate to the value and degree to which the patent can exclude substitute products and therefore command a patent profit."[126] Another explains that the rule is unreliable because "[n]o consideration is given to the number or value of economic alternatives or the incremental value of using the patented technology over other viable alternatives."[127]

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[121] *Georgia-Pacific Corp.*, 318 F. Supp. at 1120.

[122] Robert Goldscheider, John Jarosz & Carla Mulhern, *Use of the 25 Per Cent Rule in Valuing IP*, 37 LES NOUVELLES 123, 131 (Dec. 2002). The "25% rule" is based on a study of 18 commercial licenses in the late 1950s. These licenses "tended to generate profits of approximately 20 per cent of sales on which they paid royalties of 5 per cent of sales." Therefore, "the royalty rates were found to be 25 per cent of the licensee's profits on products embodying the patented technology." *Id.* at 123.

[123] Leonard at 116 (2/11/09) (suggesting that courts exclude rule of thumb evidence under *Daubert*); Burton at 95 (2/11/09); Johnson at 245-46 (2/11/09) ("[E]very invention is unique and every situation is unique so I have a lot of sympathy for people who are objecting to industry standard rates or rules of thumb or the like without an awful lot of foundation.").

[124] Burton at 95 (2/11/09).

[125] NERA Economic Consulting Comment at 19 (3/9/09).

[126] Paul E. Schaafsma, *An Economic Overview of Patents*, 79 J. PAT. & TRADEMARK OFF. SOC'Y 241, 251-52 (1997).

[127] Mark Berkman, *Valuing Intellectual Property Assets for Licensing Transactions*, 22 LICENSING J. 16 (April 2002); *see also* Elizabeth M. Bailey, Alan Cox & Gregory K. Leonard, *Groundhog Day: Recurring Themes on Reasonable Royalties in Recent IP Damage Cases* 6 (NERA Econ. Consulting Dec. 7, 2009) (declaring that "[t]he 25% rule makes no economic sense"), *available at* http://www.nera.com/extImage/PUB_IP_Groundhog_Day_1209.pdf.

As recently as 2010, the Federal Circuit "passively tolerated" use of the 25% rule in upholding reasonable royalty determinations.[128] However, in 2011 it found, after a searching examination, that "the 25 percent rule is a fundamentally flawed tool for determining a baseline royalty rate in a hypothetical negotiation," and specifically held it to be "inadmissible under *Daubert* . . . because it fails to tie a reasonable royalty to the facts of the case at issue."[129] The court explained that the rule is "an abstract and largely theoretical construct" which "does not say anything about a particular hypothetical negotiation."[130]

The Commission applauds the Federal Circuit's decision to reject the 25% rule in reasonable royalty damages determinations. Its reasoning provides a particularly clear example of how application of the requirements of FRE 702 can significantly improve the assessment of damage awards.

V. CHOOSING THE ROYALTY BASE

The goal of the hypothetical negotiation is to mimic to the extent possible what the parties would have done if they willingly had entered negotiations at the time infringement began. Parties could approach the royalty calculation in one of three ways:[131]

- By identifying a relevant base product, calculating a dollar base such as total sales revenues, and multiplying that dollar base by a percentage royalty rate;
- By identifying a unit product, counting the number of infringing units sold and multiplying that number by a dollar figure per unit; or
- By agreeing to a lump-sum payment of a specific dollar amount.

Although the law allows other methods to be used in calculating reasonable royalty damages, courts frequently have applied the first method, multiplying a percentage royalty rate by

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[128] *Uniloc*, 2011 WL 9738, at *18 (explaining that this has occurred when the rule's "acceptability has not been the focus of the case" or when "the parties disputed only the percentage to be applied" and citing i4i Limited Partnership v. Microsoft Corp., 598 F.3d 831 (Fed. Cir. 2010); Fonar Corp. v. General Elec. Co., 107 F.3d 1543, 1553 (Fed. Cir. 1997); Finjan, Inc. v. Secure Computing Corp., 626 F.3d 1197, 1210-11 (Fed. Cir. 2010).

[129] *Uniloc*, 2011 WL 9738, at *19.

[130] *Id.* at *21.

[131] Leonard at 105 (2/11/09) (explaining that "in [the] real world, the parties negotiate . . . how the royalty will be paid, so they could decide to have a lump sum or a per unit or a percent times a base"); Levko at 107 (2/11/09) ("units or dollars or time" are all used in real-life negotiations).

total revenues for an infringing product.[132] Recent controversies in the patent community about the role of "apportionment" and the "entire market value rule" in calculating reasonable royalty damages have brought the legal rules for choosing a royalty base to the forefront of patent policy debate. Critics of the current approach argue that it overcompensates patentees when it allows damages for a small component, like an infringing windshield wiper, to be based on the price of a much larger product, like a car.[133] As explained below, courts should eliminate the entire market value rule from the determination of the appropriate base in a reasonable royalty damages calculation. The rule is irrelevant to identification of the base and it injects significant confusion that threatens to produce inaccurate awards.

A. The Entire Market Value Rule Applied to Reasonable Royalties

The choice of base may be uncontroversial where the patented invention corresponds to a product sold in the market or the industry practice is to identify a product's sales revenues as the base. In that situation, parties in patent litigation typically will focus the dispute on determining a royalty rate.[134] The choice of a base may be disputed and more difficult, however, where the inventive aspect of the patented technology is imbedded in one component of a complex product. Parties may dispute whether the appropriate base is the inventive technology, the component, or the larger product. Identifying a component or sub-component of a larger product as the base is sometimes discussed as one aspect of "apportionment."[135] As discussed in Chapters 2 and 3, this situation is especially prevalent in the IT industry, where products incorporate literally thousands of technologies.

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[132]Janicke at 96 (2/11/09) ("at the time we first got into [reasonable royalty awards], most licenses were – almost all I think were negotiated based on a base and a [percentage] rate"); JOHN W. SCHLICHER, PATENT LAW: LEGAL AND ECONOMIC PRINCIPLES § 9.44 at 9–06 (1992) ("The courts typically determine some royalty rate, such as X% of sales revenue or $Y per unit.")

[133] *See* Yen at 55 (12/5/08); Doyle at 223-24 (5/5/09). These concerns have led many IT companies to push for statutory changes to patent damages law – a move strongly opposed by other industries. *See Patent Reform Act of 2009: Hearing Before the S. Comm. on the Judiciary*, 111th Cong., 1st Sess. (2009) (testimony of David J. Kappos, Vice President and Ass't General Counsel, IBM), *available at* http://judiciary.senate.gov/pdf/09-03-10Kappostestimony.pdf; *Patent Reform Act of 2009: Hearing Before the S. Comm. on the Judiciary*, 111th Cong., 1st Sess. (2009) (testimony of Philip S. Johnson, Chief IP Counsel, Johnson and Johnson, Inc., on behalf of the Coalition for 21st Century Patent Reform), *available at* http://judiciary.senate.gov/pdf/09-03-10Johnsontestimony.pdf.

[134]This was the case in *Georgia-Pacific*, where the infringing product was striated fir plywood and the royalty rate was calculated as a dollar amount per thousand square feet of patented paper using a number of the *Georgia-Pacific* factors. *Georgia-Pacific Corp.*, 318 F. Supp. at 1123-43.

[135]Lemley at 216-17 (5/5/09).

The recent district court decision, *Cornell University v. Hewlett-Packard Co.*,[136] illustrates the difficulty. Cornell's patent read on one component of a computer processor. The court explained, "the claimed invention is a small part of the IRB [instruction reorder buffer], which is a part of a processor, which is part of a CPU [central processing unit] module, which is part of a 'brick,' which is itself only part of the larger server."[137] Hewlett-Packard purchased the CPUs and used them to build servers, which it sold. Cornell proffered expert testimony opining that the royalty base should include Hewlett-Packard's entire server and workstation systems, which the court excluded unreliable under FRE 702.[138] At trial, Cornell sought and received a jury damages award using the CPU brick as an appropriate base.[139] The court then granted judgment as a matter of law to the defendant, recalculating damages using the processor rather than the CPU brick as the appropriate base but keeping the royalty rate applied by the jury.[140]

In recent years, the case law of patent damages has analyzed this type of dispute by applying the "entire market value rule" in the reasonable royalty context, as did the court in *Cornell v. Hewlett-Packard*. In this context, the entire market value rule asks whether the patented feature is the "basis for customer demand" in deciding whether an entire product or a component should be used as the base.[141] This approach was first adopted in 1995, in *Rite-Hite Corp. v. Kelley Co.*,[142] where the Federal Circuit followed a long line of precedent in applying the entire market value rule in determining lost profits damages.[143] However, in dicta, the court also declared that the rule applied to reasonable royalty calculations.[144] Since *Rite-Hite*, courts have looked to the entire market value rule and considered whether the patented component is the

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[136]609 F. Supp. 2d. 279 (N.D.N.Y. 2009) (Rader, J. sitting by designation).

[137]*Id.* at 283.

[138]Cornell Univ. v. Hewlett-Packard Co., No. 01-CV-1974, 2008 WL 2222189 (N.D.N.Y. May 27, 2008).

[139]*Cornell*, 609 F. Supp. 2d. at 282.

[140]*Id.* at 293; *Uniloc*, 2011 WL 9738, at *24 (confirming that a plaintiff seeking to invoke the EMVR in the reasonable royalty context must show that the patented invention is "the basis for customer demand").

[141]Bose Corp. v. JBL, Inc., 274 F.3d 1354, 1361 (Fed. Cir. 2001).

[142]56 F.3d 1538 (Fed. Cir. 1995) (en banc).

[143]*Id.* at 1549.

[144]*Id.* ("When a patentee seeks damages on unpatented components sold with a patented apparatus, courts have applied a formulation known as the 'entire market value rule' to determine whether such components should be included in the damage computation, whether for reasonable royalty purposes, . . . or for lost profits purposes . . . .") (citations omitted). Moreover, Professor Lemley has noted the apparent lack of any prior precedent supporting the *Rite-Hite* dicta. Mark A. Lemley, *Distinguishing Lost Profits from Reasonable Royalties*, 51 WM. & MARY L. REV. 655, 662 n.34 (2009).

"basis for customer demand" for the larger product in both permitting[145] and rejecting[146] the use of a broad royalty base.

B. The EMVR is Irrelevant When Choosing a Base for Reasonable Royalty Damages

Panelists roundly condemned use of the entire market value rule in reasonable royalty damages determinations. One panelist called it a "complete category mistake to apply that in the reasonable royalty context."[147] Another stated that "the entire market value rule has no place whatsoever in reasonable royalty analysis," explaining that "it doesn't make any sense at all in a world in which there is not a plaintiff's product being sold."[148] One panelist expressed concern that the entire market value rule has "displaced or atrophied Federal Circuit law development" regarding how "we put some boundaries around the hypothetical negotiation" and left "an absence of law and guidance . . . on what the base should be."[149]

The entire market value rule, and its focus on whether a patented feature is "the basis of customer demand," arose in the context of calculating lost profits damages.[150] Understanding the role the rule plays in that context illuminates why it is irrelevant to the choice of base in a reasonable royalty calculation. When an invention is only one component of a product, not all of an infringer's profit or the patentee's lost profit is necessarily attributable to the patented invention. In that case, the law allows the patentee to recover lost profits damages based on the

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[145] *See, e.g., Bose Corp.*, 274 F.3d at 1361 (affirming reasonable royalty award based on the value of loudspeakers, rather than the value of a patented port-tube component); Fonar Corp. v. Gen. Elec. Co., 107 F.3d 1543 (Fed. Cir. 1997) (using MRI machine as royalty base rather than patented imagining component based on infringer's marketing efforts praising the component).

[146] *See, e.g.*, Imonex Servs. v. W.H. Munzprufer Dietmar Trenner GmbH, 408 F.3d 1374, 1379-81 (Fed. Cir. 2005) (holding that washing machine was not the proper base where patented invention related to an attached coin sorting box); Lucent Techs. v. Microsoft Corp., 544 F. Supp. 2d 1080, 1106-07 (S.D. Cal. 2008) (refusing to grant summary judgment to plaintiff on contentions that the computer operating system, media player, or game console serve as the basis for consumer demand), *summary judgment granted in part, summary judgment denied in part*, 2008 U.S. Dist. LEXIS 99392 (S.D. Cal. Feb. 28, 2008).

[147] Cotter at 85 (2/11/09); O'Brien at 217 (5/4/09) (In "the reasonable royalty context if you start talking about the entire market value rule you've made a mistake right there").

[148] Lemley at 213 (5/5/09); Janicke at 63 (2/11/09) (the entire market value rule is "a meaningless cliché"); Verizon Communications, Inc. Comment at 17 (3/20/09) (suggesting that "apportionment and entire-market-value inquir[ies]" can confuse and distract fact-finders).

[149] Reines at 82 (2/11/09). *Cf.* Skenyon at 64 (2/11/09) (suggesting that the entire market value rule may not pose that "big a problem" since it is not used "in that many cases").

[150] Lemley, *supra* note 144, at 660-62.

entire market value of the product when the patented component is the "basis for customer demand."[151] If the patented invention is not the basis of demand, lost profits damages will be based only on the value of the patented component, or "apportioned."[152]

The entire market value rule as applied to lost profits has no corollary in the reasonable royalty context. There is no amount of potential damage funds, such as the profits lost on a product, to be entirely awarded or apportioned. Many reasonable royalty damage awards result from the multiplication of two inter-related variables, the base and the rate. Altering one variable, (the base), in response to a legal test like the entire market value rule requires recalibrating the other variable, (the rate), in order to accurately assess the value of the patent in the hypothetical negotiation. This is a very different process from calculating lost profits damages.

Moreover, a wide array of considerations apart from the entire market value rule influence parties' choice of a base in actual licensing negotiations, including convenience of the parties[153] and the practice in the industry.[154] Where the patented invention is only one component of a larger product, the product may be the only item that is priced and can be monitored.[155] For practical reasons, that product serves as the base even though the patented feature is not "the basis of customer demand."[156] In other cases, a patented component may easily serve as a base

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[151]State Indus., Inc., v. Mor-Flo Indus., Inc., 883 F.2d 1573, 1580 (Fed. Cir. 1989) (allowing lost profits damages based on entire water heater where invention related to foam insulation). Chapter 5 explains why the entire market value rule should be eliminated from lost profits analysis.

[152]ROGER D. BLAIR & THOMAS F. COTTER, INTELLECTUAL PROPERTY: ECONOMIC AND LEGAL DIMENSIONS OF RIGHTS AND REMEDIES 215-17 (2005). For cases applying the entire market value rule to lost profits, *see* Golden Blount, Inc. v. Robert H. Peterson Co., 438 F.3d 1354, 1371 (Fed. Cir. 2006) (allowing lost profits damages on an artificial fireplace consisting of a patented ember burner and unpatented artificial logs and grates).

[153]Johnson at 269 (2/11/09).

[154]*See, e.g.*, Leonard at 105-06 (2/11/09); O'Brien at 217-18 (5/5/09).

[155]SCHLICHER, *supra* note 132, § 9:37 at 9–97 (1992); Levko at 106 (2/11/09); Layne-Farrar at 92 (2/11/09); Maghame at 257 (2/11/09).

[156]In *Lucent Techs., Inc. v. Gateway*, 580 F.3d 1301, 1336 (Fed. Cir. 2009) the Federal Circuit recognized that parties choose the base of a royalty calculation for reasons other than whether the patented feature drives demand for the product, such as "when there is no established market value for the infringing component or feature." *Id.* at 1339. The court further recognized that an entire product rather than some component may be the most convenient base even where the entire market value rule is not satisfied. *Id.* at 1338-39. The court described its analysis as embracing the entire market value because it allowed the entire product to serve as the base. But actually the opinion is better understood as a repudiation of the rule because it recognizes that the base in a hypothetical negotiation is chosen for reasons other than whether the patented invention is the "basis of customer demand."

because it can be purchased separately. Because the choice of a base in actual licensing negotiations is not driven by whether the patented feature is the "basis for customer demand," that question should not drive the choice of base in a hypothetical negotiation. This rejection of the entire market value rule does not suggest that the concern of the rule – the extent to which a patented invention drives consumer demand – is irrelevant to the reasonable royalty calculation. On the contrary, this concern is one of the *Georgia-Pacific* factors[157] and crucial to identifying an appropriate royalty *rate*.

C. Practical Problems When the EMVR is Applied to Reasonable Royalties

Commentators and panelists raised practical concerns about the application of the entire market value rule to the choice of base when determining reasonable royalty damages. Some commentators and panelists from the IT industry argued that courts applied the entire market value rule too liberally, so that damages were too frequently based on a complex product when only a component was patented.[158] Others disagreed about the existence of the problem.[159] Panelists identified two consequences of patentees' attempts to set a large, complex product as the royalty base for an inventive feature in one component.

First, panelists described how patentees' hopes of establishing a large royalty base in order to garner large damage awards led patentees to sue manufacturers of complex consumer products, like personal computers and cell phones, rather than manufacturers of the components.[160] Patent suits threatened "up the value chain" in order to obtain a larger base

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[157] The 13th factor is "[t]he portion of the realizable profit that should be credited to the invention as distinguished from non-patented elements, the manufacturing process, business risks, or significant features or improvement added by the infringer." *Georgia-Pacific Corp.*, 318 F. Supp. at 1120.

[158] *The Patent Reform Act of 2007: Hearing on H.R. 1908 Before the Subcomm. on Courts, the Internet, and Intellectual Property of the H. Comm. on the Judiciary*, 110th Cong. 65 (2007) (testimony of Professor John R. Thomas), *available at* http://judiciary.house.gov/hearings/April2007/Thomas070426.pdf (arguing that the entire market value rule has been improperly expanded to "become[] the default damages principle" and been applied without factual support); Yen at 55 (12/5/08) (arguing that a car should not be used as the base to value a newly-invented tire); Levko at 71 (2/11/09); Doyle at 223-26 (5/5/09).

[159] C.J. Michel at 115 (12/5/08) (explaining that "windshield wiper" example may be an urban legend of patent damages, as he has been unable to find such a case); Detkin at 76-77 (12/5/08) (arguing that car may be the appropriate base where patented tire required redesign of the automobile, or provided increased gas mileage leading to increased demand);, William C. Rooklidge, "*Reform*" *of Patent Damages: S.1145 and H.R. 1908*, at 7, 11 (2007), *available at* http://www.patentsmatter.com/press/pdfs/Patent_Damages_Reform_Rooklidge.pdf (cases correctly state principles governing the entire market value rule, and Federal Circuit's affirmances of jury awards adopting a broad royalty base are unsurprising in light of the deferential standard of review).

[160] *See, e.g.*, Cornell Research Foundation, Inc. v. Hewlett Packard Co., No. 5:01-CV-1974, 2005 WL 5955715, at *3-4 (N.D.N.Y. Oct. 11, 2005) (identifying vendors from whom Hewlett-Packard purchased

presents a practical problem for accused infringers that may have insufficient knowledge of the technical issues surrounding infringement by a component manufactured elsewhere.[161] This makes licensing negotiations, patent litigation and settlement very difficult. But one panelist reports that patentees "resolutely refuse" to approach the manufacturers of components.[162]

Second, several panelists emphasized the need to properly identify the base in order to produce an accurate reasonable royalty award where the inventive feature is a small component in a complex product.[163] Although the royalty calculation can decrease the rate in response to a large base,[164] they expressed concern that a trier of fact, particularly a jury, may apply an insufficiently low royalty rate when the base is far larger than the inventive feature because an appropriate rate might be "minuscule."[165] If the invention is "the twig on the twig on the twig on the twig on the twig of a multi-featured box, it isn't realistic to expect the jury to recommend a ".00000001 rate."[166] In a similar vein, the Federal Circuit in *Uniloc* explained that the evidence of very large total product revenue calculated from a large base "cannot help but skew the damages horizon for the jury, regardless of the contribution of the patented component to this

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allegedly infringing CPUs); Lucent Techs., Inc. v. Gateway, Inc., 543 F.3d 710 (Fed. Cir. 2008); *Lucent Techs.*, 580 F.3d at 1308-09 (plaintiff brought infringement suit against computer vendors based on a feature in software programs supplied to them by Microsoft).

[161]Agisim at 191 (2/11/09) (online banking system sued for third party-supplied products).

[162]Doyle at 225-26 (5/5/09).

[163]Reines at 87 (2/11/09) ("You have to control the base if you want a rational outcome" for a product with a large annual revenue."); Yen at 52 (12/5/08) ("[p]laintiffs regularly seek a percentage of the total value of the product that is allegedly infringing rather than the value of what was actually invented, which in many cases might be a minor feature of a particular product"); Doyle at 165 (5/5/09) ("if you assign the value to the actual component in question, you may then get a much more reasonable result").

[164]Layne-Farrar at 92-93 (2/11/09) (adjustment of rate in response to base can give accurate damages); *Lucent Techs.*, 580 F.3d at 1339 ("the base used in a running royalty calculation can always be the value of the entire commercial embodiment, as long as the magnitude of the rate is within an acceptable range").

[165]Simpson at 233-34 (5/5/09); Lemley at 234 (5/5/09) (a broad base favors the patentee, since "it's much easier to persuade somebody to give a very small percentage of a very large base"); Gilbert at 219-20, 238 (5/5/09) (acknowledging that choice of base should not "make a huge difference," although "in practice it very well may"); Cotter at 86 (2/11/09) ("The problem comes in the application where courts and juries are not exercising much judgment in determining what the royalty rate is.").

[166]Reines at 86-87 (2/11/09).

revenue."[167] One panelist pointed out that calculating damages by multiplying a dollar amount times units eliminates these problems.[168]

> ***Recommendation.*** Courts should eliminate the entire market value rule and the question of whether the patented feature was the "basis for customer demand" from the determination of the appropriate base in a reasonable royalty damages calculation. It is irrelevant and it risks injecting significant confusion that threatens to produce inaccurate awards.

D. Identifying the Base

Another artificial construct for identifying the base that courts should reject is always to equate it with the device recited in the infringed claim. In many cases, there will be an easy correspondence between the inventive feature, the device recited in the infringed claim, and the appropriate base. In other cases, the correspondence will not be so clear. For example, a software invention for rendering video images can be recited in a claim covering video software, or in a claim covering a standard personal computer running the video software.[169] Several panelists explained that in choosing a base "the real focus ought to be on the economic realities and not the vagaries of claim drafting," particularly because "the way claims are drafted [is] . . . so manipulable."[170]

Finally, courts should recognize that not all licenses, and therefore not all damage awards, should be calculated by multiplying a base times a rate. When the evidence indicates that the parties would have used another calculation method in the hypothetical negotiation, such as a lump-sum payment,[171] the finder-of-fact should apply that method.

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[167]Uniloc USA, Inc. v. Microsoft Corp., Nos. 2010-1035, 2010-1055, 2011 WL 9738, at *24 (Fed. Cir. Jan. 4, 2011).

[168]Janicke at 97 (2/11/09) ("Base only matters if you're going to do a rate times base calculation. If you're going to do it five cents a unit, there is no base. There is no rate. [The negotiating parties] agree on five cents a unit or $2 a unit, and base drops out of the calculation in the real license negotiation.").

[169]*See, e.g.,* Reines at 128 (2/11/09) (describing a case involving a patent claiming a local area network, when the key feature was one piece of a node).

[170]Cotter at 130-31 (2/11/09). *See also* Janicke at 128 (2/11/09) (where the patentee claims the "circuit connected to the module, connected to the computer, connected to a network . . . the claim really can't be the base"); Simon at 270 (2/11/09) ("There are articles written saying write claims to cover systems because you can claim a bigger royalty base. That makes no economic sense to me, that the patent attorney's decision on how to write the claim is what's going to determine what the royalty base is.").

[171]One panelist indicated that his company negotiates lump-sum license payments with many patentees. Simon at 222–23, 228 (2/11/09); *id.* at 222 ("[Base times rate is] not the way we negotiate licenses at Intel. Our view is it's an inappropriate way to deal with it in our business . . . it's a very different model. Yet everybody uses this as a vehicle to try to say it would have been a running royalty rate.").

Recommendation. Courts should identify as the appropriate base that which the parties would have chosen in the hypothetical negotiation as best suited for accurately valuing the invention. The practical difficulty of identifying a royalty rate that accurately reflects the invention's contribution to a much larger, complex product often counsels toward choosing the smallest priceable component that incorporates the inventive feature.[172]

VI. CONCLUSION

Although the willing licensor/willing licensee model is a useful tool for replicating the market reward for an invention in a reasonable royalty damages calculations, its hypothetical nature makes it difficult to apply accurately. The recommendations of this chapter, if vigorously applied, could help achieve damage awards that more accurately reflect the economic value of a patented invention. They can also play an important role in preventing "hold-up" of a standard. Both outcomes can encourage innovation and support competition among technologies that benefit consumers.

Courts have tools to implement these recommendations and to improve the accuracy of reasonable royalty awards. They can exclude expert testimony that is inconsistent with these recommendations as unreliable under FRE 702. Courts can also supervise jury damage awards through the grant of judgment as a matter of law (JMOL),[173] new trial,[174] and remittitur[175] when those awards are inconsistent with the economic principles underlying reasonable royalty awards.

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[172]Reines at 90 (2/11/09) (suggesting as the base "the closest unit that's priceable in the vicinity of the claimed invention"); Cornell Univ. v. Hewlett-Packard Co., 609 F. Supp. 2d. 279, 288 (N.D.N.Y. 2009) (choosing the processor as the base where it was the smallest priceable unit).

[173]Fed. Rule Civ. Proc. 50, 59. JMOL is available to a party that can establish that there is insufficient evidence to legally support the verdict. *See* 9B CHARLES ALAN WRIGHT & ARTHUR R. MILLER, FEDERAL PRACTICE & PROCEDURE §§ 2521-40 (3d ed. 2008). Under one formulation, "a district court grants JMOL only 'if the evidence, construed in the light most favorable to the nonmoving party, permits only one reasonable conclusion, and that conclusion is contrary to the jury's verdict.'" Lucent Techs., Inc. v. Gateway, Inc. 580 F.3d 1301, 1309 (Fed. Cir. 2009) (*quoting* Pavao v. Pagay, 307 F.3d 915, 918 (9th Cir. 2002)). Courts often describe this as the "substantial evidence" test. *Id.* at 1336.

[174]*See* 11 WRIGHT & MILLER §§ 2781-2821. Generally, a trial court "may grant a new trial only if the verdict is against the clear weight of the evidence." *Lucent Techs.*, 580 F.3d at 1309 (*quoting* Pavao v. Pagay, 307 F.3d 915, 918 (9th Cir. 2002)). The district court may consider credibility and weigh evidence in exercising its broad discretion on whether to grant a new trial. Unisplay, S.A. v. Am. Elec. Sign Co., 69 F.3d 512, 517 (Fed. Cir. 1995).

[175]It is within a trial court's discretion to deny a defendant's motion for new trial on condition that the plaintiff accept a reduction in the amount of the jury's award (called a remittitur). 11 WRIGHT & MILLER § 2815 at 160, 169; Shockley v. Arcan, 248 F.3d 1349, 1362 (Fed. Cir. 2001).

CHAPTER 8
PERMANENT INJUNCTIONS IN PATENT CASES

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I. INTRODUCTION

In 2006, in *eBay v. MercExchange*,[1] a unanimous Supreme Court rejected both a "general rule" supporting the grant of a permanent injunction following a finding of patent infringement and "expansive principles" supporting denial for a patentee that did not practice its invention and was willing to license. Instead, the Court looked to "traditional equitable principles" and listed four factors that a patentee must satisfy to obtain an injunction.

The opinion of the full Court gave little guidance on how to apply the factors, however, raising concerns about the impact of *eBay* that often fall along industry lines. The life sciences industry and firms that primarily license out their technology generally favor predictable injunction grants. As described in Chapter 1, they rely on an injunction or the threat of an injunction to encourage innovation by protecting the exclusivity needed to recoup research and development (R&D) investments, deterring infringement, and encouraging licensing. But as discussed in Chapter 2, an injunction can also effectuate hold-up by allowing a patentee to extract a higher royalty in ex post licensing negotiations, after costs have been sunk, than it could have obtained when alternative technologies were available. Members of the information technology (IT) industries, who face difficulties identifying all patent rights relevant to a product prior to commercialization, worried about hold-up. They generally favored a more flexible approach to injunction grants.

Although the injunction analysis is equitable, to most benefit consumers it should be conducted in a manner that furthers the patent system's goal of promoting innovation and recognizes consumer interest in aligning the patent system and competition policy. A key challenge is to balance an injunction's ability to promote innovation and private contracting with its ability to generate hold-up that can distort competition among technologies, raise prices and deter innovation. One way to meet that challenge is to identify criteria that help determine when the harm to a patentee from denial of an injunction and ongoing infringement is small compared to the consumer harm from hold-up. This chapter identifies criteria helpful to that determination.

Economic concerns weighing the benefits of exclusivity against the harm of hold-up fit well within the equitable nature of the injunction remedy and *eBay's* four factor analysis. This chapter recommends how courts can incorporate these concerns into each of *eBay's* four factors. This chapter also discusses how remedies following denial of an injunction and remedies in the International Trade Commission can be sensitive to these issues.

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[1] eBay, Inc. v. MercExchange, LLC, 547 U.S. 388 (2006) ("*eBay*").

II. CASE LAW ANALYZING PERMANENT INJUNCTIONS

A. The *eBay* Case

By looking "to the laws of property, of which the patent law partakes," the Federal Circuit had established a "general rule" in favor of granting injunctions based on a presumption of irreparable harm.[2] Overcoming this general rule required a showing of significant public harm in order to outweigh the irreparable harm presumed to be caused by infringement.[3] In 2006, in *eBay v. MercExchange*, a unanimous Supreme Court rejected both the Federal Circuit's general rule supporting the grant of an injunction and the district court's "expansive principles" suggesting that a patentee that did not practice its invention and was willing to license could not obtain an injunction.[4] Instead, relying on the express language of the Patent Act, which provides that district courts "may" issue injunctions "in accordance with the principles of equity,"[5] the Court looked to "traditional equitable principles." The Court listed the four equitable factors that a patentee must satisfy to obtain an injunction:

> 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.[6]

Chief Justice Roberts's concurring opinion, joined by Justices Scalia and Ginsburg, cautioned that a major departure from the long tradition of equity practice should not be lightly implied. Courts have granted injunctive relief in the vast majority of patent cases, they explained, due to the difficulty of protecting a patentee's right to exclude others from using the invention through monetary damages.[7]

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[2]Richardson v. Suzuki Motor Co., 868 F.2d 1226, 1246-47 (Fed. Cir. 1989) (citations omitted).

[3]Rite-Hite Corp. v. Kelley Co., 56 F.3d 1538, 1547 (Fed. Cir. 1995) (en banc) ("Accordingly, courts have in rare instances exercised their discretion to deny injunctive relief in order to protect the public interest."); *see also* MercExchange, LLC v. eBay, Inc., 401 F.3d 1323, 1338-39 (Fed. Cir. 2005), *vacated*, 547 U.S. 388 (2006).

[4]*eBay*, 547 U.S. at 393.

[5]35 U.S.C. § 283.

[6]*eBay*, 547 U.S. at 391.

[7]*Id.* at 395 (Roberts, C.J., concurring) (the "long tradition of equity practice is not surprising, given the difficulty in protecting a right to *exclude* through monetary remedies that allow an infringer to *use* an invention against the patentee's wishes - a difficulty that often implicates the first two factors of the

Justice Kennedy's concurring opinion, joined by Justices Stevens, Souter and Breyer, however, did suggest situations in which district courts may find injunctive relief inappropriate. Citing the FTC's 2003 IP Report, Justice Kennedy noted the development of a business model in which non-practicing entities obtain patents primarily to garner license fees, not to practice the inventions. "For these firms, an injunction, and the potentially serious sanctions arising from its violation, can be employed as a bargaining tool to charge exorbitant fees to companies that seek to buy licenses to practice the patent."[8] In addition, Justice Kennedy suggested that situations in which the patented invention is "but a small component of the product the companies seek to produce" may also be inappropriate for injunctive relief because "the threat of an injunction is employed simply for undue leverage in negotiations."[9]

B. Post-*eBay* Cases

After enumerating the four equitable factors, the opinion of the full Court in *eBay* gave little guidance on their application. That, and the divergent emphasis of the two concurring opinions, created significant uncertainty concerning the circumstances under which courts would deny permanent injunctions following issuance of the decision in May 2006. Since that time, the district courts have decided numerous requests for permanent injunctions and the Federal Circuit also has addressed the four factors several times. Some trends have begun to emerge from this body of case law.

Surveys of post-*eBay* cases reveal that district courts have granted approximately 72%-77% of permanent injunction requests.[10] In the first year following *eBay*, courts awarded no injunctions in the four cases involving non-practicing patentees.[11] This result led many to worry that this category of patentees would no longer be able to obtain permanent injunctions. That concern is unwarranted, however. An updated review of the post-*eBay* case law through March 31, 2010, reveals that courts heard thirteen requests for permanent injunctions where the opinion

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traditional four factor test.") (emphasis in original).

[8] *Id.* at 396 (Kennedy, J., concurring) (*citing* FED. TRADE COMM'N, TO PROMOTE INNOVATION: THE PROPER BALANCE OF COMPETITION AND PATENT LAW AND POLICY, ch. 3, at 38-39 (Oct. 2003)).

[9] *Id.*

[10] Ernest Grumbles III *et al.*, *The Three Year Anniversary of eBay v. MercExchange: A Statistical Analysis of Permanent Injunctions*, IP TODAY (Nov. 2009) (72% of requests granted through May 1, 2009, based on review of decisions available through Lexis); Robert A. Cote, The State of Injunctions in a Post *eBay* World, Loyola IP Focus Series - Los Angeles, CA, at 4, June 15, 2007, *available at* http://www.lls.edu/ip/past-events/documents/Cote-Revised2.pdf (77% of requests granted in the first year following the *eBay* decision).

[11] Eric Keller, *Time Varying Compulsory License: Facilitating License Negotiation for Efficient Post-Verdict Patent Infringement,* 16 TEX. INTELL. PROP. L.J. 427, 434 (2008).

suggests that the patent owner is one of several types of non-practicing entities, including universities, research institutes and independent inventors. Of those thirteen cases, district courts granted an injunction seven times.[12] Appendix B presents the results of a survey by panelist Steve Malin that provides an informative picture of how different fact patterns may influence district courts' decisions to grant or deny injunctions. Appendix B also provides a descriptive summary of post-*eBay* cases.

III. INDUSTRY REACTIONS TO *eBAY*

Panelists' concerns about the effects of the *eBay* decision often fell along industry lines, with the life sciences industry generally favoring more predictable grants of injunctions and the information technology (IT) industry favoring a more flexible approach. This categorization is often not so simple, however, because a firm's views will also depend upon whether it seeks to license out its technology for others to produce.

A. The Life Sciences Industry

The research and development necessary to create new products in the life sciences industry is long, risky and expensive. One company reports that development of a biologic drug can cost from $800 million to $1.2 billion and take up to 15 years.[13] The research and development process often begins in a university, which then licenses the early-stage technology to a start-up or a large company that must make substantial investments to move the invention closer to a product. The start-up companies that develop early-stage technology generally engage in technology transfer as described in Chapter 1, licensing their technology or partnering with larger companies that have the resources to fund final-stage development and the clinical trials necessary for regulatory approval.[14] Life sciences companies and their investors depend on an exclusive market position for successful products in order to recoup the high levels of capital

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[12] *See* Appendix B, n.23 (listing cases).

[13] *The Patent Reform Act of 2007: Hearing on H.R. 1908 Before the Subcomm. On courts, the Internet and Intellectual Property of the H. Comm. on the Judiciary*, 110th Cong. 65 (2007) (testimony of Kevin Sharer, CEO & Chmn. of the Bd., Amgen, Inc.) Myers at 220-21 (3/18/09) ("typically . . . only one out of thousands of compounds will be proven to be both medically effective and safe enough to become an approved medicine"); Singer at 225 (3/18/09) ("Most promising drugs, as Jeff [Myers] said, fail along the way.").

[14] Shafmaster at 214 (3/18/09) ("Throughout our history we've partnered with universities, research institutions and private companies in order to find and develop products and bring them to market."); Myers at 221 (3/18/09) ("[Pfizer's] innovations come from a lot of sources: Internal research, contracts with third parties, collaborations with universities and biotech companies and with other pharmaceutical companies. We also seek out promising compounds and innovative technologies by third-parties to incorporate into our discovery and development processes as well as our product lines through acquisitions and other arrangements.").

they invest in research and development.[15] Panelists reported that for this reason, companies pursue early-stage research only in those areas where they can obtain patent protection for their own inventions and freedom-to-operate in the face of others' actual or potential rights.[16]

The importance of exclusivity supported by patents led many panelists from the life sciences industry to express concern about decreased predictability in injunction law following *eBay*. Panelists worried that if the ability of a successful patent litigant to obtain an injunction were in doubt, life sciences companies would have less incentive to invest in risky and expensive research or be less able to attract the capital needed to fund research.[17] The ability of start-up companies to attract investment after *eBay* presented a particular concern because of the perception that "non-practicing entities" are unable to obtain permanent injunctions.[18]

Panelists also discussed the extent to which the public interest factor of the *eBay* analysis might drive denial of injunctions in life sciences patent cases. They generally agreed that the public interest factor should focus on public health concerns and not encompass competition-related price effects because such an inquiry would be contrary to the Patent Act, which grants exclusive rights to avoid price competition.[19]

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[15]Singer at 223-25 (3/18/09) (investors in life sciences consider IP early); Ware at 144-48 (2/12/09) (university research and technology transfer require patents and patent licensing).

[16]Bellon at 225-29 (3/18/09) (biotechnology start-up began building patent estate based on early research to establish value of the company); Shafmaster at 240-41 (3/18/09) (discussing multiple reviews during development work to ensure freedom to operate).

[17]Armitage at 148-49 (2/12/09) (injunctions that preserve exclusivity critical to life sciences business model); Loeb at 189-90 (2/12/09) (discussing development cycle in the life sciences and indicating that certainty of 8-10 years exclusivity needed to induce investment).

[18]Ware at 148 (2/12/09) (expressing concern that "venture capitalists will take their funds elsewhere, and small biotech companies will shrink and die rather than grow"); Ware at 156 (2/12/09) (*eBay* could have an adverse effect on university licensing); Katznelson at 53-54 (3/18/09) (describing the effect of *eBay* on start-up licensing and business models). District courts have granted permanent injunctions to universities that were asserting life sciences patents in two recent cases, however. Emory Univ. v. Nova Biogenics, Inc., No. 1:06-CV-0141, 2008 WL 2945476 (N.D. Ga. 2008) (asserting patent on antimicrobial properties); Johns Hopkins Univ. v. Datascope Corp., 513 F. Supp. 2d 578 (D. Md. 2007) (asserting patent on methods for fragmenting clots within hemodialysis grafts), *rev'd and remanded*, 543 F.3d 1342 (Fed. Cir. 2008).

[19]Ware at 205 (2/12/09) (arguing "that the market will benefit from price competition and [*eBay* deprives] the patentee of its exclusive right"); Armitage at 205-07 (2/12/09) (public interest analysis should focus on public health exceptions); Bellon at 258 (3/18/09) (the *Amgen* case could have eroded the right to exclude inherent in the patent); Am. Intell. Property Law Ass'n Comment at 4 (5/18/09) (including price competition in the public interest analysis undermines the right to foreclose competition inherent in a patent grant).

B. Firms that Primarily License Out Patents

As discussed in Chapter 1, firms and individuals who invent and license patented technology but do not manufacture a product can be an important source of new invention that drives the creation of new products. The start-up companies of the life sciences industry fall within this category, but it reaches into all technology sectors, including IT. Some develop early stage technology, hoping eventually to partner with or be acquired by a larger company with the resources to bring a product to market. Others act as design houses, developing inventive technology that they then license to manufacturing companies for their ongoing use.[20] As discussed in Chapter 2, patent assertion entities (PAEs) also license patents without manufacturing, but those transactions do not typically involve technology transfer for the creation of new products.[21]

Non-practicing patentees of all types – developers of early stage technology, design-houses and patent assertion entities – worried that they could no longer obtain a permanent injunction after winning patent litigation.[22] One panelist asserted that there remains significant uncertainty about how courts will analyze the irreparable harm factor when the patentee is a licensing entity and the harm can be characterized as a lost royalty.[23] Several panelists described a dynamic that one called "infringer hold-out."[24] They asserted that manufacturers 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. They also argued that a manufacturing company may take advantage of the fact that a smaller licensing entity does not have the resources to fund expensive patent litigation by refusing to license.[25]

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[20] *See* Chapter 1.

[21] This report uses the term "patent assertion entity" rather than the more common "non-practicing entity" (NPE) to refer to firms whose business model 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. *See* Chapter 2, at 51 n.2.

[22] As discussed in Appendix B, Sections II, III.A.2, III.A.3, district courts have granted injunctions to non-practicing entities about 50% of the time. Where an injunction has been denied, the denial seldom turned solely on the fact that the patent holder did not practice the patent.

[23] Ware at 156-57 (2/12/09).

[24] Cassidy at 165-67 (2/12/09).

[25] Cassidy at 166-67 (2/12/09) (*eBay* may decrease incentives for manufacturing companies to bargain with non-practicing patentees); Ware at 144-48 (2/12/09) (lack of a certain exclusive license in the wake of *eBay* may diminish the value of IP for non-practicing universities and start-up companies); *Patent Law Reform: Injunctions and Damages: Before the Subcomm. on the Judiciary Patent Law Reform of the S. Comm. on the Judiciary*, 109th Cong. 984 (2005) (testimony of Carl Gulbrandsen, Managing Director,

Panelists identified several ways in which changed injunction law might affect inventive activities. Patentees that seek to recoup investment in risky R&D through exclusive licensing may invest less if they cannot be assured of a patent-protected exclusive market position in the future, they said.[26] Rigid rules denying injunctions to licensing entities, such as design houses, may prevent them from effectively monetizing their intellectual property, causing them to forgo design projects or move away from a business model that relies on licensing, and move toward a potentially less efficient manufacturing scheme.[27] Another panelist was concerned that the lower value of patents in the hands of licensing companies means that independent inventors and start-ups would be less able to attract capital because investors sometimes look to the sale of patent assets to recoup investment when the company's original business plan fails.[28] Not all agreed with this latter point, however.[29]

C. IT Manufacturers

Panelists from the IT industry discussed how a complex patent landscape and the shortcomings of the patent system's notice function could lead to patent hold-up from the threat of an injunction. IT products typically comprise hundreds or thousands of patented components, with no one company holding all the rights necessary to manufacture a product.[30] In addition, many IT products use industry standards to ensure interoperability, necessitating that manufacturers

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Wisconsin Alumni Research Foundation (WARF)) ("limits to injunctive relief simply create incentives to infringe and to prolong litigation and, in fact, will potentially spawn additional litigation because companies will choose to forego up-front licensing and instead wait for a lawsuit to create what would be, in effect, a compulsory license . . . . Consequently, investors will have less incentive to fund such innovative companies.").

[26]Ware at 148 (2/12/09) ("To the extent that changes in the patent system call into question the ability to enforce the right of exclusivity through injunctive relief, venture capitalists will take their funds elsewhere, and small biotech companies will shrink and die rather than grow.").

[27]Rhodes at 167-68 (2/12/09) (*eBay* factors may reduce to rigid tests that require patentees to commercialize their IP immediately); Katznelson at 52-53 (3/18/09) (arguing that start-ups may need to manufacture to obtain an injunction).

[28]Katznelson at 60-61 (3/18/09).

[29]Kiani at 63-64 (3/18/09) (arguing salvage value of patents did not incentivize investment in start-ups).

[30]Thorne at 117 (3/18/09) ("product can have a thousand or more patents [read] on it"); Cockburn at 232-33 (4/17/09) (IT patent thicket includes "a large number of patents . . . potentially overlapping, held by numerous people"); *see also* FED. TRADE COMM'N, TO PROMOTE INNOVATION: THE PROPER BALANCE OF COMPETITION AND PATENT LAW AND POLICY, ch. 3, at 34, 52 (Oct. 2003) ("2003 FTC IP Report"), *available at* http://ftc.gov/os/2003/10/innovationrpt.pdf.

license technology that is essential to the standard.[31] Panelists reported that the notice problems described in Chapters 2 and 3 – the large number of patents, the uncertainty of patent scope and late issuing patents – make identifying all patents that might be asserted against an IT product prohibitively expensive and sometimes impossible.[32]

For these reasons, a manufacturer may face allegations of patent infringement after incurring significant sunk costs to produce and distribute an infringing product. At that time, the cost of switching to an alternative technology may be high compared to the cost of choosing an alternative prior to incurring sunk costs. Because the manufacturer risks its investment if it cannot obtain a license, the threat of an injunction allows a patentee to demand and obtain a higher royalty payment than it could have obtained prior to costs being sunk, when alternatives were available.[33] That dynamic, often called hold-up, will be especially strong when the patent is asserted against standardized technology and the industry is "locked-in."[34]

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[31]Krall at 134-35 (3/18/09) (standard setting is critical to product development to ensure interoperability and interchangeable products).

[32]Krall at 114-15 (3/1809) ("in the tech industry doing [patent clearance] searches is almost cost-prohibitive"); Sarboraria at 120 (3/18/09) (sheer number of patents and the uncertainty of claim scope make clearance searches in the software industry costly and inadequate); Harris at 123 (3/18/09) (searches unlikely to identify patents that might be asserted, since claim scope is often stretched unpredictably); Phelps at 261-63 (5/4/09) (doing a patent clearance "up front" is "pretty ineffective" due to the number of patents and many different entities who might have relevant patents); Luftman at 209-10 (2/12/09) (low margins in the IT industry may not support the costs of conducting such a large search); Slifer at 125 (3/18/09) ("The uncertainty in unpublished applications, in pending applications, in claim scope and damages, the sheer number of possible areas that technology could be relevant to a new product, have . . . taught us . . . [that] expending a lot of energy and resources" in freedom to operate searches is usually "futile.").

[33]Massaroni at 192-93 (2/12/09) (describing hold-up as assertion of a poor quality patent, often issued after commercialization of the accused product, when costs have been sunk); Badenoch at 79-80 (2/12/09) ("[T]he claims often come out way after the competitors have gone into the marketplace with a lot of related technology. And so then you really have the sunk cost problem, and you have this issue that suddenly injunctions might have an impact way beyond the invention that is the subject of the patent."). *See also* Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEX. L. REV. 1991 (2007).

[34]Luftman at 195-97 (2/12/09) (hold-up is especially problematic in standards-based technology when companies have no choice but to use the patented standard); Thorne at 79 (3/18/09) (describing hold-up in standard setting scenarios); Krall at 134-35 (3/18/09) (describing impact when successor patentees do not honor licensing commitments made to standard setting organizations).

The potential for hold-up caused by an injunction led most panelists and commentators representing IT manufacturers to favor a flexible approach for awarding permanent injunctions.[35] This was especially true regarding patentees that are patent assertion entities (PAEs). When facing infringement allegations brought by another manufacturer, an IT firm can often countersue, a scenario that frequently results in cross-licensing. But this strategy is ineffective when the patent owner is a patent assertion entity.[36] As one panelist explained, however, since the *eBay* decision, settlement negotiations between manufacturers and patent assertion entities focus less on mitigating the risk of an automatic injunction.[37] Panelists reported that manufacturing companies are now sometimes more willing to litigate against weak claims, and cases brought by assertion entities will settle for lower amounts due to a decreased threat of an injunction.[38] Panelists did not report a decrease in litigation, however.[39]

IV. AN ECONOMIC VIEW OF THE PERMANENT INJUNCTION ANALYSIS

Consistent with the goals of the patent system, the principles for structuring and conducting the injunction analysis should seek to promote innovation. As courts and commentators have argued, this goal is best served by awarding a permanent injunction in the large majority of cases.[40] Indeed, courts applying *eBay* have continued to award injunctions in most instances. One panelist explained that *eBay* did not make a fundamental change, but merely shifted the availability of injunctions on the margins.[41] However, *eBay* does allow a more nuanced analysis that can recognize the ability of injunctions in some situations to unnecessarily

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[35] *See, e.g.*, Massaroni at 151-53 (2/12/09) (flexible injunction standards have had an impact on non-practicing entities); Luftman at 153-54 (2/12/09) (flexible standards for injunction grants limit patent holding companies from skewing licensing negotiations).

[36] Slifer at 82 (3/18/09) (Micron developed patent portfolio in part to cross license or defend against suits from other companies); Harris at 87 (3/18/09) (AOL uses patents defensively); Thorne at 87-88 (3/18/09) (Verizon, same); *see also* 2003 FTC IP Report, ch. 2, at 30-31; ch. 3, at 38-39, 52-53.

[37] Luftman at 142-44 (2/12/09) (parties are more likely to focus on whether patent is valid and infringed in settlement discussions rather than only avoiding the risk of injunction).

[38] Jensen at 249 (3/18/09) (since *eBay*, more companies are willing to stand up to weak patent suits).

[39] Luftman at 154-56 (2/12/09) (patent suits against Palm more than doubled since 2004); Krall at 131 (3/18/09) (increase in patent cases against Sun); Thorne at 133-34 (3/18/09) (Verizon faces more patent suits following *eBay* than before); Delgado at 75 (4/17/09) (increase in patent litigation by patent holding companies); Quatela at 74 (4/17/09) (Kodak faces sharp increase in patent assertions).

[40] *See, e.g.*, *eBay*, 547 U.S. at 395 (Roberts, C.J., concurring) (difficulty of protecting right to exclude with money damages supports history of issuing injunctions in vast majority of cases); Thomas F. Cotter, *Patent Holdup, Patent Remedies, and Antitrust Responses*, 34 J. CORP. L. 1151, 1175 (2009).

[41] Sprigman at 45 (2/12/09).

raise costs and deter innovation. The challenge courts now face is how to approach that analysis in a manner that furthers the goals of the patent system while aligning it with competition policy so that consumers benefit from both innovation and competition among technologies.[42] This section identifies characteristics of injunctions that must be balanced to meet that challenge.

A. Reasons Supporting the Grant of an Injunction

The first three characteristics of injunctions that should inform the *eBay* analysis generally support granting an injunction. Of those, the first and most fundamental is that an injunction preserves the exclusivity that provides the foundation of the patent system's incentives to innovate. Altering that exclusivity must be undertaken with significant care not to undermine those incentives. Numerous panelists and commentators discussed the importance of maintaining a patent's exclusivity to support the patent system's ability to spur research and development.[43]

Second, the credible threat of an injunction provides a significant deterrent to infringement in the first place. That deterrent, which is critical to many patentees when investing in R&D,[44] stems from the serious consequences to an infringer from an injunction. If an adjudged infringer has sunk costs into R&D or a plant and equipment to produce the infringing product, it risks losing that investment when faced with an injunction. The injunction may render the infringer's inventory valueless, and redesign of the product may be expensive or impossible.[45] Companies that are loathe to incur substantial costs where an injunction would make the product unmarketable often devote substantial effort to ensuring freedom to operate.[46] One panelist from the biotech industry explained, "[w]e take great care in our freedom to operate

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[42]Su at 67-68 (2/12/09) (injunction analysis must consider what conduct to encourage).

[43]Section III.A. & B., *supra*; *see, e.g.*, F. Scott Kieff & Henry E. Smith, *How Not to Invent a Patent Crisis*, *in* REACTING TO THE SPENDING SPREE: POLICY CHANGES WE CAN AFFORD 62-63 (2009) (expectation of exclusion and credible threats of enforcement spur R&D).

[44]*See, e.g.*, Bellon at 227-28 (3/18/09) (a strong IP portfolio is critical to Hydra's ability to grow its business); Singer at 223-25 (3/18/09) (without strong IP enforcement, investors would not invest in new products).

[45]*See, e.g.*, Vincent E. O'Brien, *Economics and Key Patent Damages Cases*, 9 U. BALT. INTELL. PROP. L.J. 1 (2000) (discussing consequences of injunction); ROGER D. BLAIR & THOMAS F. COTTER, INTELLECTUAL PROPERTY: ECONOMIC AND LEGAL DIMENSIONS OF RIGHTS AND REMEDIES 231 (2005) (discussing consequences of injunction).

[46]*See, e.g.*, Bellon at 229-30 (3/18/09) ("If we thought there was going to be [a freedom to operate] problem, we would not go into that area or we would try to license."); Myers at 233-34 (3/18/09) (ensuring freedom to operate before entering a product space is important); Jensen at 217-18 (3/18/09) (companies start to search IP early in order to ensure freedom to operate as investment in technology increases).

searches. We thoroughly analyze all of the patents out there. We keep an eye on third-party patents and what's happening with them, and we make sure before embarking on development pathways that we will have all the rights we need."[47] Concern over the risk of an injunction after a company has sunk substantial costs into a project is not unique to the biotech industry, however.[48]

Third, a predictable injunction threat will encourage private ordering, and in particular, licensing by the parties. An alleged infringer, knowing it faces an injunction if unsuccessful in litigation, has an incentive to enter into a presumably more efficient private transaction. Commentators explain that this outcome is preferable to a compulsory licensing regime because the patentee and infringer generally have better information about the appropriate terms of a license than would a court, leading to lower administration costs and error rates. The parties also have a significant advantage in developing efficient agreements, such as cross licensing arrangements, that can reduce transactions costs.[49]

B. An Injunction's Ability to Cause Hold-Up

The fourth characteristic of an injunction is its ability to cause patent hold-up in some situations. The threat of an injunction will lead the manufacturer to pay royalties up to its switching costs,[50] which may be higher than the cost at the time of product design. Commentators explain that the threat of hold-up gives patent holders excessive bargaining power in component-based industries that allows the "patent owner to capture value that has nothing to do with its invention, merely because the infringer cannot separate the infringing component

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[47]Shafmeister at 216 (3/18/09).

[48]Horton at 172-73 (3/18/09) (GE will acquire patents to ensure freedom to operate when pursuing multiple research paths); Miller at 188 (3/18/09) (P&G has a policy of not infringing patents to avoid risk); Griswold at 197 (3/18/09) (3M, same).

[49]Cotter, *supra* note 40, at 1175-76. *See also* John M. Golden, *Principles for Patent Remedies*, 88 TEX. L. REV. 505, 564-66 (2010) (identifying "devolution" as an important principle in structuring patent remedies); Golden at 61 (2/12/09) (parties are closer to the changing facts); Sprigman at 66-67 (2/12/09) (need to structure remedies to get information from the party in the best position to provide it); John Schlicher Comment at 10-11 (5/15/09) (injunction is critical to functioning of the patent system in which use and pricing decisions are made by private ordering); Smith at 84-85 (2/12/09) (threat of injunction prevents potential infringers from engaging in hold-out to obtain lower royalties).

[50]The term "switching costs" is used throughout this chapter to refer to all the costs associated with switching from the current design to an alternative, including the expense of retooling and ensuring compatibility with other components and products and the higher cost associated with using the alternative.

from the non-infringing ones" after it has sunk costs into the design and marketing of a product.[51] The implementers of the patented technology do not receive the price benefits that competition among technologies can provide, and they may pass those higher costs on to consumers. Moreover, hold-up and the threat of hold-up can discourage innovation by increasing costs and uncertainty.

Critics of allowing concerns about hold-up to inform post-*eBay* injunction analysis primarily raise two points. First, they argue that decreasing the likelihood of a patentee receiving an injunction will lead manufacturers to choose infringement rather than licensing. This argument assumes that a manufacturer "chooses" to infringe because either (1) it has notice of the patent and a clear understanding of its boundaries when designing the infringing product; or (2) it can easily redesign its product to exclude the patented technology after it has begun manufacturing.[52] The assumption about notice is generally not the case, however, especially in the IT industries.[53] The assumption about redesign ignores the problems of lock-in and high switching costs. When either assumption is correct, the injunction analysis should take those facts into account, as discussed below, but the analysis should not accept those assumptions as universally true in the first instance.

The critics' second point is that structuring the injunction analysis to avoid hold-up will result in lower royalties that provide insufficient incentives to inventors to invest in optimal levels of research and development.[54] Consumers would be harmed by lower levels of innovation. As other commentators have argued, however, the effect on innovation of lower royalties resulting from the avoidance of hold-up is not so straightforward. Hold-up gives the patentee more compensation than it could have earned through competition in the technology market. The hold-up value can be seen as a windfall to a patentee that seeks to develop or sell its technology for further development in a competitive technology market. That windfall cannot be

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[51] Lemley & Shapiro, *supra* note 33, at 2010. As an example, they cite the Blackberry case, *NTP v. Research in Motion*, which settled for $612.5 million to avoid a potential injunction after a jury had awarded reasonable royalty damages of $33.5 million. *Id.* at 2049 n.36. *See also* Cotter, *supra* note 40, at 1160; Vincenzo Denicolò, Damien Geradin, Anne Layne-Farrar & A. Jorge Padilla, *Revisiting Injunctive Relief: Interpreting* eBay *in High-Tech Industries with Non-Practicing Patent Holders*, 4 J. COMPETITION L. & ECON. 571, 573 (2008).

[52] J. Gregory Sidak, *Holdup, Royalty Stacking and the Presumption of Injunctive Relief for Patent Infringement: A Reply to Lemley and Shapiro*, 92 MINN. L. REV. 714, 717, 736-43 (2008) (not accounting for the potential welfare effects from lock-in); Einer Elhauge, *Patent Holdup and Royalty Stacking*, 4 J. COMPETITION L. & ECON. 535, 565-66 (2008) (assuming infringer can "simply decline to use the overpriced technologies").

[53] *See* Chapter 3.

[54] Elhauge, *supra* note 52, at 535-36; John Golden, "*Patent Trolls*" *and Patent Remedies*, 85 TEX. L. REV. 2111 (2007); Sidak, *supra* note 52, at 714.

understood to provide ex ante incentives to undertake innovative activity to generate new products, but it can create the problems of overcompensation described in Chapters 2 and 4. Those problems include encouraging lie-in-wait behavior – ex post licensing and litigation by patentees rather than ex ante efforts at technology transfer and the creation of new products.[55]

The availability of hold-up value to patentees may indeed encourage invention and patenting activity, but that is not the same thing as encouraging the innovation necessary to bring new products to market. Invention is the first step of innovation, but innovation often requires significant additional development activity beyond that first step in order to get new products and services to consumers.[56] While increased invention and patenting activity will lead to increased innovation in many contexts, it can decrease innovation in others. The risk that patentees that have made no technical contribution to a product can extract hold-up value from manufacturers increases uncertainty and costs and discourages innovation by those manufacturers.[57]

C. Balancing Reasons for Granting and Denying Injunctions

These reasons for granting and denying injunctions should be balanced for the patent system to promote innovation while maintaining alignment with competition policy. Although the potential costs from hold-up should be considered, not all hold-up warrants denial of an injunction. Denying an injunction every time an infringer's switching costs exceed the value of the invention ex ante would dramatically undermine the ability of an injunction threat to deter infringement, protect a patentee's exclusivity, and encourage licensing. An important step in balancing these concerns is to set forth criteria that would help identify those situations in which the costs of hold-up resulting from an injunction exceed the benefits of exclusivity due to the patent grant.

A first criterion considers whether the patented technology is a minor component of a complex product that would have been easy to design around ex ante.[58] When true, these are the cases in which the ex ante value of the patented technology is most likely to be small relative to the cost of hold-up based on the value of the entire product. In contrast, depriving a patentee of

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[55]Cotter, *supra* note 40, at 1168-69, 1179; Joseph Farrell, John Hayes, Carl Shapiro & Theresa Sullivan, *Standard Setting, Patents, and Hold-up*, 74 ANTITRUST L.J. 603, 622-23 (2007).

[56]*See* Chapter 1.

[57]*See* Chapter 2; Meyer at 69-70 (2/12/09). *See also* John Johnson, Gregory K. Leonard, Christine Meyer & Ken Serwin, *Don't Feed the Trolls?*, 42 LES NOUVELLES 487, 488 (Sept. 2007); Mark A. Lemley & Philip J. Weiser, *Should Property or Liability Rules Govern Information?*, 85 TEX. L. REV. 783, 786-88 (2007).

[58]Cotter, *supra* note 40, at 1171; Layne-Farrar at 82-83 (2/12/09) (requiring that infringement have been easy to avoid ex ante had the infringer known of the patent).

exclusive control over an invention that provides the majority of value to a product risks undermining the patent system's incentives to make and develop significant advances.

A second criterion considers whether the infringer uses the patented technology to compete against the patentee and the effect of the infringement on that competition. The patentee's ability to compete in both product and technology markets is important. A lack of competition is more likely to support a conclusion of problematic hold-up, although that analysis involves important subtleties discussed below. A third criterion is the absence or presence of copying.[59] This consideration is needed to support the ability of an injunction threat to deter infringement and encourage parties to negotiate a license.

V. ANALYZING EBAY'S FOUR FACTORS

Although the criteria discussed above can help assess whether the harm from hold-up might outweigh the benefits from exclusivity for a particular invention, a court's analysis and the parties' arguments will be structured according to the four equitable factors set out in the Supreme Court's *eBay* decision. In fact, concerns about balancing the harms and benefits of injunctions to innovation and competition fit well within the *eBay* framework.

A. Irreparable Harm/Inadequacy of Money Damages[60]

Much of the discussion on the state of injunction law post-*eBay* has focused on whether the patentee and infringer compete in a goods market. Conventional wisdom assumes that non-practicing patentees, meaning those who do not compete in sales of a product, cannot obtain injunctions because money damages will adequately compensate any harm they may suffer from infringement. Conventional wisdom also assumes that a patent owner practicing the patent can and should always be granted an injunction. The case law review in Appendix B demonstrates that neither assumption is accurate or consistent with the Supreme Court's explicit warning against categorical rules in the injunction analysis.[61]

Moreover, assumptions about irreparable harm based solely on whether the patentee practices the invention do not achieve the balance described above. On the one hand, the class of non-practicing patent owners is too diverse to be subject to a simple rule. It includes universities,

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[59] *See* Denicolò et al., *supra* note 51, at 573, 590-91 (requiring that infringement be inadvertent); Lemley & Shapiro, *supra* note 33, at 2036-37 (requiring that infringer have independently developed the technology and not copied it).

[60] As discussed in Appendix B, Section III.A, courts and commentators often analyze the first two *eBay* factors as one.

[61] *eBay*, 547 U.S. at 393.

start-ups, semiconductor design houses and patent assertion entities, to name a few.[62] On the other hand, a practicing patentee's assertion of a narrow patent on a minor component can generate the negative consequences of hold-up in the same way that a non-practicing patentee's can. Fortunately, the equitable test that governs the injunction analysis empowers courts to apply a flexible, fact-specific approach to decision making.

A patentee that licenses as part of a technology transfer program, such as a university or semiconductor design house, can suffer harm from infringement that is more akin to that suffered by a manufacturing patentee. Although this category of non-practicing patentees does not compete in a goods market, it does compete in a technology market[63] to have its technology purchased for incorporation into new products. As one court explained, such patentees compete for "design wins."[64] The harm suffered by these patentees as a result of infringement can be analogous to that suffered by manufacturing patentees, including loss of a customer base, industry disregard of its patent rights, and harm to reputation as an innovator.[65] Where a patentee wishes to exclusively license, infringement can destroy its ability to do so. The availability of an injunction is important to such patentees, who rely on the threat to deter infringement, encourage ex ante licensing, and prevent infringer hold-out.[66]

However, when a non-practicing patentee seeks to license broadly, denial of an injunction in the interest of avoiding hold-up and overcompensation may not prevent the patentee from receiving the full value of the invention. This is more likely to be true when the patentee is a PAE seeking to license companies that had independently created and marketed the technology. A PAE will not have the same concerns about deterring future infringement and protecting its reputation as an innovator that other patentees may have.[67]

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[62]*See* Chapter 1.

[63]U.S. DEP'T OF JUSTICE & FED. TRADE COMM'N, ANTITRUST GUIDELINES FOR THE LICENSING OF INTELLECTUAL PROPERTY § 3.2.2 (1995) ("Technology markets consist of the intellectual property that is licensed . . . and its close substitutes . . . .").

[64]Broadcom Corp. v. Qualcomm, Inc., 543 F.3d 683, 702 (Fed. Cir. 2008).

[65]Commonwealth Scientific and Indus. Research Org. v. Buffalo Tech., Inc., 492 F. Supp. 2d 600, 604-05 (E.D. Tex. 2007) (explaining that infringement can harm reputation and a research institution's ability to obtain funding and recruit scientists just as it can harm brand name or goodwill to a manufacturing company); *see also* Emory Univ. v. Nova Biogenics, Inc., No. 1:06-CV-0141, 2008 WL 2945476, at *5 (N.D. Ga. 2008) (stating that negative effects from infringement on goodwill and prestige are real).

[66]Sections III.A and B, *supra*.

[67]*See, e.g.*, z4 Techs., Inc. v. Microsoft Corp., 434 F. Supp. 2d 437, 440-41 (E.D. Tex. 2006). The patented technology was a small component of the infringing product and unrelated to the product's core functionality. The court concluded that the patent holding company patentee would not suffer irreparable harm because the only entity it was prevented from licensing in the future was the defendant. *Id. See*

This is not to say, however, that courts should assume all manufacturing patentees will suffer irreparable harm from infringement. While that might often be the case, the analysis must consider other facts, including the relationship of the patented invention to the infringing product and the structure of the relevant market.[68] Some courts have assumed that where parties compete, infringement necessarily erodes market price and causes the patentee to lose market share.[69] If there are only two competitors in a market, then infringement is more likely to lead to price and market effects. However, the patent may cover a minor component of the infringing product, and competing products may include non-infringing alternatives that are acceptable to customers. In that case, it is less likely that the infringement (as opposed to competition generally provided by the infringer) is harming the patentee.[70]

The variety and complexity of factual scenarios discussed here caution against creating any assumptions of irreparable harm based on a finding of infringement,[71] a patentee's use of the patent, or its willingness to license. A careful consideration of the nature of the patented invention, the infringing use, and competition in the relevant market may be required.

> ***Recommendation.*** Courts should not presume irreparable harm based on a finding of infringement or the patentee's use of the patent. Conversely, courts should recognize that infringement can irreparably harm the ability of patentees

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also Paice, LLC v. Toyota Motor Corp., No. 2:04-CV-211, 2006 WL 2385139, at *5 (E.D. Tex. 2006) (injunction denied to licensing company plaintiff where the patented product was a small component of the infringing device), *aff'd in part, vacated in part and remanded*, 504 F.3d 1293 (Fed. Cir. 2007).

[68]IGT v. Bally Gaming Int'l, Inc., 675 F. Supp. 2d 487, 489-90 (D. Del. 2009) (injunction denied where market contained more than two competitors and court required more than a summary overview of the competitive landscape to find irreparable harm), *aff'd in part, vacated in part and remanded*, 508 F.3d 1293 (Fed. Cir. 2007).

[69]Sprigman at 35 (2/12/09); Malin at 12-13 (2/12/09). *See, e.g.*, Brooktrout, Inc. v. Eicon Networks Corp., No. 2:03-CV-59, 2007 WL 1730112, at *1 (E.D. Tex. 2007) ("intellectual property is quite valuable when it is asserted against a competitor in the plaintiff's market").

[70]*See, e.g.*, Sundance, Inc. v. DeMonte Fabricating, Ltd., No. 02-73543, 2007 WL 37742, at *2 (E.D. Mich. Jan. 4, 2007) (injunction denied where court did not find irreparable harm because the market included many competitors who produced products that did not contain the patented feature). See Chapter 5 for a discussion of the effect of non-infringing alternatives on market analysis.

[71]*eBay*, 547 U.S. at 391 ("plaintiff must demonstrate: (1) that it has suffered an irreparable injury . . . ."). Moreover, equity places the burden of proving irreparable harm on the party seeking an injunction as the one with easiest access to the relevant information. *See* Sprigman at 121 (2/12/09) (evidence of irreparable harm is typically in the hands of the patentee and presumptions should be structured to encourage disclosure).

that primarily engage in technology transfer through licensing to compete in a technology market.

B. Balance of the Equities and Hardships Between the Parties

Under this factor, courts must consider the effect of an injunction on an infringer and balance it against the harm that infringement imposes on the patentee.[72] Commentators have stated that, "the equitable approach is a safety valve for those situations in which someone who is otherwise a good candidate for getting an injunction – such as a patentee whose patent has been infringed – should not get one because of some glaring injustice."[73] But this factor also allows courts to consider whether an injunction would subject the infringer to hold-up because it is "locked-in" to using the patented technology due to high switching costs or compatibility concerns.[74] The expense and harm to an infringer facing hold-up can be weighed against the harm to the patentee by considering the criteria discussed above. The balance will tend to tip toward the infringer when the invention is a component of a downstream product accounting for a relatively small portion of the product's value, and when designing around the infringing product ex post is more costly than it would have been ex ante. In addition, the infringer must not have copied the invention.[75]

Some courts have dismissed infringers' complaints of hardship by stating that "[o]ne who elects to build a business on a product found to infringe cannot be heard to complain if an injunction against continuing infringement destroys the business."[76] The quote originates from a

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[72] *eBay*, 547 U.S. at 391 ("plaintiff must demonstrate . . . (3) that considering the balance of hardships between the plaintiff and defendant, a remedy in equity is warranted"); *cf.* Acumed, LLC v. Stryker Corp., 551 F.3d 1323, 1330 (Fed. Cir. 2008) ("[a]s a preliminary matter, the balance considered is only between a plaintiff and a defendant").

[73] Kieff & Smith, *supra* note 43, at 68-69 (requiring a "grossly disproportionate hardship on the defendant" to deny an injunction); *see also* Smith at 106 (2/12/09) (balance of hardships and public interest factors are equitable safety valves).

[74] Hynix Semiconductor, Inc. v. Rambus, Inc., 609 F. Supp. 2d 951, 984-85 (N.D. Cal. 2009) (denying injunction, in part due to lock-in); Badenoch at 88 (2/12/09) (courts should evaluate the impact of an injunction due to the defendant's sunk costs); Su at 118 (2/12/09) (courts should require greater impact on the infringer's business than merely that which remedies the infringement, such as hold-up).

[75] *See, e.g.*, Schlicher Comment at 34 (5/15/09) (One criteria necessary for denying an injunction is that "the infringer has made large investments . . . necessary to produce any product . . . and those investments . . . are large relative to the value of the patented invention.").

[76] 3M Innovative Properties Co. v. Avery Dennison Corp., No. 01-1781, 2006 WL 2735499, at *2 (D. Minn. 2006); *Johns Hopkins*, 513 F. Supp. 2d at 586 ("the hardship for loss of sales and for ceasing operations is not sufficient because they are direct consequences of the illegal patent infringement"); Smith & Nephew, Inc. v. Synthes, 466 F. Supp. 2d 978, 983 (W.D. Tenn. 2006) ("Although Synthes'

1986 Federal Circuit case that predates *eBay*.[77] As one district court recently explained, reliance on the quote in modern injunction analysis is inappropriate: "[t]o ignore harm to the infringer because it cannot be heard to complain runs contrary to *eBay's* mandate to consider the balance of hardships between the plaintiff and defendant."[78] In the interest of equity, courts should limit the quotation's relevance to those instances where an infringer truly "elects" to infringe by copying patented technology with knowledge of the patent.[79] Given the notice problems and uncertainty endemic in some sectors of the patent system, it is inaccurate to assume that many infringers "elect" to infringe, and formulating injunction policy on the assumption that they do threatens to make the remedy punitive rather than equitable.[80] Doing so can lead to hold-up, overcompensate patentees and harm consumers through higher prices and decreased innovation.

> ***Recommendation.*** Courts should consider the hardship of an infringer facing hold-up under this prong. Courts should reject the statement that an infringer "cannot be heard to complain if an injunction against continuing infringement destroys the business,"[81] except in those instances where an infringer "elects" to infringe by copying a patented invention with knowledge of the patent.

C. Public Interest

Under the public interest factor, courts must examine the effect an injunction would have on third parties, including the public at large.[82] In the past, courts denied injunctions "in rare instances" to protect the public interest where an injunction would have serious consequences for

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effort, time, and expense in redesigning [the infringing product] might be significant, that is the consequence of patent infringement."); *see also* Su at 86 (2/12/09) (courts not sympathetic to arguments that equity should save people from hardship they have created).

[77] Windsurfing Int'l, Inc. v. AMF, Inc., 782 F.2d 995, 1003 n.12 (Fed. Cir. 1986) ("One who elects to build a business on a product found to infringe cannot be heard to complain if an injunction against continuing infringement destroys the business so elected.").

[78] *Hynix*, 609 F. Supp. 2d at 970.

[79] *Id.*

[80] *See* Badenoch at 79-80 (2/12/09) (arguing that boundaries of patents are uncertain, making injunction punitive where defendants independently developed product and incurred sunk costs).

[81] *E.g.*, 3M Innovative Properties Co. v. Avery Dennison Corp., No. 01-1781, 2006 WL 2735499, at *2 (D. Minn. Sept. 25, 2006).

[82] *eBay*, 547 U.S. at 391 ("plaintiff must demonstrate . . . (4) that the public interest would not be disserved by a permanent injunction").

public health and safety.[83] Since *eBay*, a few courts have appropriately broadened the scope of the public interest concerns to include computer security and other burdens that would be borne by the broader public.[84]

Courts often cite the public's interest in "a strong patent system" as supporting an injunction,[85] but a more nuanced approach recognizing that the public has a strong interest in a patent system that best promotes innovation is needed. As discussed above, such a patent system will very often award injunctions to patentees. But in some circumstances, including those involving hold-up based on a patent for a minor component, an injunction could distort competition with unpatented technology, overcompensate the patentee, unduly raise prices to consumers and undermine rather than promote innovation.

> ***Recommendation.*** When warranted by the facts, courts should consider the public's interest in avoiding patent hold-up, which can increase costs and deter innovation.

Panelists and commentators worried that courts might expand the notion of public interest to include the benefit of lower prices, especially for medicines.[86] For instance, one panelist described the public interest factor as a "wild card" that could raise a series of welfare balancing

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[83]Rite-Hite Corp. v. Kelley Co., 56 F.3d 1538, 1547 (Fed. Cir. 1995) ("courts have in rare instances exercised their discretion to deny injunctive relief in order to protect the public interest."); City of Milwaukee v. Activated Sludge, Inc., 69 F.2d 577 (7th Cir. 1934) (overturning permanent injunction on operation of sewage plant based on public health concerns).

[84]*See, e.g.* Broadcom v. Qualcomm, Inc., 543 F.3d 683, 704 (Fed. Cir. 2008) (delaying start of injunction on cell phone because immediate injunction would adversely affect public, network carriers and handset manufacturers); Finjan Software, Ltd. v. Secure Computing Corp., No. 06-369, 2009 WL 2524495, at *11 (D. Del. Aug. 18, 2009) (considering effect of injunction on computer security and service disruptions but finding insufficient evidence to outweigh public interest in a strong patent system), *aff'd in part, rev'd in part and remanded*, 626 F.3d 1197 (Fed. Cir. 2010); Amgen, Inc. v. F. Hoffman-La Roche, Ltd., 581 F. Supp. 2d 160, 212-26 (D. Mass. 2008), *aff'd in part*, 580 F.3d 1340 (Fed. Cir. 2009) (evaluating whether injunction could increase drug prices for government health programs).

[85]Appendix B, Section III.C; *see also*, Telequip Corp. v. Change Exchange, No. 5:01-CV-1748, 2006 WL 2385425, at *2 (N.D.N.Y. Aug. 15, 2006) ("without the right to obtain an injunction, the right to exclude granted to the patentee would have only a fraction of the value it was intended to have, and would no longer be as great an incentive to engage in the toils of scientific and technological research"); Zen Design Group, Ltd. v. Clint, No. 08-cv-14309, 2009 WL 4050247 (E.D. Mich. Nov. 23, 2009) (denial of injunction would disincentivize scientific progress).

[86]Ware at 199-200 (evaluating price competition under the public interest prong is contrary to the grant of exclusivity inherent in the patent); Am. Intell. Property Law Ass'n Comment at 4 (5/18/09).

decisions, comparing the benefits of patent exclusivity versus cheaper drugs.[87] Beyond the circumstances of hold-up that can raise prices by distorting competition with unpatented technology, or extreme circumstances where pricing affects public safety, the public's interest in lower-priced goods generally should not influence the injunction analysis. In enacting the Patent Act, Congress made the judgment that an exclusive right, through its ability to allow patentees to charge higher prices, encourages innovation to the public benefit. Courts should not second-guess that judgment as a general matter.[88]

D. Injunction Analysis in the Standard Setting Context

Hold-up in the standard setting context can be particularly acute. Standards often are adopted to make products compatible and interoperable with other products in the industry.[89] "Lock-in" can make an entire industry susceptible to hold-up. In addition to higher prices and other economic harms, hold-up in standards-based industries may discourage standard setting activities and collaboration, which can delay innovation.[90]

eBay provides a framework for evaluating whether to issue an injunction in the standard setting context. The balance of hardships and public interest factors of the injunction analysis allows district courts to consider the effects of hold-up resulting from assertion of a patent against a standard. The infringer may face significant hardship as a result of an injunction if it is impossible to participate effectively in the market without complying with the standard. Design-around, at any cost, may not be an option. In that case, and where the patent covers a minor feature of the product for which alternatives existed at the time the standard was set, the balance

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[87]Sprigman at 121-24 (2/12/09).

[88]*See* U.S. CONST. art. I, § 8; Bonito Boats, Inc. v. Thunder Craft Boats, Inc., 489 U.S. 141, 150-51 (1989) (the patent system embodies a carefully crafted bargain for encouraging new and non-obvious advances in technology in return for exclusive rights for a period of years).

[89]Krall at 134-35 (3/18/09) (standard setting is critical to ensure interoperability and interchangeable products); *see* Chapter 7, Section III.C.

[90]U.S. DEP'T OF JUSTICE & FED. TRADE COMM'N, ANTITRUST ENFORCEMENT AND INTELLECTUAL PROPERTY RIGHTS: PROMOTING INNOVATION AND COMPETITION at 35 (2007); Farrell *et al.*, *supra* note 55, at 616.

of hardships may support denial of the injunction.[91] A prior RAND[92] commitment can provide strong evidence that denial of the injunction and ongoing royalties will not irreparably harm the patentee.[93] The public interest factor may also consider whether grant of an injunction would deprive consumers of interoperable products and threaten to undermine the collaborative innovation that can result from the standard setting process.[94]

> ***Recommendation.*** Courts should give careful consideration under each of *eBay's* four factors to the consequences of issuing an injunction prohibiting use of patented technology incorporated into an industry standard. Whether the patent owner made a RAND commitment will also be relevant to the injunction analysis.

VI. REMEDIES FOLLOWING DENIAL OF AN INJUNCTION

A. Ongoing Royalties

When the *eBay* analysis leads a court to deny an injunction, the question naturally arises of what remedy to apply. The court opinions that address the question most commonly require ongoing royalties that allow the manufacturer to continue making the infringing product. The Federal Circuit has held that this remedy can be appropriate in lieu of an injunction. In doing so, the court distinguished ongoing royalties from a compulsory license: "[t]he term 'compulsory license' implies that anyone who meets certain criteria has congressional authority to use that

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[91]Hynix Semiconductor, Inc. v. Rambus, Inc., 609 F. Supp. 2d 951, 984-85 (N.D. Cal. 2009) (finding balance of hardships favored infringer where injunction on patent asserted against semiconductor memory standard would "decimate" infringer's business); *but see* TruePosition, Inc. v. Andrew Corp., 568 F. Supp. 2d 500, 532-33 (D. Del. 2008) (evaluating harm to infringer due to standard lock-in, but declining to find balance of hardship favored infringer because of lack of evidence), *aff'd*, 389 Fed. Appx. 1000 (Fed. Cir. 2010).

[92]Many standard setting organizations require that participants agree to license patents on RAND (Reasonable and Non-Discriminatory) terms. *See* Chapter 7, Section III.C.

[93]Some have argued that the RAND commitment should bar the patentee from seeking an injunction and that disputes over licensing rates should be resolved through contract litigation over the RAND amount. Joseph Miller, *Standard Setting, Patents and Access Lock-In: RAND Licensing and the Theory of the Firm*, 40 INDIANA L. REV. 351, 358 (2007); Mark A. Lemley, *Intellectual Property Rights and Standard-Setting Organizations*, 90 CAL. L. REV. 1889, 1902, 1925 (2002).

[94]Concerns that industry members will litigate rather than license absent a credible injunction threat diminish with the realization that past and ongoing damages following litigation will be based on a patent known to be valid and infringed, and therefore higher than pre-litigation royalties. *See* Chapter 6, Section IV.B and Chapter 8, Section VI.

which is licensed . . . By contrast, the ongoing royalty order at issue here is limited to one particular set of defendants."[95]

No consensus on how to set the royalty rate has emerged from the case law, however. The Federal Circuit has stated that district courts must articulate a reasonable basis for determining the amount, and that the award should account for the changed relationship of the parties resulting from an adjudicated finding of infringement of a valid patent.[96] In most cases, the judge rather than the jury has determined the rate because the relief is equitable rather than legal.[97] In some cases, district courts have used the royalty rate for past damages as the royalty rate for ongoing damages.[98] In others, courts have set different royalties, at times based in part on the jury's award.[99]

The Federal Circuit has encouraged district courts to allow parties to negotiate a license themselves before imposing one.[100] Although this approach may be a wise use of judicial resources, parties are more likely to have similar expectations that allow them to reach agreement if the legal rules for calculating the ongoing royalty are clear. The lack of clarity regarding

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[95]Paice, LLC v. Toyota Motor Corp., 504 F.3d 1293, 1313 n.13 (Fed. Cir. 2007), *remanded*, 609 F. Supp. 2d 620 (E.D. Tex. 2009).

[96]*Id.* at 1314-15 ("court may want to take additional evidence . . . to account for any additional economic factors"); *see also* Amado v. Microsoft Corp., 517 F.3d 1353, 1362 (Fed. Cir. 2008) (considering damages for infringement during stay of injunction pending appeal).

[97]*Id.* at 1315-16 (Seventh Amendment does not require jury to determine ongoing royalty); Cummins-Allison Corp. v. SBM Co., Ltd., No. 9:07CV196, 2008 WL 4768028 (E.D. Tex. Nov. 3, 2008) (court calculated royalty for post-verdict infringement); *but cf.* Ariba, Inc. v. Emptoris, Inc., 567 F. Supp. 2d 914 (E.D. Tex. 2008) (court issued pre-trial order stating it would consider sending the question of future damages to the jury).

[98]Voda v. Cordis Corp., No. 03-1512, 2006 WL 2570614, at *6 (W.D. Okla. Sept. 5, 2006), *aff'd*, 536 F.3d 1311 (Fed. Cir. 2008) (judge imposed same royalty rate for future infringement as for past damages); Finisar Corp. v. DirecTV Group, No. 1:05-CV-264, 2006 U.S. Dist. LEXIS 76380, at *5 (E.D. Tex. July 7, 2006) (same), *aff'd in part, rev'd in part*, 523 F.3d 1323 (Fed. Cir. 2008).

[99]Paice, LLC v. Toyota Motor Corp., 609 F. Supp. 2d, 620, 623-24 (E.D. Tex. 2009) (on remand, recalculated ongoing royalty using *Georgia-Pacific* factors); Creative Internet Advertising Corp. v. Yahoo!, Inc., 674 F. Supp. 2d 847, 861 (E.D. Tex. 2009) (judge calculated royalty based on increase over jury determined rate); Boston Scientific Corp. v. Johnson & Johnson, No. 02-00790, 2009 WL 975424, at *5-7 (N.D. Cal. April 9, 2009); (court reapplied *Georgia-Pacific* factors with different weights when calculating the ongoing royalty).

[100]*Paice*, 504 F.3d at 1314-15. *See also* Telcordia Tech., Inc. v. Cisco Systems, Inc., 592 F. Supp. 2d 727, 748 (D. Del. 2009) (ordering parties to negotiate a license); *Hynix*, 609 F. Supp. 2d at 986-87 (same).

ongoing royalty determinations impedes the efficiency of the voluntary settlements that the Federal Circuit seeks to promote.[101]

To form a coherent remedies system, the legal rules governing ongoing royalties must be consistent with the rationale that supported denying the injunction in the first place. As discussed above, that rationale may consider problems of hold-up that enable patentees that assert patents ex post to extract royalties based on the sunk investment of the infringer. When a court denies an injunction to ensure that the patentee cannot use the threat of injunction to extract more than the market reward for its inventive contribution,[102] it stands to reason that the ongoing royalty should align with that market reward. Although the ongoing royalty need not be identical to the royalty awarded for past damages,[103] like reasonable royalty damages, it should be based on a willing licensor/willing licensee model, with the assumption that the patent is valid and infringed.[104] Royalties incorporating the knowledge that a patent is valid and infringed account for the changed relationship of the parties following litigation.

Some commentators and panelists advocated that courts not grant the infringer an ongoing license and royalty after denying an injunction, but instead treat the infringer's future use of the invention as willful infringement, subject to treble damages.[105] Others suggested that ongoing royalties must be very high compared to damages for past infringement. They explained that this would serve as a deterrent to future infringement and provide the patentee with greater

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[101]Meyer at 107-08 (2/12/09) (calculation of ongoing royalties is "an open question"); O'Brien at 258 (5/5/09).

[102]*See* Chapter 4, at 142 n.3 and accompanying text (defining market reward as amount the invention could command when competing with alternative technologies prior to costs being sunk).

[103]Some panelists suggested that the hypothetical negotiation for determining ongoing royalties take into account the known commercial success of the invention at the time of trial. A hypothetical negotiation for calculating past damages is conducted at the time infringement began and would not necessarily incorporate this knowledge. Rhodes at 223-25 (2/12/09); Layne-Farrar at 132 (2/12/09) (courts should not entrench hold-up, but should also take into account the risk of commercial success that may have existed at different points in time).

[104]Chapter 6, Section IV (discussing how the hypothetical negotiation model seeks to replicate the market reward for the invention); *see also* Badenoch at 130-31 (2/12/09) (supporting use of the royalty for past damages as the ongoing royalty); Lemley at 253 (5/5/09) ("It seems to me if we get the damages rules right for retrospective damages, those damages rules are just right as prospectively if we've decided that injunctive relief is not appropriate.").

[105]Ware at 225-26 (2/12/09); Bernard H. Chao, *After eBay Inc. v. MercExchange: The Changing Landscape for Patent Remedies*, 9 MINN. J.L. SCI. & TECH. 543, 568-69 (2008).

leverage in post-verdict licensing negotiations.[106] But such an approach would only recreate the hold-up problem that denial of the injunction was meant to avoid.[107] Concerns about preserving the deterrent value of injunctions and the patentees' incentives to innovate are best addressed by carefully defining and limiting the circumstances under which injunctions are denied.

> ***Recommendation.*** The Commission recommends that to fully compensate patentees but avoid creating hold-up, courts base awards of ongoing royalties following denial of an injunction on the willing licensor/willing licensee model, assuming the patent is valid and infringed.

B. Delaying the Injunction

Courts do not always award ongoing royalties for the life of the patent. In several instances, courts have granted the permanent injunction but delayed its start in order to give the infringer time to design around the patent, or the parties time to reach a licensing agreement. An ongoing royalty will generally run until the injunction takes effect. For instance, the Federal Circuit recently affirmed a district court's grant of an injunction but extended the delay for its start from sixty days to five months.[108] The Federal Circuit has also indicated that a delayed injunction can be an appropriate method to mitigate harm to the defendant and the public.[109]

Where a design-around option is feasible and the infringer is afforded sufficient time to implement it, a delayed injunction can be a useful tool to prevent hold-up while avoiding the concerns associated with denying injunctions for the life of the patent. In addition to giving the infringer an opportunity to design around the patent, which promotes innovation, a delayed-start injunction allows the parties to bargain in light of the design-around alternative and reach a royalty that reflects competition. This can enable inadvertent infringers to minimize some of the potentially most serious costs associated with ex post patent assertions described in Chapter 2.

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[106]Golden at 110-11 (2/12/09) ("if you crank up the damages high enough or multiply it high enough, it effectively works in many ways like an injunction").

[107]*See* Lemley at 270 (5/5/09).

[108]i4i Ltd. Partnership v. Microsoft Corp., 598 F.3d 831, 863-64, 1276-78 (Fed. Cir.), *cert. granted*, 79 U.S.L.W. 3326 (U.S. Nov. 29, 2010) (No. 10-290).

[109]Verizon Servs. Corp. v. Vonage Holdings Corp., 503 F.3d 1295, 1311 n.12 (Fed. Cir. 2007) ("One factor that is relevant to the balance of the hardships required by the Supreme Court's decision in *eBay* was not considered by the district court, namely whether the district court should have allowed time for Vonage to implement a workaround that would avoid continued infringement . . . .").

VII. REMEDIES IN THE INTERNATIONAL TRADE COMMISSION

Although all federal district courts must follow the injunction analysis provided by the Supreme Court in *eBay*, the International Trade Commission ("ITC"), another venue in which patentees may litigate, does not. That discrepancy has generated some concern that the ITC may attract suits by patentees that are less likely to obtain injunctions in district court, potentially leading to hold-up and the resulting consumer harm described above.

Patent holders that believe that imported products infringe their patents may file a complaint with the ITC under Section 337 of the Tariff Act of 1930. That statute prohibits methods of unfair competition from imported goods, including patent infringement.[110] Jurisdiction is *in rem* over the imported goods, which allows patentees to bring cases against foreign defendants who might otherwise be outside the jurisdiction of U.S. district courts.[111] After finding patent infringement, the ITC may issue a cease and desist order and an exclusion order. A cease and desist order prohibits a defendant from selling infringing imported articles out of U.S. inventory.[112] An exclusion order, which can be either general or limited, directs the U.S. Customs service to bar articles from entry into the United States.[113] The ITC cannot award monetary damages for past infringement.

Use of the ITC as a venue for patent challenges has tripled in the last ten years.[114] Sixty-five percent of those cases proceed simultaneously in federal district court. Expanded use of the ITC and the parallel proceedings in the district courts have led some commentators to raise concerns about inconsistent results in individual cases and incoherent development of patent policy.[115] One area of particular interest is the different remedial standards applied in the ITC

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[110] 19 U.S.C. § 1337(a)(1)(A)-(B).

[111] Donald K. Duvall *et al.*, UNFAIR COMPETITION AND THE ITC: ACTIONS BEFORE THE INTERNATIONAL TRADE COMMISSION UNDER SECTION 337 OF THE TARIFF ACT OF 1930 § 2:20 (Philip J. McCabe & John W. Bateman eds., 2007).

[112] 19 U.S.C. § 1337(f).

[113] Limited exclusion orders block importation of infringing articles by "persons determined by the Commission to be violating" Section 337. General exclusion orders ban the importation of any infringing goods, but they are available only in narrow circumstances. 19 U.S.C. § 1337(d)(1), (2); Kyocera Wireless Corp. v. Int'l Trade Comm'n, 545 F.3d 1340, 1356-58 (Fed. Cir. 2008).

[114] Colleen V. Chien, *Patently Protectionist? An Empirical Analysis of Patent Cases at the International Trade Commission*, 50 WM. & MARY L. REV. 63, 68 (2008).

[115] Sapna Kumar, *The Other Patent Agency: Congressional Regulation of the ITC*, 61 FLA. L. REV. 529 (2009) (describing inconsistencies between federal court decisions and ITC decisions); Robert W. Hahn & Hal J. Singer, *Assessing Bias in Patent Infringement Cases: A Review of International Trade Commission Decisions*, 21 HARV. J.L. & TECH. 457 (2008) (assessing benefits of ITC's 337 process and

(exclusion orders) and district courts (injunctions). The ITC has held that it may not apply *eBay's* equitable test when deciding whether to issue an exclusion order because Section 337 "represents a legislative modification of the traditional test in equity . . . [and] it is unnecessary to show irreparable harm to the patentee in the case of infringement by importation."[116] The Federal Circuit affirmed the ITC's conclusion that its remedies are governed by statute, and in particular the dictate that it "shall" enter exclusion orders,[117] and not by equitable principles.[118] Thus, unlike the situation in district court, a finding of infringement in the ITC leads to a nearly automatic exclusion order.[119]

It is not clear how much of the rise in ITC litigation is caused by patentees seeking to avoid the *eBay* analysis, however. ITC litigation had been increasing prior to that 2006 decision.[120] Moreover, patentees often choose to file in the ITC because of the agency's accelerated litigation timetable compared to that of many district courts and the availability of administrative law judges with patent expertise.[121] Nevertheless, panelists worried that patentees might bring suit in the ITC more frequently in the future[122] in the hope of obtaining exclusion orders in circumstances where injunctions might not have been granted in federal district court.[123]

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bias at the ITC in favor of complainants); Sprigman at 44-45 (2/12/09) (system gives plaintiffs "two bites at the apple"). *But see* Rhodes at 227 (2/12/09) (explaining that parallel district court cases were filed to avoid declaratory judgment actions and were often stayed so that few cases are fully adjudicated in both venues); Chien, *supra* note 114, at 92-95 (reporting that 65% of ITC patent cases had parallel district court cases, but finding very few inconsistent decisions).

[116]Certain Baseband Processor Chips and Chipsets, No. 337-TA-543, slip op. at 62-3 n.230 (Int'l Trade Comm'n, June 19, 2007).

[117]19 U.S.C. 1337(d) (stating that if the ITC finds a violation of the statute, "it shall direct that the articles concerned . . . be excluded from entry into the United States" subject to certain public interest analyses).

[118]Spansion, Inc. v. Int'l Trade Comm'n, Nos. 2009-1460, 2009-1461, 2009-1462, 2009-1465, 2010 WL 5156992, at *20-22 (Fed. Cir. Dec. 21, 2010) ("Given the different statutory underpinnings for relief before the Commission in Section 337 actions and before the district courts in suits for patent infringement, this court holds that *eBay* does not apply to Commission remedy determinations under Section 337. ").

[119]A survey of ITC patent investigations filed between 1995 and 2007 found that the ITC awarded an exclusion order in 100% of the cases in which it found a violation. Chien, *supra* note 114, at 99.

[120]McDaniel at 119 (5/26/10).

[121]*Id.* at 115, 118-19 (5/26/10).

[122]Doyle at 254 (5/5/09); Chaikovsky at 254 (5/5/09); Luftman at 227 (2/12/09); Barr at 123 (5/26/10).

[123]Administrative law judges of the ITC have issued few opinions that appear to involve patent holding companies since the 2006 *eBay* decision, although more complaints may have been filed. *See* Certain

The 2009 Saxon case, in which a patent assertion entity asserted three patents that it had purchased against several mobile phone manufacturers, raised the specter of "patent troll" suits in the ITC.[124] Patentees have also asserted patents that are subject to RAND commitments against standardized products in the ITC.[125]

An injunction or exclusion order granted to a patent assertion entity based on infringement of a patent covering a minor component of a complex product poses the risk of generating hold-up that can harm consumers. An injunction or exclusion order against standardized technology also poses a significant risk of hold-up and consumer harm. Although *eBay* provides an important tool for avoiding these outcomes, automatic exclusion orders awarded by the ITC could undermine *eBay's* value in this regard.[126]

Section 337 provides two mechanisms through which the ITC can limit the incidence of hold-up generated by an exclusion order and the resulting harm to consumers. The first relates to matters brought by patent assertion entities. To file suit in the ITC, a patent owner must establish that "an industry in the United States, relating to the articles protected by the patent . . . exists or is in the process of being established." That domestic industry requirement can be satisfied by showing "substantial investment in [the patent's] exploitation, including engineering, research and development or licensing."[127] When Congress added this provision to Section 337 in 1988, it explained, "[t]he definition could . . . encompass universities and other intellectual property owners who engage in extensive licensing of their rights to manufacturers . . . . The owner of the property right must be actively engaged in steps leading to the exploitation of the intellectual property, including application engineering, design work, or other such activities."[128]

Electronic Devices, including Handheld Wireless Communications Devices, Nos. 337-TA-673 & 337-TA-667, slip op. at 3 (Int'l Trade Comm'n, October 15, 2009) ("Saxon Case").

[124]Joe Mullin, *Will the ITC Become the New Troll Hangout?*, THE AM LAW DAILY (January 13, 2009) *available at* http://amlawdaily.typepad.com/amlawdaily/2009/01/a-new-troll-hangout.html. Saxon is an intellectual property licensing company with a portfolio of 180 patents focused on consumer electronics. http://www.saxoninnovations.com/About.html. The litigants settled the case. In the Matter of Certain Electronic Devices, including Handheld Wireless Communications Devices, Nos. 337-TA-673 & 337-TA-667, slip op. (Int'l Trade Comm'n, Feb. 12, 2010).

[125]*E.g.* Certain Gaming and Entertainment Consoles, Related Software, and Components Thereof, USITC Inv. No. 337-TA-752 (Answer of Respondent Microsoft Corp., filed Jan. 26, 2011, at 31-32).

[126]Commentators have highlighted the need to harmonize the remedial standards in the two venues. *See* Chien, *supra* note 114, at 109; Hahn & Singer, *supra* note 115, at 486-90; Kumar, *supra* note 115, at 574-78.

[127]19 U.S.C. § 1337(a)(3). *See also* Duvall et al., *supra* note 111, § 3:16 at 79; § 13.17 at 80.

[128]S. REP. No. 71, 100th Cong., 1st Sess., at 129-30 (1987).

The FTC suggests that the ITC consider interpreting the domestic industry requirement as not satisfied by ex post licensing activity solely focused on extracting rents from manufacturers based on products already on the market. As discussed in Chapters 1 and 2, the differences between the economic consequences of ex ante licensing, which strives for technology transfer and the creation of new products, and ex post licensing, which seeks payment from manufacturers already using the technology, are significant. Section 337 requires an "industry" based on "substantial investment" in "exploitation" of the patent through "licensing." This language can be interpreted as encompassing ex ante but not ex post licensing because only the former seeks to "exploit" the patent by putting it into productive use to create an industry.[129] This interpretation of the statute is consistent with the legislative history's concern with promoting innovation in the United States. Importantly, it will limit access to the ITC of those patent owners most likely to be denied an injunction under the *eBay* analysis propounded above, while allowing access to firms engaged in invention and technology transfer.

Second, Section 337 allows the ITC to consider "the public health and welfare, competitive conditions in the United States economy, the production of like or directly competitive articles in the United States, and United States consumers" in deciding whether to grant an exclusion order.[130] The ITC has rarely used this provision to deny an exclusion order,[131]

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[129]In *Certain Coaxial Cable Connectors and Components Thereof and Products Containing the Same*, the ITC held that ex post and ex ante licensing activity "exploited" the patent and could support a domestic industry. The opinion explains that "licensing activities that 'put [the patent] to productive use,' i.e., bring a patented technology to market, as well as licensing activities that 'take advantage of' the patent, i.e., solely derive revenue," both qualified as "exploitation" of the patent that could satisfy the domestic industry requirement. Certain Coaxial Cable Connectors and Components Thereof and Products Containing the Same, No. 337-TA-650, slip op. at 49-50 (Int'l Trade Comm'n, Apr. 14, 2010) The ITC arrived at this position by relying on the "plain language" of the domestic industry requirement and applying both of two dictionary definitions for "exploit" to the statute: (1) "to put a product to use" and (2) "to take advantage of." *Id.* at 49 (*quoting* Webster's Ninth at 438). However, the availability of multiple dictionary definitions for the statutory term "exploit" could equally well support the reasonableness under *Chevron* of an interpretation based only on the first definition. *See* Smiley v. Citibank (South Dakota), 517 U.S. 735, 740-47 (1996) (describing different definitions of "interest" and "rate" and finding agency's interpretation reasonable under *Chevron U.S.A., Inc. v. Natural Resources Defense Council, Inc.*, 467 U.S. 837 (1984)).

[130]19 U.S.C. § 1337(d)(1).

[131]The ITC has used this provision to deny an injunction only three times. Kumar, *supra* note 115, at 567-68. Those cases involved issues of public health or broad public interest. *See* Fluidized Supporting Apparatus, USITC Pub. 1967, Inv. No. 337-TA-182 (Oct. 1984) (patents covered beds for burn victims and patentee was unable to meet demand); Inclined-Field Acceleration Tubes, USITC Pub. 1119, Inv. No. 337-TA-067 (Dec. 1980) (patents covered devices used in nuclear physics research, including weapons development and other applications funded by the federal government, for which there were no cost effective replacements); Automatic Crankpin Grinders, USITC Pub. 1022, Inv. No. 337-TA-060 (Dec. 1979) (patent covered automobile part that was in short supply and that improved fuel efficiency

but its language should allow consideration of how an exclusion order can cause hold-up, raise prices and decrease innovation as the basis for denial. These economic concepts consider "competitive conditions" by comparing the ex ante value of the patented technology in a competitive technology market to the ex post value due to high switching costs, and the impact of those "competitive conditions" on "United States consumers." Assertion of a patent against a standard, especially a patent subject to a RAND commitment, creates a particularly important scenario for considering the public interest in deciding whether to grant an exclusion order.[132] By incorporating these economic concepts into its remedy analysis, the ITC would move that analysis closer to that required in district courts by *eBay*.[133]

> ***Recommendation*** The FTC recommends that the ITC consider whether only those licensing activities that promote technology transfer "exploit" patented technology within the meaning of Section 337, and therefore satisfy the domestic industry requirement. The FTC also recommends that the ITC incorporate concerns about patent hold-up, especially of standards, into the decision of whether to grant an exclusion order in accordance with the public interest elements of Section 337.

The instances in which the ITC would deny an exclusion order based on these considerations would be rare, especially if it interpreted the domestic industry requirement as described here. However, that denial would leave the patent holder without an infringement remedy in the ITC because that agency lacks the power to award damages for past infringement or an ongoing royalty for future infringement. Of course, patentees can always seek relief in district court, but this would require relitigation of the liability issues because ITC decisions are not accorded *res judicata* effect in district court.[134] Potential solutions deserve further study.[135]

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during energy crisis).

[132]Section V.D, *infra*.

[133]The decisions of the ITC are subject to Presidential review and veto for "policy reasons." 19 U.S.C. § 1337(j)(2). This presents another mechanism for considering when hold-up and consumer harm warrant denial of an injunction in the ITC.

[134]Tandon Corp. v. Int'l Trade Comm'n, 831 F.2d 1017 (Fed. Cir. 1987); Texas Instr. v. Cypress, 90 F.3d 1558 (Fed. Cir. 1996).

[135]Commentators have also proposed broader statutory changes to further harmonize patent litigation in the ITC and district courts. Chien, *supra* note 114, at 106-11; Hahn & Singer, *supra* note 115, at 486-90 (2008).

VIII. CONCLUSION

The *eBay* injunction analysis is grounded in equity. As such, it allows for a balancing of harms to the patentee, the infringer and the public. That balancing must be undertaken with a full appreciation of how an injunction and threat of an injunction can both further and hinder the patent system's goals. On the one hand, injunctions incentivize innovation, deter infringement and encourage licensing. On the other hand, they can raise the cost and uncertainty of innovation through hold-up. For that reason, the FTC recommends that courts incorporate concerns about hold-up into the *eBay* analysis.

Moreover, an appreciation of the consumer harm from hold-up should extend to a court's design of a remedy following denial of an injunction. The FTC recommends that those remedies be based on the market value of the patented technology compared to alternatives, assuming the patent is valid and infringed. In addition, the FTC recommends that the ITC consider mechanisms that lessen the risk that an ITC exclusion order could generate hold-up, including revisiting the scope of the domestic industry requirement and incorporating competition and innovation concerns into the public interest considerations when granting an exclusion order.

APPENDIX A
STATISTICS DESCRIBING PATENT DAMAGE AWARDS

Several authors have reported statistics describing damages awards by district courts. PricewaterhouseCoopers prepares studies of damage awards annually, the most recent of which covers awards between 1995 and 2009. In a 2007 study, Professors Lemley and Shapiro collected data on reasonable royalty rates from reported cases decided between 1982 to 2005.[1] Professor Janicke and the University of Houston Law Center's Institute for Intellectual Property and Information Law provide a web-based service, Patstats (www.patstats.org), which has collected and reported jury-awarded damages in patent cases since 2005 (and other data since 2000). Some of the results from these research projects are summarized in this appendix.

I. PricewaterhouseCoopers Study

In its 2010 Patent Litigation Study, PricewaterhouseCoopers collected 1,587 district court opinions issued since 1995.[2] These decisions included final decisions both at summary judgment and after trial on the merits.[3] The authors collected these decisions from opinions available in two Westlaw databases and corresponding PACER records.[4] PricewaterhouseCoopers calculates annual median damage awards for cases reported between 1995 and 2009 (expressed in 2009 dollars). (See Chart 1.) The annual median awards range from $2.4 million to $10.5 million, with an overall median award of $5.2 million during this period.[5] PricewaterhouseCoopers also provides statistics on win rates, types of award (e.g., reasonable royalty damages), types of plaintiff (e.g., NPE), and types of factfinder (judge or jury).

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[1]Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 Tex. L. Rev. 1991, 2029-35 (2007).

[2]PricewaterhouseCoopers, 2010 Patent Litigation Study, The Continued Evolution of Patent Damages Law: Patent Litigation Trends and the Impact of Recent Court Decisions on Damages, at 26 (Sept. 2010), *available at* http://www.pwc.com/us/en/forensic-services/publications/2010-patent-litigation-study.jhtml.

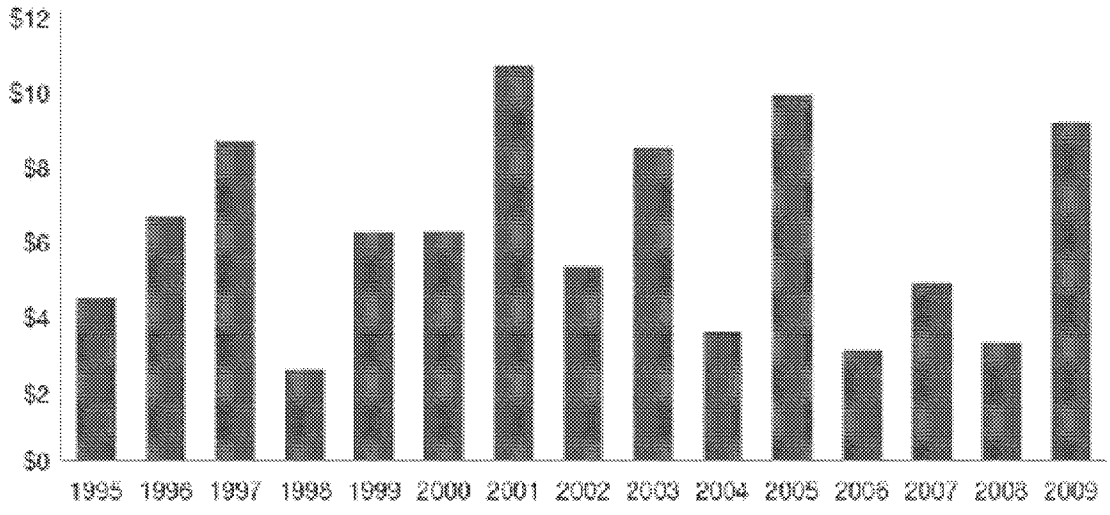
[3]*Id.*

[4]*Id.*

[5]*Id.* at 7.

Chart 1[6]

Patent holder median damages awarded (in millions): 1995-2009



One striking trend reported in the PricewaterhouseCoopers study is the disparity that has arisen between damage awards for non-practicing entities versus practicing entities in recent years. During the 2001-2009 period, the median award to non-practicing entities was $12.9 million, while the median award to practicing entities was $3.9 million.[7] In contrast, during the period 1995-2001, the median damage award for practicing entities exceeded that for non-practicing entities ($6.3 million versus $5.2 million).[8] (See Chart 2.)

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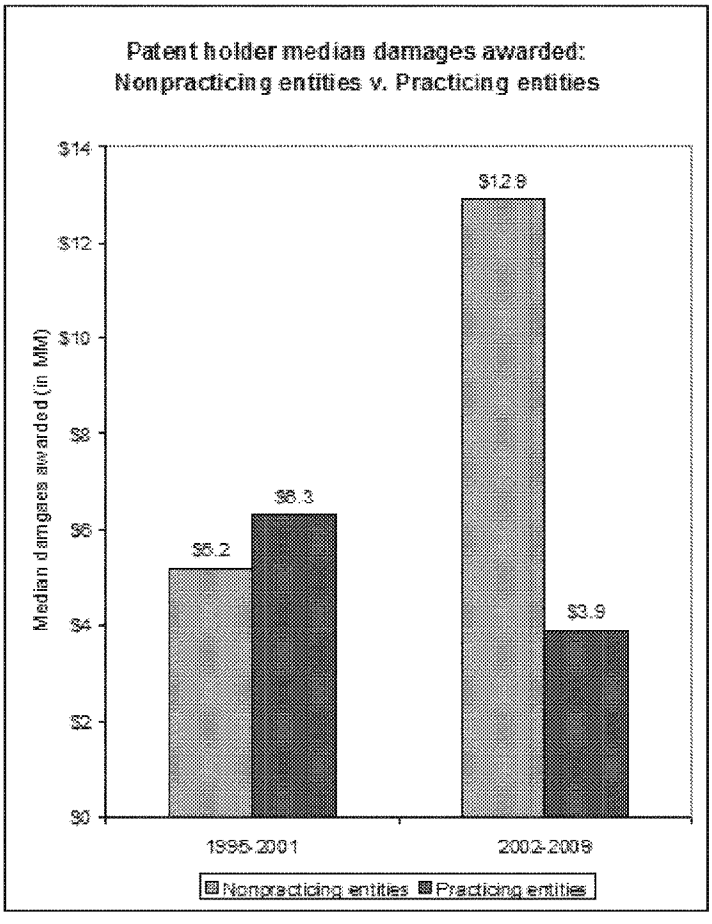
[6] *Id.* Chart 2a. Reproduced with permission from the authors.

[7] *Id.*

[8] *Id.*

Chart 2[9]



The PricewaterhouseCoopers study also identifies a shift toward jury trials versus bench trials, with the former accounting for only 14 percent of cases during the 1980s but just over 50 percent since 2000.[10] The authors suggest several factors that may contribute to this trend. They find that patentees have a higher success rate and receive on average higher damage awards in jury trials as compared to bench trials, creating a perception that juries provide more favorable results for patentees.[11] Additionally, the study reports an increase in litigation by non-practicing entities, who are more likely than practicing plaintiffs to seek a jury trial.[12]

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[9] *Id.* Chart 2b. Reproduced with permission from the authors.

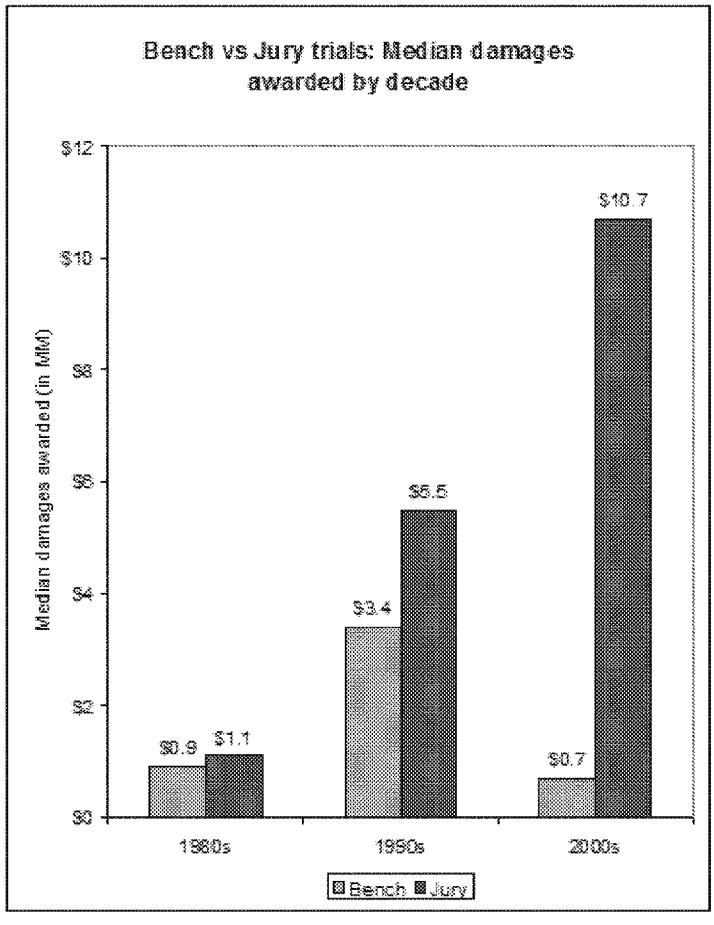
[10] *Id.* at 9 & Chart 3a.

[11] *Id.* at 10.

[12] *Id.*

The PricewaterhouseCoopers study further finds that jury awards substanitially exceed awards by judges, as the following two charts reflect.[13] The first reveals that median damage awards by juries have steadily increased over time and damages awards by judges in bench trials have decreased significantly since 2000, leading to an increasing disparity between them.[14] (See Chart 3.) The second indicates that NPE plaintiffs have obtained substantially higher awards from juries (but not from judges) than have other types of plaintiffs.[15] (See Chart 4.)

Chart 3[16]



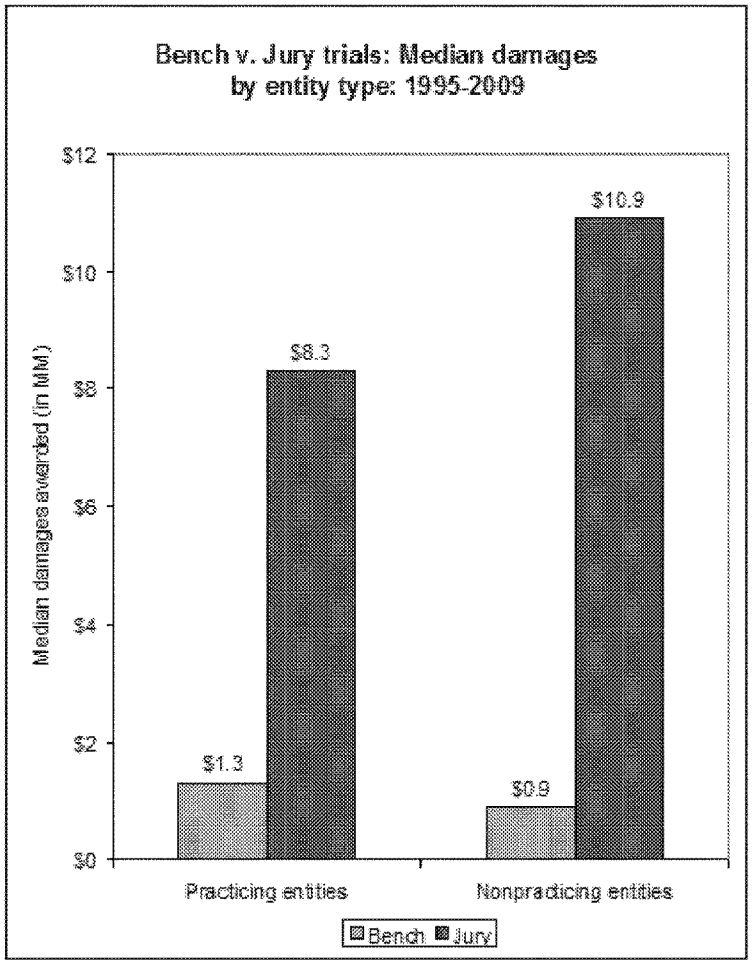
[13] *Id.* at 11.

[14] *Id.*

[15] *Id.*

[16] *Id.* Chart 3e. Reproduced with permission from the authors.

Chart 4[17]



The authors of the PricewaterhouseCooper's study also conclude that reasonable royalty damages continue to be "the most frequent basis of damages awards,"[18] reporting the composition of damages awards for 1995-2001 and 2002-2009. (See Chart 5.) They observe that the expanded importance of reasonable royalties relative to lost profits is in part attributable to the increase in actions by non-practicing entities, which generally cannot recover lost profits.[19]

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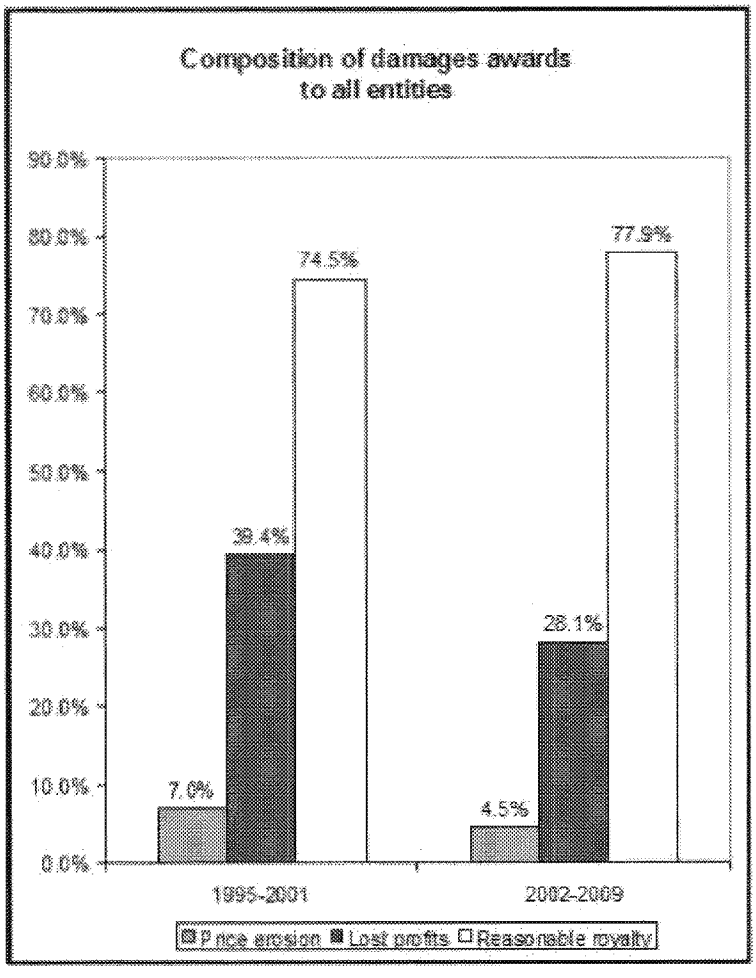
[17] *Id.* Chart 3f. Reproduced with permission from the authors.

[18] *Id.* at 12.

[19] *Id.* at 13.

Chart 5[20]



[20] *Id.* at 12 Chart 4. Reproduced with permission from the authors.

II. Lemley and Shapiro Study

Professors Lemley and Shapiro conducted an empirical study of the royalty rates adopted in reasonable royalty damage determinations by surveying reported cases from 1982 to 2005.[21] They found only 47 written opinions containing sufficient information for them to identify a royalty rate, and point out that judicial damages awards may be overrepresented in the sample relative to jury damages awards.[22] Lemley and Shapiro calculate a mean royalty rate for all sampled awards of 13.1% of the price of the infringing product.[23] In contrast, they state that "very few patent licenses negotiated without litigation (or even in settlement of it) result in royalty rates anywhere near that high."[24] Lemley and Shapiro report a mean royalty rate of about 10.0% for claims of infringement of component inventions and a mean rate of 14.7% for claims involving claims of infringement of integrated-product inventions.[25] The authors observe that these royalty figures exceed the economy-wide average profit margin over the sample period.[26]

III. Data Available on PatStats.org

The University of Houston Law Center's Institute for Intellectual Property and Information Law ("IPLI") has collected data on patent decisions since 2000, and made the data available on its web site Patstats.[27] Since 2005, the Institute has identified jury damage awards in those cases in a spreadsheet available for download from the website.[28] These data are limited to the actual amount the jury awarded in its verdict, and do not include interest or fees and are not

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[21]Lemley & Shapiro, *supra* note 1, at 2029-35.

[22]*Id.* at 2031. The authors focused on royalty awards disclosed in written judicial opinions – they did not include settlements, awards that they could not clearly identify as reasonable royalty awards, and excluded "pure" jury verdicts. This resulted in a bias toward court opinions; jury awards represented only eight of the opinions in their sample. *Id.* at 2030-31.

[23]*Id.* at 2030-32.

[24]*Id.* at 2032-33. Moreover, since the sample is biased toward court awards, which are generally much lower than jury awards, this estimate may be low.

[25]*Id.* at 2034.

[26]*Id.* at 2035.

[27]These data are available on the www.patstats.org website.

[28]Patstats.org, U.S. Patent Litigation Statistics, http://www.patstats.org/Patstats3.html. The excel spreadsheet is available by clicking on the Jury Patent Damages Verdicts link at http://www.patstats.org/Patstats2.html.

adjusted for decisions on post trial motions, appeals or settlements.[29] The Patstats website listed 166 jury awards between January 1, 2005 and January 11, 2010, with a median award of $6.5 million.[30] A list of the 166 awards is available on the FTC web site.[31]

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[29]A paper based on this data identified those cases in which either a district court or an appellate court modified the jury verdict for cases decided between 2005 and 2007. *See* Innovation Alliance, *Moving Beyond the Rhetoric: Jury Damage Verdicts in Patent Infringement Cases 2005-2007* (2008), *available at* http://www.innovationalliance.net/files/JURY%20DAMAGE%20VERDICTS%20IN%20PATENT%20INFRINGEMENT%20CASES%5B1%5D.pdf.

[30]Patstats.org, U.S. Patent Litigation Statistics, http://www.patstats.org/Patstats3.html.

[31]*See* Paul Janicke, *Patent Damages, Patent Verdicts from 1-1-05 to 1-6-09*, presented at FTC Hearing: The Evolving IP Marketplace (Feb. 11, 2009), *available at* http://ftc.gov/bc/workshops/ipmarketplace/feb11/docs/janicke-medianverdits.pdf. (Reproduced with permission from Professor Janicke.)

APPENDIX B
OVERVIEW OF POST-*eBAY* PERMANENT INJUNCTION CASE LAW

I. The *eBay* Case

Not long after its creation, the Federal Circuit recognized that the Patent Act "empowers district courts to grant injunctions in accordance with the principles of equity" and that "the district court's grant or denial of an injunction is within its discretion depending on the facts of each case."[1] In 1989, however, the Federal Circuit established a "general rule" in favor of granting injunctions based on a presumption of irreparable harm:

> 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. The right to exclude recognized in a patent is but the essence of the concept of property. It is the general rule that an injunction will issue when infringement has been adjudged, absent a sound reason for denying it. . . . In matters involving patent rights, irreparable harm has been presumed when a clear showing has been made of patent validity and infringement.[2]

Overcoming this general rule required a significant showing of public harm in order to outweigh the irreparable harm presumed to be caused by infringement.[3] The Supreme Court's *eBay* decision corrected that analysis, however.

In the original action, MercExchange sued eBay and Half.com for infringing two patents relating to on-line sales.[4] The jury returned a verdict of willful infringement and awarded damages of $35 million. The district court denied the patentee's motion for a permanent injunction even though it recognized that injunctive relief was "considered the norm."[5] In reaching that decision, the court pointed to evidence that the patentee, a licensing company, did

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[1]Windsurfing Int'l, Inc. v. AMF, Inc., 782 F.2d 995, 1002 (Fed. Cir. 1986) (*citing* Roche Products, Inc. v. Bolar Pharmaceutical Co., 733 F.2d 858, 865-66, (Fed. Cir. 1984)).

[2]Richardson v. Suzuki Motor Corp., 868 F.2d 1226, 1246-47 (Fed. Cir. 1989) (citations omitted).

[3]Rite-Hite Corp. v. Kelley Co., 56 F.3d 1538, 1547 (Fed. Cir. 1995) (en banc) ("Accordingly, courts have in rare instances exercised their discretion to deny injunctive relief in order to protect the public interest.").

[4]MercExchange, LLC v. eBay, Inc., 275 F. Supp. 2d 695 (E.D. Va. 2003) ("eBay I"), *aff'd in part, rev'd in part*, 401 F.3d 1323 (Fed. Cir. 2005), *vacated and remanded*, 547 U.S. 388 (2006).

[5]*Id.* at 711.

not practice its inventions, had licensed its patents in the past, and had made statements to the media that it was willing to license eBay. The court also explained that the "public does not benefit from a patentee who obtains a patent yet declines to allow the public to benefit from the inventions contained therein."[6]

On appeal, the Federal Circuit reversed the denial of permanent injunction on the grounds that the district court had not provided a persuasive showing that the case is "sufficiently exceptional."[7] The court reiterated the general rule that a permanent injunction will issue unless a "patentee's failure to practice the patented invention frustrates an important public need for the invention such as the need to use an invention to protect public health."[8] It rejected the district court's concern that MercExchange did not practice the patents: "Injunctions are not reserved for patentees that intend to practice their patent, as opposed to those who choose to license. The statutory right to exclude is equally available to both groups, and the right to an adequate remedy to enforce that right should be equally available to both as well."[9] Finally, the appellate court stated, "[i]f the injunction gives the patentee additional leverage in licensing, that is the natural consequence of the right to exclude and not an inappropriate reward to a party that does not intend to compete in the marketplace. . . ."[10]

In 2006, a unanimous Supreme Court rejected both the Federal Circuit's general rule supporting the grant of an injunction and the district court's "expansive principles" suggesting that a patentee who did not practice its invention and was willing to license could not obtain an injunction.[11] Instead, relying on the express language of the Patent Act, which provides that district courts "may" issue injunctions "in accordance with the principles of equity," the Court looked to "traditional equitable principles." The Court listed four equitable factors that a patentee, no different from any other plaintiff, must satisfy to obtain an injunction:

> 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

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[6] *Id* at 714.

[7] MercExchange, LLC v. eBay, Inc., 401 F.3d. 1323, 1338 (Fed. Cir. 2005) ("eBay II"), *vacated and remanded*, 547 U.S. 388 (2006).

[8] *Id*. at 1338 (citations omitted).

[9] *Id*. at 1339.

[10] *Id*.

[11] *eBay*, 547 U.S. at 393.

> defendant, a remedy in equity is warranted; and (4) that the public interest would not be disserved by a permanent injunction.[12]

Chief Justice Roberts' concurring opinion, joined by Justices Scalia and Ginsburg, cautioned that a major departure from the long tradition of equity practice should not be lightly implied. Courts have granted injunctive relief in the vast majority of patent cases, they explained, due to the difficulty of protecting a patentee's right to exclude others from using the invention through monetary damages.[13]

Justice Kennedy's concurring opinion, joined by Justices Stevens, Souter and Breyer, however, did suggest situations in which district courts may find injunctive relief inappropriate. Citing the FTC's 2003 IP Report,[14] Justice Kennedy noted the development of a business model in which non-practicing entities obtain patents primarily to garner license fees, not to practice the inventions. "For these firms, an injunction, and the potentially serious sanctions arising from its violation, can be employed as a bargaining tool to charge exorbitant fees to companies that seek to buy licenses to practice the patent."[15] In addition, Justice Kennedy suggested that situations in which the patented invention is "but a small component of the product the companies seek to produce" may also be inappropriate for injunctive relief because "the threat of an injunction is employed simply for undue leverage in negotiations."[16] On remand, the district court again declined the patentee's request for an injunction.[17]

II. Statistics on Post-*eBay* Cases

After enumerating the four equitable factors in the *eBay* decision, the opinion of the full Court gave little guidance on their application. That, and the divergent emphasis of the two concurring opinions, created significant uncertainty concerning the circumstances under which courts would deny permanent injunctions in patent cases immediately following issuance of the

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[12] *Id.* at 391.

[13] *Id.* at 395 (Roberts, C. J., concurring) (explaining that the "long tradition of equity practice is not surprising, given the difficulty in protecting a right to *exclude* through monetary remedies that allow an infringer to *use* an invention against the patentee's wishes - a difficulty that often implicates the first two factors of the traditional four factor test.").

[14] FEDERAL TRADE COMM'N, TO PROMOTE INNOVATION: THE PROPER BALANCE OF COMPETITION AND PATENT LAW AND POLICY, ch. 3, at 38-39 (Oct. 2003) ("2003 FTC IP Report"), *available at* http://ftc.gov/os/2003/10/innovationrpt.pdf.

[15] *eBay*, 547 U.S. at 396 (Kennedy, J. concurring).

[16] *Id.*

[17] MercExchange, LLC v. eBay, Inc., 500 F. Supp. 2d 556 (E.D. Va. 2007).

eBay decision in May 2006. Since that time, the district courts have decided numerous requests for permanent injunction and the Federal Circuit also has addressed the four factors several times in permanent injunction cases. Some trends have begun to emerge from this body of case law.

In the first year following the May 2006 decision, one article reported that district courts had granted permanent injunctions in 20 of 26 cases, or approximately 77% of the time.[18] The article identified lack of competition between the patent holder and infringer as a significant indicator that a court would likely deny a motion for a permanent injunction in the remaining 23% of cases.[19] A more recent survey of post-eBay cases examined 67 cases published in Lexis or available from Lexis' Courtlink function as of May 1, 2009.[20] The authors found that district courts had awarded permanent injunctions in 48 (or approximately 72%) of the cases.[21]

An article examining 27 cases decided in the year following *eBay* found that in the four cases involving non-practicing patentees, courts awarded no injunctions.[22] This result led many to worry that patentees that did not practice their inventions would no longer be able to obtain permanents injunctions. Although non-practicing patentees have been less likely than practicing patentees to receive injunctions, the concern that injunctions are categorically unavailable is unwarranted. A longer term review of the post-*eBay* case law reveals that as of March 1, 2010, courts had heard thirteen requests for permanent injunctions where the opinion suggests that the patent owner is one of several types of non-practicing entities, including a university, research institute and independent inventor. Of those thirteen cases, district courts granted an injunction seven times.[23]

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[18]Robert A. Cote, *The State of Injunctions in a Post-*eBay *World*, Loyola IP Focus Series - Los Angeles, CA, at 4 (June 15, 2007), *available at* http://www.lls.edu/ip/past-events/documents/Cote-Revised2.pdf.

[19]*Id.* at 7-8.

[20]Ernest Grumbles III et al., *The Three Year Anniversary of* eBay v. MercExchange*: A Statistical Analysis of Permanent Injunctions*, IP TODAY (Nov. 2009).

[21]*Id.*

[22]Eric Keller, *Time Varying Compulsory License: Facilitating License Negotiation for Efficient Post-Verdict Patent Infringement,* 16 TEX. INTELL. PROP. L.J. 427, 434 (Spring 2008).

[23]Broadcom Corp. v. Qualcomm, Inc., 543 F.3d 683 (Fed. Cir. 2008) (district court's injunction grant affirmed.); i4i Ltd. Partnership v. Microsoft Corp., 670 F. Supp. 2d 568 (E.D. Tex. 2009), *aff'd*, 598 F.3d 831 (Fed. Cir. 2010) (affirming the grant of an injunction while modifying its effective date), *cert. granted*, 79 U.S.L.W. 3326 (U.S. Nov. 29, 2010) (No. 10-29); Creative Internet Advertising Corp. v. Yahoo! Inc., No. 6:07cv354, 2009 WL 4730622 (E.D. Tex. Dec. 9, 2009) (injunction denied); Kowalski v. Mommy Gina Tuna Resources, Nos. 05-00679, 05-00787, 06-00182, 2009 WL 856006 (D. Haw. March 30, 2009) (injunction granted), *clarified by*, 2009 WL 1360695 (D. Haw. May 7, 2009); Joyal Products, Inc. v. Johnson Electric North America, Inc., No. 04-5172, 2009 WL 512156 (D. N.J. Feb. 27, 2009) (injunction granted), *aff'd per curiam*, 335 Fed. Appx. 48 (Fed. Cir. 2009); Hynix Semiconductor,

To gain a better understanding of how different fact patterns influence district courts' decisions to grant or deny an injunction following the Supreme Court's 2006 decision in *eBay v. MercExchange*,[24] panelist Steve Malin conducted a survey of post-eBay cases decided through December 31, 2008. He presented the results at the FTC hearing on the Evolving IP Marketplace on February 12, 2009.[25]

To generate the results presented at the FTC hearing, Mr. Mallin updated a survey he had originally produced for a subcommittee of the American Intellectual Property Law Association (AIPLA).[26] The survey presented at the FTC hearing included 49 cases decided between May 15, 2006 and December 31, 2008. The sample did not include all post-*eBay* permanent injunction cases decided during the time frame, however. If an opinion did not offer sufficient information to determine the factors the courts used in deciding whether to grant an injunction, or if an opinion focused on technical procedural issues, it was removed from the sample.[27]

The survey result statistics were generated by evaluating whether courts used any of 28 pre-identified factors in determining whether to grant a permanent injunction (see the blank survey sheet below). At least two attorneys reviewed each opinion and determined whether it discussed any of these factors. The statistics measure the courts' assessment of the factors, and

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Inc. v. Rambus Inc., 609 F. Supp. 2d 951 (N.D. Cal. 2009) (injunction denied); Telcordia Tech., Inc. v. Cisco Systems, Inc., 592 F. Supp. 2d 727, (D. Del. 2009) (injunction denied), *aff'd in part and vacated in part*, 612 F.3d 1365 (Fed. Cir. 2010); Voda v. Cordis Corp., No. CIV-03-1512, 2006 WL 2570614 (W.D. Okla. Sept. 5, 2006), *aff'd*, 536 F.3d 1311 (Fed. Cir. 2008) (injunction denied); Emory Univ. v. Nova Biogenics, Inc., No. 1:06-CV-0141, 2008 WL 2945476 (N.D. Ga. July 25, 2008) (injunction granted); Commonwealth Scientific and Indus. Research Org. v. Buffalo Tech., Inc. ("CSIRO"), 492 F. Supp. 2d 600, 601 (E.D. Tex. 2007) (injunction granted); Johns Hopkins Univ. v. Datascope Corp., 513 F. Supp. 2d 578 (D. Md. 2007) (injunction granted), *rev'd on other grounds and remanded*, 543 F.3d 1342 (Fed. Cir. 2008); z4 Technologies, Inc. v. Microsoft Corp., 434 F. Supp. 2d 437, (E.D. Tex. 2006) (injunction denied); Paice, LLC v. Toyota Motor Corp., No. 2:04-CV-211, 2006 WL 2385139 (E.D. Tex. Aug. 16, 2006) (injunction denied), *aff'd in part, vacated in part and remanded*, 504 F.3d 1293 (Fed. Cir. 2007), *on remand*, 2009 U.S. Dist. Lexis 32723 (E.D. Tex. April 17, 2009). *See* Sections III.A.2 and III.A.3 for discussion of cases.

[24]547 U.S. 388 (2006).

[25]Steve Malin & Ari Rafilson, *Empirical Analysis of Permanent Injunctions Following* eBay, presented at FTC Hearing: The Evolving IP Marketplace (Feb. 12, 2009), *available at* http://www.ftc.gov/bc/workshops/ipmarketplace/feb11/docs/smalin.pdf.

[26]Malin et al., Injunctive Relief After *eBay v. MercExchange*, *available at* http://www.foley.com/files/tbl_s31Publications/FileUpload137/4541/InjunctiveReliefAftereBay.pdf.

[27]Malin at 9-10 (2/12/09).

thus the opinion must have discussed the factor to receive a yes or a no check mark.[28] If the reviewing attorneys disagreed, they conferred and reached an agreement on the how the court had reached its injunction decision.

The factors fell into three subcategories: (1) those related to the patentee's business; (2) those related to the defendant's business; and (3) those that related to the public interest. These categories were also designed to track the four factors. Those concepts that relate to the patentee's business also track the factors courts have used to evaluate the irreparable harm and inadequate damages prong of the *eBay* test and track plaintiff's arguments.[29] The concepts that relate to the defendant's business track factors that courts have used to evaluate the balance of the hardship prong.[30] The concepts that related to the public interest should track considerations of the effect of an injunction on third parties and the public in general. Results are reported in the table below and in Chapter 8 of this report. A blank survey checklist identifying all of the factors used by the attorneys reviewing the cases is included at the end of this appendix.

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[28]If the court did not discuss the factor, the reviewing attorney would have check N/A. Attorneys did not rely on information known to them outside of the opinion. For instance, one of the factors measured by the survey was whether the patentee practiced the patent. If a case involved a consumer good that an attorney knew the patentee produced, but the court did not indicate that the patentee practiced the patent, that survey sheet for the case would not state that whether the patentee practiced the patent but have the N/A box checked for that factor.

[29]Malin at 7-8 (2/12/09).

[30]*Id.* at 7-8.

Potentially Relevant Fact Pattern	Number of Cases (of 49) that Cited the Fact	Grant Rate when YES	Grant Rate when NO
Patentee Facts			
Practicing Patentee	43	83%	43%
Patentee and Defendant Compete	42	87%	25%
Lost Sales to Defendant	36	88%	25%
Harm to Patentee's Reputation	24	95%	0%
Patentee Licensed Others	21	63%	80%
Defendant Facts			
Willfulness	25	75%	40%
Impact on Defendant's Business	24	79%	70%
Harm to Defendant's Customers	19	50%	100%
Minor Impact of Defendant's Sales	17	80%	100%
Voluntary Offer to Avoid Future Infringement	15	80%	40%
Compliance with the Injunction is Easy	13	92%	0%
Public Interest			
Health Concern	15	50%	91%

III. Analysis of the Four Factors in Post-*eBay* Decisions

As more court decisions address the availability of injunctions post-*eBay*, several themes and approaches for analyzing the four equitable factors have appeared. In many cases, courts have focused the bulk of their discussions on the irreparable harm and inadequate damages factors. In these cases, the analysis of the balance of hardships emphasized the irreparable harm to the patentee. In many of these instances, courts declined to consider harm to the defendant, relying on Federal Circuit precedent that a defendant who builds a business around an infringing product cannot be heard to complain.[31] Where courts have considered harm to the infringer, they often look to the size of the infringing company, whether the injunction will affect a large portion of its total sales, or whether the injunction will have other devastating effects. In evaluating the public interest prong, courts will recite the public's interest in a patent system that furthers innovation.[32] In cases where courts have engaged in additional analysis of the public interest, they mainly have focused on traditional health and safety concerns. However, a few courts have considered the effects on third party customers.

A. Irreparable Harm/Inadequate Money Damages

The first two of the four equitable factors recited in *eBay*, irreparable harm to the patentee caused by infringement and the inadequacy of money damages to remedy that harm, are closely linked and courts sometimes analyze them together. They reason that "irreparable harm" is that which "cannot be adequately atoned for in money."[33] One scholar also considers the irreparable injury factor equivalent to the no adequate legal remedy factor.[34] The inquiry has often focused

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[31] *Windsurfing*, 782 F.2d at 1003 ("One who elects to build a business on a product found to infringe cannot be heard to complain if an injunction against continuing infringement destroys the business so elected.").

[32]Telequip Corp. v. The Change Exchange, No. 5:01-CV-1748, 2006 WL 2385425, at *2 (N.D.N.Y. Aug. 15, 2006) (holding that absent available injunctions, the right to exclude would have only a fraction of the value it was intended and would not be an incentive for scientific research); Zen Design Group, Ltd. v. Clint, No. 08-cv-14309, 2009 WL 4050247 (E.D. Mich. Nov. 23, 2009) (holding that without a permanent injunction a patent's actual value would be reduced to a fraction of its intended value).

[33]Wald v. Mudhopper Oilfield Services, Inc. No. CIV-04-1693, 2006 WL 2128851 (W.D. Okla. July 27, 2006) (stating that irreparable harm often occurs when an injury cannot be adequately atoned for in money); *Paice*, 2006 WL 2385139, at *5 ("Irreparable harm lies only where injury cannot be undone by monetary damages."); Sprigman at 28 (2/12/09) (stating that inadequacy of money damages is the mirror image of the irreparable harm factor and courts have treated them as one inquiry).

[34]DOUGLAS LAYCOCK, THE DEATH OF THE IRREPARABLE INJURY RULE, 8-9 (1991). Professor Laycock argues that the "irreparable injury rule has two formulations." One is"[e]quity will act only to prevent irreparable injury" and the other is "equity will act if there is no adequate legal remedy." According to Professor Laycock, "[t]he two formulations are equivalent; what makes an injury irreparable is that no

on whether the parties competed and the harm that the patentee would suffer as a result of that competition, although courts have also found irreparable harm absent such competition. A lesser but still significant area of inquiry has been the relationship of the patented invention to the infringing product, and whether the invention was a small component that did not drive sales of the product.

1. Cases in Which the Patentee and Defendant Competed

Many district courts have placed the burden of proving irreparable harm on the patentee.[35] When patentees and infringers compete in a goods market, district courts have typically granted permanent injunctions.[36] However, some courts have declined to find this factor sufficiently satisfied to warrant an injunction based solely on general assertions of competition.[37] They require clear evidence such as lost market share, lost customers and price erosion.[38] The loss of

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other remedy can repair it." He adds, "I believe that no significant distinction can be drawn between irreparable injury and adequate remedy formulations" and he uses the two interchangeably throughout his book.

[35] *See, e.g.*, *z4*, 434 F. Supp. 2d at 440 (E.D. Tex. 2006) (holding that eBay eliminated irreparable harm presumption in permanent injunction context). In a non-precedential preliminary injunction case, the Federal Circuit also stated that *eBay* removed the presumption of irreparable harm and "[t]he burden is now on the patentee to demonstrate that its potential losses cannot be compensated by monetary damages." Automated Merchandising Sys. v. Crane Co., Nos. 2009-1158, 2009-1164, 2009 WL 4878643, at *3 (Fed. Cir. Dec. 16, 2009). *But see Broadcom*, 543 F.3d at 702 ("[i]t remains an open question whether there remains a rebuttable presumption of irreparable harm following *eBay*." (citations omitted)).

[36] Sprigman at 35 (2/12/09); Malin at 12-13 (2/12/09); Bernard H. Chao, *After* eBay Inc. v. MercExchange: *The Changing Landscape for Patent Remedies*, 9 MINN. J.L. SCI. & TECH. 543, 549 (2008).

[37] *See, e.g.*, Praxair Inc. v. ATMI, Inc., 479 F. Supp. 2d 440, 444 (D. Del. 2007) (denying injunction because patentee put forth general arguments about lost market share, profits, and goodwill, but did not identify specific losses or offer supporting data); IMX, Inc. v. Lendingtree, LLC, 469 F. Supp. 2d 203, 225 (D. Del. 2007) (denying injunction because plaintiff did not proffer evidence such as market or financial data to support otherwise sweeping statements); Advanced Cardiovascular Sys., Inc. v. Medtronic Vascular, Inc., 579 F. Supp. 2d 554, 560-61 (D. Del. 2008) (finding no irreparable harm despite competition between parties because patentee failed to identify any specific lost customers).

[38] *See, e.g.*, Verizon Services Corp. v. Vonage Holdings Corp., 503 F.3d 1295 (Fed. Cir. 2007) (finding that lost customers and price erosion provide evidence of irreparable harm); Power Integrations, Inc. v. Fairchild Semiconductor Int'l, Inc., No. 04-1371, 2008 WL 5210843 (D. Del. Dec. 12, 2008) (lost market share, harm to plaintiff's reputation and goodwill); Sensormatic Electronics Corp. v. Tag Co. U.S., 632 F. Supp. 2d 1147 (S.D. Fla. 2008) (future loss of market share and price erosion), *aff'd in part*, 367 Fed. Appx. 143 (Fed. Cir. 2010) (non-precedential opinion); Becton Dickinson & Co. v. Tyco Healthcare Group, LP, No. 02-1694, 2008 WL 4745882 (D. Del. Oct. 29, 2008) (lost market share and customers);

"sticky" customers has been one way to establish irreparable harm. In finding irreparable harm based on Echostar's infringement of TiVo's digital video recorder (DVR) technology patents, the court emphasized that competition in the nascent DVR market would cause TiVo to lose "sticky customers," those who are loyal or "locked-in" due to a hardware purchase, at a critical time.[39] In *Transamerica*, the court also found irreparable harm based on the loss of "sticky customers" who purchased long-term infringing retirement annuities.[40]

A few courts have recognized that a determination of whether the infringement caused the patentee to lose customers will depend, in part, on the definition of the market in which the patentee and infringer compete. In the *Martek* case, for example, the court relied upon a narrow market definition to determine that the infringer was the patentee's sole competitor, and therefore necessarily targeted the patentee's customers, causing irreparable harm through lost market share.[41] A broader market definition that included alternatives to the patented invention might have supported a conclusion that the infringer's customers would have chosen a non-infringing product and so the infringement did not cause the patentee's lost market share.[42] For instance, when finding no irreparable harm in *Advanced Cardiovascular Systems*, the court pointed to market data establishing the presence of non-infringing competitors. The court also noted the patentee's admission that it had recaptured almost all market share lost due to infringement.[43]

Brooktrout, Inc. v. Eicon Networks Corp., No. 2:03-CV-59, 2007 WL 1730112 (E.D. Tex. June 14, 2007) (lost market share); MPT, Inc. v. Marathon Labels, Inc., 505 F. Supp. 2d 401 (N.D. Ohio 2007) (lost market share and customer goodwill), *aff'd in part, rev'd in part*, 258 Fed. Appx. 318 (Fed. Cir. 2007); Transocean Offshore Deepwater Drilling, Inc. v. GlobalSanteFe Corp., No. H-03-2910, 2006 WL 3813778 (S.D. Tex. Dec. 27, 2006) (citing evidence from the trial record that the parties had customers in common and the defendant used its infringing products to win bids from the patent holder).

[39]TiVo v. Echostar Commc'ns Corp., 446 F. Supp. 2d 664, 667 (E.D. Tex. 2006), *aff'd in part, rev'd in part*, 516 F.3d 1290 (Fed. Cir. 2008).

[40]Transamerica Life Insurance Co. v. Lincoln Nat'l Life Ins. Co., 625 F. Supp. 2d 702 (N.D. Iowa 2009), *rev'd on other grounds sub nom.*, Lincoln Nat. Life Ins. Co. v. Transamerica Life Ins. Co., 609 F.3d 1364 (Fed. Cir. 2010).

[41]Martek Biosciences Corp. v. Nutrinova Inc., 520 F. Supp. 2d 537 (D. Del. 2007) (defining the market as vegetarian DHA for adult foods and beverages), *aff'd in part and rev'd in part*, 579 F.3d 1363 (Fed. Cir. 2009); *see also* Arlington Indus., Inc. v. Bridgeport Fittings, Inc., No. 3:01-CV-0485, 2010 WL 817519, at *3-4 (M.D. Pa. March 9, 2010) (the district court defined the market as the narrow subset of electrical conduit fittings, essentially defined by the patents at issue).

[42]Chapter 7, Section III.

[43]*Advanced Cardiovascular Systems*, 579 F. Supp. 2d at 560-61 (D. Del. 2008). The court also noted the patentee's willingness to license other competitors in finding that money damages were adequate compensation.

One case has recognized that the relevant market may extend beyond products that incorporate the patented technology. The Federal Circuit affirmed the grant of a permanent injunction after Qualcomm was found to infringe two Broadcom patents related to CDMA cell phone technology.[44] Qualcomm argued that Broadcom, which makes only WCDMA chips not using the patented technology, suffered no irreparable harm because it did not compete with Qualcomm's infringing CDMA chips. But the district court rejected this argument on the basis that the two firms competed for "design wins for the development and production of cell phones" rather than for "each consumer sale."[45]

In identifying irreparable harm caused by competition between a patentee and infringer, courts have also looked beyond lost customers and price erosion to the more qualitative concern of damage to a patentee's reputation.[46] As one court explained, competition from an infringing product can damage the patentee's good will or brand name recognition. Because that damage is "impossible" to quantify, it cannot be adequately compensated by money damages, and so supports the grant of an injunction.[47] Similarly, in a case involving a product for treating oil wells, the court cited harm to the patentee's reputation as an innovator and its ability to maintain its product as the "industry standard," in addition to lost market share, to support its finding of irreparable harm.[48] Another district court cited evidence that the defendant's infringement not only harmed a medical device manufacturer plaintiff's market share and profits, but also interfered with the patentee's ability to form relationships with surgeons, and as a result damaged its reputation and ability to innovate.[49]

2. Cases In Which Courts Granted Injunctions to Patentees that Did Not Practice the Patent

Although courts typically find irreparable harm when a patentee and infringer compete in a goods market, the converse – that they find a lack of irreparable harm absent competition- should not be assumed. Courts have found irreparable harm that could not be adequately

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[44] *Broadcom*, 543 F.3d at 683.

[45] *Id.* at 702.

[46] *See, e.g., Emory*, 2008 WL 2945476, at *4.

[47] *z4*, 513 F. Supp. 2d at 442; Callaway Golf Co. v. Acushet Co., 585 F. Supp. 2d 600, 621 (D. Del. 2008) (holding that reputational harm supported injunction even though the patentee no longer marketed patented golf balls), *aff'd in part, vacated in part*, 576 F.3d 1331 (Fed. Cir. 2009); *see also* Sprigman at 41-42 (2/12/09).

[48] *Wald*, 2006 WL 2128851, at *5.

[49] Smith & Nephew, Inc. v. Synthes, 466 F. Supp. 2d 978, 983 (W.D. Tenn. 2006).

compensated by money damages where the patentee did not practice the patent.[50] Their reasoning varies, depending on the nature of the patentee. In two cases involving non-practicing patentees, the court relied only on harm to the patentee's right to exclude and the economic value of a patent as supporting an injunction.[51] Other cases rely on additional evidence, however.

In two cases in which the patentees were universities, their exclusive licensees marketed products in competition with the infringing products. In both cases, the university and its licensee joined suit and the court granted an injunction.[52] In *Johns Hopkins*, the court determined that the exclusive licensee and the defendant were the only two competitors in the market and any sales by the defendant would result in lost sales to the licensee.[53] Additionally, the court noted harm to the plaintiffs' reputations and injury to the patentee's right to exclude.[54] In *Emory,* the court found irreparable harm based on harm to the university's reputation. The court explained, "when an infringing company is not actively selling the offending product, the harm to a patent-holder may seem esoteric. But the negative effects of the Plaintiffs' potential loss in goodwill, market share, and prestige are real, and would be difficult to quantify solely through monetary damages."[55]

District courts have also granted injunctions to organizations that often seek to license their patents non-exclusively. The Commonwealth Scientific and Industrial Research Organisation ("CSIRO"), a scientific research organization established by the Australian government, conducts scientific research in many technological areas and licenses its patented technology. The court found that infringement of CSIRO's patent on a wireless local area network had caused irreparable harm by depriving CSIRO of licensing revenues that would have

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[50] *See supra* note 23.

[51] In *Joyal,* the district court granted an injunction to a patent holder that had ceased manufacturing operations and no longer practiced its patents based on argument that continuing infringement would devalue the patent and undermine the patentee's ability to sell it at a desirable price. *Joyal*, 2009 WL 512156, at *11; *See also Kowalski*, 2009 WL 856006, at *1 (injunction granted to independent inventor based on right to exclude).

[52] *Emory*, 2008 WL 2945476; *Johns Hopkins*, 513 F. Supp. 2d at 578. *But see Voda*, 2006 WL 2570614, in which the court rejected the licensor patentee's argument that it could demonstrate irreparable harm to itself based on harm to its exclusive licensee. The exclusive licensee was not joined in the suit, and it appears that the patentee did not provide evidence of how harm to the licensee would directly harm it.

[53] *Johns Hopkins*, 513 F. Supp. 2d at 586 ("In fact, it is the only competition and thus, its sale reduces the Plaintiffs' market share.").

[54] *Id.* ("As the principal value of a patent is its statutory right to exclude, the nature of the patent grant weighs against holding that monetary damages will always suffice to make the patentee whole." (citations omitted)).

[55] *Emory*, 2008 WL 2945476, at *5.

funded additional projects and diverting funds from its research function to patent litigation.[56] The court also noted harm to CSIRO's reputation as a research institution and its ability to recruit top scientists.[57]

In *Broadcom v. Qualcomm*, the district court and Federal Circuit recognized that a patentee may not practice its asserted patents, yet still compete with an infringer and suffer irreparable harm stemming from that competition. Broadcom held patents covering aspects of Qualcomm's CDMA cell phone technology, but it did not practice that technology in its WCDMA chips. The court found that the infringement might harm Broadcom's ability to compete with CDMA chips in a market for "design wins." The court explained the irreparable harm caused by the infringement: "In this kind of a market, the exclusion has a competitive effect on a firm even if it does not have an immediately available product."[58]

In one case, the Federal Circuit and district court have based a finding of irreparable harm in part on the past harm infringement imposed on the patentee. In *i4i*,[59] the Federal Circuit stated that it was proper for the district court to consider "strong circumstantial evidence that Microsoft's infringement rendered i4i's product obsolete. . .causing i4i to. . .change its business strategy to survive."[60] The court cited past infringement as causing 80% loss of market share, loss of revenue, and harm to brand name recognition and customer goodwill.[61]

3. Cases In Which Courts Denied Injunctions to Patentees that Did Not Practice the Patent

District courts have denied injunctions to patent holders who did not practice the patented invention in six identified cases.[62] None of these decisions depend categorically on the fact that the patentee did not manufacture a product to support denial of the injunction. In two cases,

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[56] *CSIRO*, 492 F. Supp. 2d at 603-08. The district court in *Hynix v. Rambus* criticized this rationale, explaining that the court's examination of irreparable harm was inappropriately retrospective and did not examine the harm that *CSIRO* would prospectively incur upon denial of an injunction. The *Hynix* court also criticized the *CSIRO* court's reliance on harm caused by infringers other than the defendant. *Hynix*, 609 F. Supp. 2d at 983. Interestingly, the *CSIRO* court also failed to discuss the import of *CSIRO*'s earlier RAND commitment to a standard setting organization.

[57] *CSIRO*, 492 F. Supp. 2d at 604.

[58] *Broadcom*, 543 F.3d at 702 (Fed. Cir. 2008).

[59] *i4i*, 598 F.3d at 831.

[60] *Id.* at 862.

[61] *Id.*

[62] *See supra* n.23.

Voda[63] and *Telcordia*[64], the patentee provided very little evidence that might have sufficed to carry its burden of proving irreparable harm. In *z4*[65] and *Paice*[66], the court considered a wide range of facts in finding no irreparable harm. The *Hynix*[67] case is the first to emphasize that equitable injunctions are forward, not backward looking, although the recent Federal Circuit decision in *i4i*[68] focuses attention on permitting an analysis of past harm to evaluate the injunction decision.

In *Telcordia v. Cisco Systems,* the district court rejected licensing company Telcordia's argument that it would suffer irreparable harm absent an injunction because "its lifeblood was its ability to enforce its patents and continue to generate innovative solutions. . . ."[69] The court found this argument lacking primarily because it consisted of merely attorney argument, with no supporting evidence of harm, such as lost sales, licensing or R&D opportunities. Telcordia was able to obtain licenses from other companies, suggesting that its licensing program was not harmed.[70] In *Voda*, the Federal Circuit affirmed the denial of an injunction when the district court rejected the licensor patentee's argument that it could demonstrate irreparable harm to itself based on harm to its exclusive licensee.[71] The exclusive licensee was not joined in the suit, and it appears that the patentee did not provide evidence of how harm to the licensee would directly harm it.[72] The Federal Circuit also rejected Voda's argument that in denying the injunction, the district court was adopting a categorical rule that denied injunctions to non-practicing patentees,

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[63] *Voda*, 2006 WL 2570614, at *5.

[64] *Telcordia*, 592 F. Supp. 2d at 747, *aff'd in part, vacated in part*, 612 F.3d 1365 (Fed. Cir. 2010).

[65] *z4*, 434 F. Supp. 2d at 437.

[66] *Paice*, 2006 WL 2385139, *aff'd in part, vacated in part, and remanded,* 504 F.3d 1293 (Fed. Cir. 2007).

[67] *Hynix*, 609 F. Supp. 2d at 951.

[68] *i4i*, 598 F.3d at 861-62.

[69] *Telcordia*, 592 F. Supp. 2d at 747, *aff'd in part, vacated in part*, 612 F.3d 1365 (Fed. Cir. 2010).

[70] *Id.* at 747-48.

[71] *Voda*, 536 F.3d at 1329.

[72] *Id.* Similarly, in a case involving practicing patent holders, the district court denied the injunction because there was no nexus between the harm and party. In this case, the only party the court determined had standing in an infringement case failed to proffer evidence of direct harm to itself and instead relied on harm to a co-plaintiff. Medtronic Sofamor Danek USA, Inc. v. Globus Medical, Inc., 637 F. Supp. 2d 290 (E.D. Pa. 2009), *aff'd*, No. 2009-1525, 2011 WL 229563 (Fed. Cir. Jan. 26, 2011).

stating that non-practicing patent holders may be able to obtain injunctions provided they can prove irreparable injury to themselves and satisfy the four factor test.[73]

In *z4 v. Microsoft*, one of the first cases following the Supreme Court's *eBay* decision, a district court denied patent licensing company, z4, an injunction after a jury found that Microsoft's Windows XP and Office products willfully infringed z4's patent on product activation software.[74] The court rejected z4's argument that its licensing program would be irreparably harmed by ongoing infringement for several reasons. Because Microsoft did not offer product activation software separate from its own products, customers would not be dissuaded from licensing z4 technology by Microsoft's infringement. z4 would suffer no lost market share or name recognition. The court also relied on the fact that the infringing feature was a small component of Microsoft's products and that the component did not relate to their core functionality.[75] Finally, the court determined that Microsoft's plans to phase out this software would make the damages from any future infringement easy to calculate.[76]

Similarly in *Paice v. Toyota,* the district court considered many facts in finding a lack of irreparable harm and denying the request for an injunction by a patent licensing company. Toyota was found to infringe Paice's patent on drive train technology for hybrid electric vehicles. In evaluating irreparable harm, the court noted "that because Plaintiff does not compete for market share with the accused vehicles, concerns regarding loss of brand name recognition are market share. . .are not implicated."[77] The court found that Paice's problems licensing its technology were due to its business practices, not Toyota's infringement. It also relied on the fact that the patented invention was a small component of the accused device.[78]

In *Hynix v. Rambus*, the district court found that the patentee Rambus, a semiconductor design firm that licenses its technology, did not prove irreparable harm and entitlement to an injunction. The court's analysis recognized that the purpose of equitable injunctions is to relieve future harm and not to punish past conduct.[79] For that reason, the court considered only the harm

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[73] *Voda*, 536 F.3d at 1329.

[74] *z4*, 513 F. Supp. 2d at 439-42.

[75] *Id.* at 441 (discussing Justice Kennedy's concurrence in *eBay* to support conclusion that monetary damages would be sufficient to compensate *z4* for any future infringement).

[76] *Id.* at 442.

[77] Paice, 2006 WL 2385139, at *5.

[78] *Id.* at *4-5.

[79] *Hynix*, 609 F. Supp. 2d at 968-69. *See also* Nichia Corp. v. Seoul Semiconductor, Ltd., No. 06-0162, 2008 WL 346416, at *1 (N.D. Cal. Feb. 7, 2008) (holding that the purpose of an injunction is to prevent

that the patentee would suffer in the future due to on-going infringement, and not the harm that it suffered in the past. An injunction, by its nature, could not compensate the patentee for past infringement harm, the court explained. Ultimately, the court found that since the patents in suit would expire in a year, and Rambus was willing to license, any harm to the patentee from denial of the injunction would be slight.[80] This contrasts with the Federal Circuit's statement that, even though injunctions are tools for correcting future harm, it is proper for the district court to consider past harm in determining whether to grant an injunction.[81]

B. Balance of the Hardships Between the Parties

eBay's third equitable factor requires patentees to show that "considering the balance of hardships between the plaintiff and defendant, [an injunction] is warranted."[82] The irreparable harm analysis, to the extent it considers harm to the patentee from on-going infringement, will define the hardship faced by the patentee. Some courts have also identified trespass of the patentee's "right to exclude" as a hardship to be considered.[83]

The third factor also requires courts to consider the hardship an injunction would impose on the infringer. When courts have granted an injunction, some commentators have noted that most of the analysis occurs during the irreparable harm factor.[84] Courts frequently dismiss the infringer's complaints of hardship by explaining that "[o]ne who elects to build a business on a product found to infringe cannot be heard to complain if an injunction against continuing infringement destroys the business."[85] In other cases, courts have more carefully considered the

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future harm).

[80] *Hynix*, 609 F. Supp. 2d at 983-85. The court also denied the injunction because in weighing the hardships on the parties, it found that an injunction would "decimate" the infringer's business. *Id.* at 985.

[81] *i4i*, 598 F.3d at 861-62. ("Although injunctions are tools for prospective relief designed to alleviate future harm, by its terms the first *eBay* factor looks, in part, at what has already occurred.").

[82] *eBay*, 547 U.S. at 391.

[83] *See e.g.*, *Brooktrout*, 2007 WL 1730112, at *2 (holding that absent an injunction, Brooktrout would lose goodwill, potential revenue, and the right to exclude); Visto Corp. v. Seven Networks, Inc., No. 2:03-CV-333, 2006 WL 3741891, at * 4 (E.D. Tex. Dec. 19, 2006) (holding that if no permanent injunction were entered, Visto would lose goodwill, potential revenue, and the right to exclude); 3M Innovative Properties Co. v. Avery Dennison Corp., No. 01-1781, 2006 WL 2735499, at *2 (D. Minn. Sept. 25, 2006) (finding that patentee had been barred from exercising its right to exclude).

[84] Malin at 98-99 (2/12/09); Badenoch at 111-12 (2/12/09).

[85] *3M Innovative Properties*, 2006 WL 2735499, at *2 (*citing Windsurfing*, 782 F.2d at 1003); *see also Johns Hopkins*, 513 F. Supp. 2d at 586 (holding that hardship for loss of sales and for ceasing operations not sufficient because they were direct consequences of the illegal patent infringement), *rev'd and*

effect of an injunction on the infringer, but found insufficient hardship to tip the balance towards denying the injunction.[86] Several reasons have been given, including: the defendant's size, especially compared to the patentee;[87] the defendant's minimal investment developing the infringing product;[88] and the percentage of the defendant's business comprised of infringing products.[89]

The cases in which courts have found that the balance of hardships tipped toward the infringer and supported denial of an injunction are typically those in which the patentee failed to prove irreparable harm and the consequences of an injunction for the infringer would have been severe. In the *z4* case, for instance, the court concluded that "turning off" activation software in Microsoft products would flood the market with pirated software and lead to incalculable losses for the defendant.[90] In *Paice*, the court concluded that enjoining defendant Toyota's car sales would not only affect the defendant, but also its dealers and suppliers.[91] The *Hynix* court worried that prohibiting use of patented technology that had been incorporated into an industry standard would "decimate" the infringer's business in a situation where Rambus had not disclosed its patent rights during the standard setting process.[92]

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remanded, 543 F.3d 1342 (Fed. Cir. 2008); *Smith & Nephew*, 466 F. Supp. 2d at 984-85 ("Although Synthes' effort, time, and expense in redesigning [the infringing product] might be significant, that is the consequence of patent infringement.").

[86] *Callaway Golf*, 585 F. Supp. 2d at 622; *TiVo*, 446 F. Supp. 2d at 670; Power-One, Inc. v. Artesyn Technologies, Inc., No. 2:05-CV-463, 2008 WL 1746636 (E.D. Tex. April 11, 2008), *aff'd*, 599 F.3d 1343 (Fed. Cir. 2010); Martek Biosciences Corp. v. Nutrinova Inc., 520 F. Supp. 2d 537, 559 (D. Del. 2007), *aff'd in part, rev'd in part*, 579 F.3d 1363 (Fed. Cir. 2009); *MPT*, 505 F. Supp. 2d at 420; 800 Adept, Inc. v. Murex Securities, Ltd., 505 F. Supp. 2d 1327 (M.D. Fla. 2007), *aff'd in part, vacated in part, and rev'd in part*, 539 F.3d 1354 (Fed. Cir. 2008), *rehearing and rehearing en banc denied*, (2008).

[87] *Callaway Golf*, 585 F. Supp. 2d at 622 (finding that defendant made several non-infringing products and was owned by a multi-billion dollar conglomerate); *TiVo*, 446 F. Supp. 2d at 670 (finding that patentee was a new and small company).

[88] *Power-One*, 2008 WL 1746636, at *1 n.1 (finding that infringer spent only $20,000 developing infringing product compared to patentee's $20 million).

[89] *Martek*, 520 F. Supp. 2d at 559 (finding that infringing product represented only a small percentage of infringer's total business); *MPT*, 505 F. Supp. 2d at 420 (finding that only 10-15% of the defendants sales were for the infringing product); *800 Adept*, 505 F. Supp. 2d at 1338 (finding that provision of infringing services was a small part of infringer's business, but the primary activity of patentee).

[90] *z4*, 513 F. Supp. 2d at 443.

[91] However, the Federal Circuit has held that the effect on third parties is irrelevant under the third prong of the injunction test. Acumed, LLC v. Stryker Corp., 551 F.3d 1323, 1330 (Fed. Cir. 2008).

[92] *Hynix*, 609 F. Supp. 2d at 984-85.

In some cases, courts have found that the hardship to the infringer can be ameliorated by delaying the start of the injunction in order to give the infringer time to design around the patent. For instance in *Broadcom*, the district court permitted a twenty month delay to the start of the injunction to reduce the effects of the injunction on infringer Qualcomm.[93] Similarly, the district court in *i4i* permitted a sixty day delay to abrogate the difficulties Microsoft would face in redesigning its software to comply with the injunction.[94] However, in *TiVo*, the court declined to delay the start of an injunction, stating that the harm to the defendant's business was insufficient to warrant the delay and would further harm TiVo.[95] Other courts have suggested that narrowly tailoring the injunction will mitigate harm to the defendant.[96]

C. Public Interest Prong

The fourth factor of the equitable injunction analysis examines whether the public interest would be disserved by a permanent injunction. Only a small number of post-*eBay* cases have provided an extended discussion of this factor in deciding whether to grant an injunction. In the majority of cases, courts simply recognize that the "public has an interest in maintaining a strong patent system. This interest is served by enforcing an adequate remedy for patent infringement."[97] Presumably, this common statement refers to the patent system's role in

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[93] *Broadcom*, 543 F.3d at 704 (holding that a sunset provision would ameliorate the negative effects from an injunction).

[94] *i4i*, 670 F. Supp. 2d at 603. On appeal, the Federal Circuit increased the sunset provision to five months, finding the district court erred in not citing evidence to support its 60 day sunset provision when Microsoft witnesses had declared the redesign would take at least five months. *i4i*, 598 F.3d at 861 (Fed. Cir. 2010), *cert. granted*, 79 U.S.L.W. 3326 (U.S. Nov. 29, 2010) (No. 10-290).

[95] *TiVo*, 446 F. Supp. 2d at 671 (finding that an injunction would have a severe financial impact on defendant's core business).

[96] *Power-One*, 2008 WL 1746636, at *1 n.1 (*citing Brooktrout*, 2007 WL 1730112, at *2).

[97] *TiVo*, 446 F. Supp. 2d at 670. *See also* Funai Electronics Co., Ltd. v. Daewoo Elec. Corp., 593 F. Supp. 2d 1088, 1111 (N.D. Cal. 2009); *Kowalski*, 2009 WL 856006, at *2; Mass Engineered Design, Inc. v. Ergotron, Inc., 633 F. Supp. 2d 361, 394 (E.D. Tex 2009); *Becton Dickinson*, 2008 WL 4745882, at *4 (noting that plaintiff offered no evidence of harm to public health or safety from the injunction); *Emory*, 2008 WL 2945476, at *5 (noting the public would not lose a major supplier of antimicrobial products); *Power Integrations*, 2008 WL 5210843, at *1; *Power-One*, 2008 WL 1746636, at *1 n.1; *Sensormatic*, 632 F. Supp. 2d at 1182; TruePosition, Inc. v. Andrew Corp., 568 F. Supp. 2d 500, 533 (D. Del. 2008), *amended in part,* 2009 WL 192470 (D. Del. Jan. 27, 2009), *aff'd*, 389 Fed. Appx. 1000 (Fed. Cir. 2010); Trading Technologies Int'l, Inc. v. eSpeed, Inc., No. 04-C-5312, 2008 WL 4531371, at *5 (N.D. Ill. May 22, 2008), *aff'd*, 595 F.3d 1340 (Fed. Cir. 2010); Atlanta Attachment Co. v. Leggett & Platt, Inc., No. 1:05-CV-1071, 2007 WL 5011980, at *8 (N.D. Ga. Feb. 23, 2007); Baden Sports, Inc. v. Kabushiki Kaisha Molten, No. C06-210, 2007 WL 2790777, at *3 (W.D. Wash. Sept. 25, 2007); *Brooktrout*, 2007 WL 1730112, at *2; *Martek*, 520 F. Supp. 2d at 558; *MPT*, 505 F. Supp. 2d at 420; O2 Micro Int'l, Ltd.

promoting innovation for public benefit, and the manner in which exclusive rights protected by injunctions support that role.

Several cases providing more extensive discussions of the public interest factor involve health care products. In a case finding that a generic drug infringed a patent held by a branded drug manufacturer, the court recognized a public interest in access to lower-priced generic drugs. However the court weighed that interest against the public's competing interest in "encouraging the massive investment in research and development that is required before a new drug can be developed and brought to market" and granted the injunction.[98] In *Amgen v. Hoffman-La Roche*, a matter involving a biologic drug, the district court collected extensive evidence related to the public interest prong and then granted the injunction. The court found that it was unclear whether the patented drug offered significant clinical advantages over non-infringing treatments, and whether market entry of an infringing product would lower Medicare costs. The court also determined that sale of an infringing drug would undermine incentives for innovation that the patent system is designed to protect.[99] The public interest in maintaining access to the infringing drug-eluting stent supported denial of an injunction in *Advanced Cardiovascular Systems*. Cardiologists had filed affidavits stating they preferred the infringing stents and expressed concern for the success of their surgeries if they were not available. The court also acknowledged the public's interest in competition in the stent market in this situation where the patentee had failed to establish irreparable harm.[100]

A few cases have considered non-health related disruption to customers and the broader public under the public interest prong. In a case involving computer security software, the court noted that "computer security revolves around protecting highly sensitive information and. . .that a disruption in service would be an incredible disservice to the public. . . ."[101] However, it found that these arguments were insufficient to outweigh the public's interest in the enforcement of

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v. Beyond Innovation Tech. Co., Ltd., 2007 WL 869576, at * 3 (E.D. Tex. March 21, 2007), *vacated*, 521 F.3d 1351 (Fed. Cir. 2008); Ortho-McNeil Pharm., Inc. v. Mylan Labs., Inc., Nos. 04-1689, 06-757, 06-5166, 2007 WL 869545, at *1 (D.N.J. March 20, 2007), *aff'd in part*, 520 F.3d 1358 (Fed. Cir. 2008); *Visto*, 2006 WL 3741891, at *5; Black & Decker, Inc. v. Robert Bosch Tool Corp., No. 04 C 7955, 2006 WL 3446144, at *5 (N.D. Ill. Nov. 29, 2006).

[98]Sanofi-Synthelabo v. Apotex, Inc., 492 F. Supp. 2d 353, 397 (S.D.N.Y. 2007), *aff'd*, 530 F.3d 1075 (Fed. Cir. 2009).

[99]Amgen, Inc. v. F. Hoffman-La Roche, Ltd., 581 F. Supp. 2d 160, 212-26 (D. Mass. 2008), *aff'd in part, vacated in part,* 580 F.3d 1340 (Fed. Cir. 2009).

[100]*Advanced Cardiovascular Systems*, 579 F. Supp. 2d at 560-61 (D. Del. 2008).

[101]Finjan Software, Ltd. v. Secure Computing Corp., No. 06-369, 2009 WL 2524495, at *11 (D. Del. Aug. 18, 2009), *aff'd in part, rev'd in part*, 626 F.3d (Fed. Cir. 2010).

patent rights.[102] In *z4*, defendant Microsoft argued that because its Windows operating system was ubiquitous, an injunction could flood the market with pirated software that could potentially threaten computer security and could harm sectors of the public including small computer manufacturers, retailers and, consumers.[103] The court concluded that although it was impossible to determine the actual effects of the two scenarios, even minor disruptions could harm the public, thus tipping this factor in favor of denying the injunction.[104] In *Broadcom*, the court found that it could ameliorate the disruption to cell phone service by delaying the start of the injunction in order to give the infringer time to design around the patent.[105] Another court concluded that narrowly tailoring the injunction will also mitigate harm to the public.[106]

IV. List of Post-eBay Cases

This list includes opinions available on Westlaw as of March 31, 2010 . To compile this list, we searched for all cases citing eBay and limited the results to opinions discussing permanent injunctions in patent cases. We did not include preliminary injunction cases or cases involving other areas of the law such as trademark or copyright. In the period shortly after the Supreme Court issued its opinion in *eBay*, the Federal Circuit remanded cases back to the district court with instructions to perform a four factor analysis. We included the remand opinions. There are instances in which courts have made statements about the four factors in dictum when discussing other areas of patent cases such as willfulness or when discussing stays of permanent injunctions pending appeal of infringement verdicts. We did not include those cases on this list. Some cases turned on procedural or technical issues, such as standing and we did not include those cases on this list.

A. Post-*eBay* Cases in Which the Court Denied a Permanent Injunction

Advanced Cardiovascular Systems, Inc. v. Medtronic Vascular, Inc., 579 F. Supp. 2d 554 (D. Del. 2008)

Bard Peripheral Vascular, Inc. v. W.L. Gore & Associates, Inc., No. CV-03-0597, 2009 WL 920300 (D. Ariz. March 31, 2009)

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[102] *Id.*

[103] *z4*, 434 F. Supp. 2d at 444.

[104] *Id.* at 444-45.

[105] *Broadcom*, 543 F.3d at 704. ("We agree that the sunset provisions mitigate the harm to the public and that the district court did not abuse its discretion in fashioning a remedy that protects Broadcom's rights while allowing Qualcomm time to develop non-infringing substitutes.").

[106] *Transocean*, 2006 WL 3813778, at *7 (holding that a narrowly tailoring injunction would mitigate harm to public).

Boston Scientific Corp. v. Johnson & Johnson, No. C 02-0790, 2008 WL 5054955 (N.D. Cal. Nov. 25, 2008) (Ongoing Royalty Case)

Creative Internet Advertising Corp. v. Yahoo!, Inc., 674 F. Supp. 2d 847 (E.D. Tex. 2009)

Emcore Corp. v. Optium Corp., No. 7-326, 2010 U.S. Dist. LEXIS 3287 (W.D. Penn. Jan. 15, 2010), *decision reached on appeal*, 2011 U.S. App. LEXIS 1826 (Fed. Cir. Jan. 26, 2011).

Finisar Corp. v. DirecTV Group, No. 1:05-CV-264, 2006 U.S. Dist LEXIS 76380 (E.D. Tex. July 7, 2006), *aff'd in part*, 523 F.3d 1323 (Fed. Cir. 2008) (Federal Circuit vacated the district court's holding of injunction, part of its analysis regarding the validity of the patent, and remanded for new trial)

Hynix Semiconductor Inc. v. Rambus Inc., 609 F. Supp. 2d 951 (N.D. Cal. 2009)

Hypoxico Inc. v. Colo. Altitude Training, 630 F. Supp. 2d 319 (S.D.N.Y. 2009)

IGT v. Bally Gaming Int'l Inc., 675 F. Supp. 2d 487 (D. Del. 2009)

IMX, Inc. v. Lendingtree, L.L.C., 469 F. Supp. 2d 203 (D. Del. 2007), *on reconsideration in part*, No. 03-1067, 2007 WL 1232184 (D. Del. April 25, 2007).

Innogenics, N.V. v. Abbott Labs., 512 F.3d 1363 (Fed. Cir. 2008) (upholding lower court's grant of injunction based on payment of a market entry fee to compensate the patentee for loss of market power in the future)

Medtronic Sofamor Danek USA Inc. v. Globus Med., 637 F. Supp. 2d 290 (E.D. Pa. 2009)

Nichia Corp. v. Seoul Semiconductor, Ltd., No. 06-0162, 2008 WL 346416 (N.D. Cal. Feb. 7, 2008)

Paice LLC v. Toyota Motor Corp., No. 2:04-CV-211, 2006 WL 2385139 (E.D. Tex. Aug. 16, 2006), *aff'd in part, rev'd in part and remanded*, 504 F.3d 1293 (Fed. Cir. 2007) (Federal Circuit upheld the denial of the injunction and grant of on-going royalties but remanded for the court to do a better job on calculating those damages), *on remand at*, 609 F. Supp. 2d 620 (E.D. Tex. 2009) (District court increased the on-going royalties from $25 per license to $98 license)

Praxair Inc. v. ATMI, Inc., 479 F. Supp. 2d 440 (D. Del. 2007). In a later opinion patents were held unenforceable for inequitable conduct. *See* 489 F. Supp. 2d 387 (2007), *aff'd in part, rev'd in part*, 543 F.3d 1306 (Fed. Cir. 2008) (upholding the inequitable conduct finding for one patent and reversing the inequitable conduct and infringement decisions for a second, also vacating the finding of invalidity for a third patent)

Respironics, Inc. v. Invacare Corp., No. 04-0336, 2008 WL 111983 (W.D. Pa. Jan. 8, 2008)

ResQNet.com, Inc. v. Lansa, Inc., 533 F. Supp. 2d 397 (S.D.N.Y. 2008), *aff'd in part, rev'd in part*, 594 F.3d 860 (Fed. Cir. 2010) (affirming patent valid and infringed; reversing and remanding damages decision; reversing imposition of Rule 11 sactions)

Sundance Inc. v. DeMonte Fabricating Ltd., No. 02-73543, 2007 WL 37742 (E.D. Mich. Jan. 4, 2007). Patent declared invalid for obviousness by 550 F.3d 1356 (Fed. Cir. 2008).

Telcordia Tech., Inc. v. Cisco Sys., Inc., 592 F. Supp. 2d 727(D. Del. 2009), *aff'd in part, vacated in part*, 612 F.3d 1365 (Fed. Cir. 2010)

Voda v. Cordis, No. CIV-03-1512, 2006 WL 2570614 (W.D. Okla. Sept. 5, 2006), *aff'd*, 536 F.3d 1311 (Fed. Cir. 2008)

z4 Technologies, Inc. v. Microsoft Corp., 434 F. Supp. 2d 437 (E.D. Tex. 2006)

B. Post-*eBay* Cases in Which the Court Granted a Permanent Injunction

3M Innovative Properties Co. v. Avery Dennison Corp., No. 01-1781, 2006 WL 2735499 (D. Minn. Sept. 25, 2006)

800 Adept, Inc. v. Murex Securities, Ltd., 505 F. Supp. 2d 1327 (M.D. Fla. 2007), *aff'd in part, vacated in part, and rev'd in part*, 539 F.3d 1354 (Fed. Cir. 2008), *rehearing and rehearing en banc denied*, (2008) (Federal Circuit held that trial court erred on claim construction on one set of claims and reversed the finding of infringement and vacated the injunction; Federal Circuit upheld jury's finding that a second set of patents were invalid except for two claims and remanded for new trial on those claims.)

Acticon Tech. v. Heisei Electronics Co., Ltd., No. 06-CV-4316, 2008 WL 356872 (S.D.N.Y. Feb. 5, 2008)

Acumed, LLC v. Stryker Corp., 483 F.3d 800 (Fed. Cir. 2007) (Federal Circuit remanded decision to district court to apply *eBay* factors); 2007 WL 4180682 (D. Ore. Nov. 20, 2007) (district court applied eBay factors and granted injunction), *aff'd,* 551 F.3d 1323 (Fed. Cir. 2008).

Allan Block Corp. v. E. Dillon & Co., 509 F. Supp. 2d 795 (D. Minn. 2007), *aff'd per curiam*, 287 Fed. Appx. 109 (Fed. Cir. 2008)

Amgen, Inc. v. F. Hoffman-La Roche Ltd., 581 F. Supp. 2d 160 (D. Mass. Oct. 2, 2008), *aff'd in part*, 581 F. Supp. 2d 160 (D. Mass. 2008) (Federal Circuit reversed some of findings of infringement and affirmed others and remanded; injunction undisturbed with instruction that district court can revisit scope on remand if appropriate.)

Arlington Industries, Inc., v. Bridgeport Fittings, Inc., No. 3:01-CV-0485, 2010 WL 817519 (M.D. Pa. March 9, 2010)

Atlanta Attachment Co. v. Leggett & Platt, Inc., No. 1:05-CV-1071, 2007 WL 5011980 (N.D. Ga. Feb. 23, 2007)

Baden Sports, Inc. v. Kabushiki Kaisha Molten, No. C06-210, 2007 WL 2790777 (W.D. Wash. Sept. 25, 2007)

Becton Dickinson & Co. v. Tyco Healthcare Group, LP, No. 02-1694, 2008 WL 4745882 (D. Del. Oct. 29, 2008)

Black & Decker Inc. v. Robert Bosch Tool Corp., No. 04 C 7955, 2006 WL 3446144 (N.D. Ill. Nov. 29, 2006), *aff'd in part, vacated in part*, 260 Fed. Appx. 284 (Fed. Cir. 2008) (The Federal Circuit overturned the district court's claim construction and remanded, rendering the initial grant of injunction moot.)

Broadcom Corp. v. Qualcomm Inc., 543 F.3d 683 (Fed. Cir. 2008)

Brooktrout, Inc. v. Eicon Networks Corp., No. 2:03-CV-59, 2007 WL 1730112 (E.D. Tex. June 14, 2007)

Callaway Golf Co. v. Acushet Co., 585 F. Supp. 2d 600 (D. Del. 2008), *aff'd in part, vacated in part*, 576 F.3d 1331 (Fed. Cir. 2009) (The Federal Circuit reversed the district court's summary judgment ruling on anticipation and vacated the district court's finding on obviousness and remanded. The Federal Circuit did not rule on the district court's injunction decision.)

Commonwealth Scientific and Industrial Research Organisation v. Buffalo Technology Inc., 492 F. Supp. 2d 600 (E.D. Tex. 2007), *aff'd in part*, 542 F.3d 1363 (Fed. Cir. 2008) (Federal Circuit overturned the decision on willfulness and remanded).

Emory University v. Nova Biogenetics, No. 1:06-CV-0141, 2008 WL 2945476 (N.D. Ga. July 25, 2008)

Extreme Networks, Inc. v. Enterasys Networks, Inc., No. 07-cv-229, 2008 WL 4756498 (W.D. Wisc. Oct. 29, 2008); motion to modify injunction denied and motion to stay injunction granted by 2009 WL 679602 (D. Wisc. March 16, 2009), *vacated and remanded*, 395 Fed. Appx. 709 (Fed. Cir. 2010)

Finjan Software, Ltd. Secure Computing Corp, No. 06-369, 2009 WL 2524495 (D. Del. Aug. 18, 2009), *aff'd in part, rev'd in part*, 626 F.3d 1197 (Fed. Cir. 2010)

Flexiteek Ams., Inc. v. PlasTEAK, Inc., No. 08-60996, 2009 WL 2957310 (S.D. Fla. Sept. 15, 2009)

Fresenius Medical Care Holdings, Inc. v. Baxter Int'l, Inc., No. C 03-1431, 2008 WL 928496 (N.D. Cal. April 4, 2008), *aff'd in part, rev'd in part*, 582 F.3d 1288 (Fed. Cir. 2009) (injunction vacated because of validity decision)

Funai Elec. Co., Ltd. v. Daewoo Elec. Corp., 593 F. Supp. 2d 1088 (N.D. Cal. 2009), *aff'd*, F.3d 1357 (Fed. Cir. 2010)

i4i Ltd. Partnership v. Microsoft Corp., 670 F. Supp. 2d 5680 (E.D. Tex. 2009), *aff'd*, 589 F.3d 1246 (Fed. Cir. 2009) (affirmed grant of permanent injunction but increased the delay period before it started from 60 days to 5 months based on testimony supporting the time necessary for Microsoft to design around.), *superseded by*, 598 F.3d 831 (Fed. Cir. 2010), *cert. granted*, 79 U.S.L.W. 3326 (U.S. Nov. 29, 2010) (No. 10-29).

I-Flow Corp. v. Apex Medical Technologies, Inc., No. 07cv1200, 2010 WL 141402 (S.D. Tex. Jan. 8, 2010)

Johns Hopkins Univ. v. Datascope Corp., 513 F. Supp. 2d 578 (D. Md. 2007), *rev'd and remanded*, 543 F.3d 1342 (Fed. Cir. 2008) (jury's finding of infringement was not supported by substantial evidence; reversed the district court's denial of JMOL and remanded for entry of judgment; injunction held moot)

Joyal Products, Inc. v. Johnson Elec. North Amer., Inc., No. 04-5172, 2009 WL 512156 (D. N.J. Feb. 27, 2009), *aff'd per curiam*, 335 Fed. Appx. 48 (Fed. Cir. 2009)

Kowalski v. Mommy Gina Tuna Resources, Nos. 05-00679, 05-00787, 06-00182, 2009 WL 856006 (D. Haw. March 30, 2009), *clarified by*, 2009 WL 1360695 (D. Haw. May 7, 2009)

Litecubes, LLC v. Northern Light Products, Inc., No. 4:04CV00485, 2006 WL 5700252 (E.D. Mo. Aug. 25, 2006), *aff'd*, 523 F.3d 1353 (Fed. Cir. 2008)

Mannatech, Inc. v. Glycoproducts Int'l, Inc., No. 3-06-CV-0471, 2008 WL 2704425 (N.D. Tex. July 9, 2008)

Martek Biosciences Corp. v. Nutrinova Inc., 520 F. Supp. 2d 537 (D. Del. 2007), *aff'd in part, rev'd in part*, 579 F.3d 1363 (Fed. Cir. 2009) (Federal Circuit affirmed the denial of JMOL for a finding of invalidity and non-infringement on some patent claims; reversed grant the JMOL finding invalidity on other patent claims; upheld the district court's claim construction).

Mass Engineered Design, Inc. v. Ergotron, Inc., 633 F. Supp. 2d 361 (E.D. Tex. 2009)

MGM Well Services Inc. v. Mega Lift Systems, LLC, 505 F. Supp. 2d 359 (S.D. Tex. 2007), *aff'd*, 264 Fed. Appx. 900 (Fed. Cir. 2008)

MPT, Inc. v. Marathon Labels, Inc., 505 F. Supp. 2d 401 (N.D. Ohio 2007), *rev'd in part*, 258 Fed. Appx. 318, (Fed. Cir. 2007) (Federal Circuit found injunction overly broad and remanded)

Muniauction, Inc. v. Thomson Corp., 502 F. Supp. 2d 477 (W.D. Pa. 2007), *rev'd in part*, 532 F.3d 1318 (Fed. Cir. 2008) (injunction vacated because Federal Circuit found some patent claims invalid for obviousness and other claims not infringed)

Novozymes A/S v. Genecor Int'l Inc., 474 F. Supp. 2d 592 (D. Del. 2007)

O2 Micro Int'l, Ltd. v. Beyond Innovation Technology Co., Ltd., No. 2-04-CV-32, 2007 WL 869576 (E.D. Tex. March 21, 2007), *rev'd*, 521 F.3d 1351 (Fed. Cir. 2008) (The Federal Circuit vacating the finding of infringement and the injunction and remanding)

Ortho-McNeil Pharm., Inc. v. Mylan Labs., Inc., Nos. 04-1689, 06-757, 06-5166, 2007 WL 869545 (D. N.J. March 20, 2007), *aff'd in part*, 520 F.3d 1358 (Fed. Cir. 2008)

Power Integrations, Inc. v. Fairchild Semiconductor Int'l, Inc., No. 04-1371, 2008 WL 5210843 (D. Del. Dec. 12, 2008), *motion for temporary stay granted by*, 2008 WL 5351038 (D. Del. Dec. 22, 2008)

Power-One, Inc. v. Artesyn Technologies, Inc., No. 2:05-CV-463, 2008 WL 1746636 (E.D. Tex. April 11, 2008), *aff'd*, 599 F.3d 1343 (Fed. Cir. 2010)

Rosco, Inc. v. Mirror Lite Co., No. CV-96-5658, 2006 WL 2844400 (E.D.N.Y. Sept. 29, 2006)

Sanofi-Synthelabo v. Apotex, Inc., 492 F. Supp. 2d 353 (S.D.N.Y. June 19, 2007), *aff'd*, 550 F.3d 1075 (Fed. Cir. 2008) (infringement and validity decision upheld), *cert. denied*, 130 S. Ct. 493 (2009) Preliminary injunction opinion: 488 F. Supp. 2d 317 (S.D.N.Y 2006), *aff'd*, 470 F.3d 1368 (Fed. Cir. 2006)

Sensormatic Electronics Corp. v. Tag Co. U. S., 632 F. Supp. 2d 1147 (S.D. Fla. 2008), *aff'd*, 2010 WL 565606 (Fed. Cir. Feb. 17, 2010) (non-precedential opinion)

Smith & Nephew, Inc. v. Synthes, 466 F. Supp. 2d 978 (W.D. Tenn. 2006)

Spectrlytics, Inc. v. Cordis Corp., 650 F. Supp. 2d 900 (D. Minn. 2009)

Telequip Corp. v. The Change Exchange, No. 5:01-CV-1748, 2006 WL 2385425 (N.D.N.Y. Aug. 15, 2006)

TiVo v. Echostar Commc'ns Corp., 446 F. Supp. 2d 664 (E.D. Tex. 2006), *aff'd in part, rev'd in part*, 516 F.3d 1290 (Fed. Cir. 2008) (Federal Circuit overturned the infringement decision with respect to hardware claims and upheld the infringement decision with respect to software claims.)

Trading Technologies Int'l, Inc. v. eSpeed, Inc., No. 04 C 5312, 2008 WL 4531371 (N.D. Ill. March 22, 2008), *aff'd*, 595 F.3d 1340 (Fed. Cir. 2010)

Transamerica Life Ins. Co. v. Lincoln National Life Ins. Co., 625 F. Supp. 2d 702 (N.D. Iowa 2009)

Transocean Offshore Deepwater Drilling, Inc. v. GlobalSanteFe, No. H-03-2910, 2006 WL 3813778 (S.D. Tex. Dec. 27, 2006)

TruePosition, Inc. v. Andrew Corp., 568 F. Supp. 2d 500 (D. Del. 2008) (post-judgment interest order amended by 2009 WL 192470 (D. Del. Jan. 27, 2009).

U.S. Philips Corp. v. KXD Technology, Inc., No. CV 05-8953, 2007 WL 4984150 (C.D. Cal. Sept. 7, 2007)

U.S. Philips Corp. v. Iwasaki Electric Co., Ltd., 607 F. Supp. 2d 470 (S.D.N.Y. 2009)

Verizon Servs. Corp. v. Vonage Holdings Corp., 503 F.3d 1295 (Fed. Cir. 2007)

Visto Corp. v. Seven Networks, Inc., No. 2:03-CV-333, 2006 WL 3741891 (E.D. Tex. Dec. 19, 2006)

Wald v. Mudhopper Oilfield Servs., No. CIV-04-1693, 2006 WL 2128851 (W.D. Okla. July 27, 2006)

Zen Design Group, Ltd. v. Clint, No. 08-cv-14309, 2009 WL 4050247 (E.D. Mich. Nov. 23, 2009)

V. Questionnaire Used in Malin Study

SURVEY OF *EBAY* INJUNCTION FACTORS

CASE NAME: _____

CITATION: _____ DECISION DATE: _____

COURT: _____ JUDGE: _____

REVIEWER: _____ FIRM NAME: _____

INJUNCTION REQUESTED: ☐ PERMANENT ☐ PRELIMINARY

DISPOSITION: ☐ GRANTED ☐ DENIED

PATENTEE	Yes	No	N/A	Weight*	*Ebay* Factor**
Delay in Bringing Suit	☐	☐	☐	0 1 2 3	1 2 3 4
Practicing Patentee	☐	☐	☐	0 1 2 3	1 2 3 4
Direct Competitor to Defendant	☐	☐	☐	0 1 2 3	1 2 3 4
Patentee's Only/Primary Product	☐	☐	☐	0 1 2 3	1 2 3 4
Lost Mkt. Share/Sales Linked to Infringement	☐	☐	☐	0 1 2 3	1 2 3 4
Limited/Small Customer Base	☐	☐	☐	0 1 2 3	1 2 3 4
Likely Price Erosion	☐	☐	☐	0 1 2 3	1 2 3 4
Nascent/Developing Market	☐	☐	☐	0 1 2 3	1 2 3 4
Critical/Developing Time for Patentee	☐	☐	☐	0 1 2 3	1 2 3 4
"Sticky"/Loyal Customers	☐	☐	☐	0 1 2 3	1 2 3 4
Licensing Others	☐	☐	☐	0 1 2 3	1 2 3 4
Offered License to Defendant	☐	☐	☐	0 1 2 3	1 2 3 4
Refused License to Defendant	☐	☐	☐	0 1 2 3	1 2 3 4
Only Asserting Harm On Behalf of Licensees	☐	☐	☐	0 1 2 3	1 2 3 4
Patentee's Reputation Harmed	☐	☐	☐	0 1 2 3	1 2 3 4

ALLEGED INFRINGER	Yes	No	N/A	Weight*	*Ebay* Factor**
Willful Infringement	☐	☐	☐	0 1 2 3	1 2 3 4
Voluntarily Offer to Avoid Future Infringement	☐	☐	☐	0 1 2 3	1 2 3 4
Impact on Defendant's Business/Product Line	☐	☐	☐	0 1 2 3	1 2 3 4
Inexpensive Noninfringing Alternatives Available	☐	☐	☐	0 1 2 3	1 2 3 4
Invention a Trivial Component	☐	☐	☐	0 1 2 3	1 2 3 4
Product at Core of Defendant's Business	☐	☐	☐	0 1 2 3	1 2 3 4
Minor Impact on Infringer's Sales	☐	☐	☐	0 1 2 3	1 2 3 4
Compliance w/ Injunction Easy	☐	☐	☐	0 1 2 3	1 2 3 4

EFFECT ON THIRD PARTIES	Yes	No	N/A	Weight*	*Ebay* Factor**
Harm to Defendant's Employees	☐	☐	☐	0 1 2 3	1 2 3 4
Harm to Defendant's Customers	☐	☐	☐	0 1 2 3	1 2 3 4
Product Ubiquitous/Relied on by Public	☐	☐	☐	0 1 2 3	1 2 3 4
Health Concern Implicated	☐	☐	☐	0 1 2 3	1 2 3 4
Product for Entertainment Only	☐	☐	☐	0 1 2 3	1 2 3 4

* **0**=Treated as Irrelevant; **1**=Mentioned But Not Very Significant; **2**=Average; **3**=Material to Holding

** **1**=Irreparable Harm; **2**=Adequacy of Damages; **3**=Balance of Hardships; **4**=Public Interest

APPENDIX C
HEARING PARTICIPANTS

Participants in the FTC Hearings on the Evolving Intellectual Property Marketplace[1]

Participant	Hearing Date
Keith Agisim Associate General Counsel for Global Intellectual Property, Bank of America	February 11, 2009
John A. Amster Co-CEO, RPX Corp.	May 4, 2009
Robert A. Armitage Senior Vice President and General Counsel, Eli Lilly & Co.	February 12, 2009 March 19, 2009
Ashish Arora Professor of Strategy, Fuqua School of Business, Duke University (visiting) H. John Heinz, III Professor of Economics, Innovation and Economic Development, Carnegie Mellon University (on leave)	March 19, 2009
George E. Badenoch Partner, Kenyon & Kenyon, LLP	February 12, 2009
Christine P. Bellon Vice President of Intellectual Property & Legal Affairs, Hydra Biosciences	March 18, 2009
Keith Bergelt Chief Executive Officer, Open Invention Network	April 17, 2009
James E. Bessen Lecturer in Law, Boston University School of Law; Director, Research on Innovation	March 19, 2009

[1]Full transcripts of all the hearing testimony, agendas describing these hearings, biographies of the panelists and speakers, and related materials are available at http://www.ftc.gov/bc/workshops/ipmarketplace.

Participant	Hearing Date
Earl (Eb) Bright General Counsel and Vice President, Intellectual Property, Exploramed	May 4, 2009
Bruce W. Burton Senior Managing Director, FTI Consulting, Inc.	February 11, 2009
Dan L. Burk Chancellor's Professor of Law, University of California Irvine School of Law	May 5, 2009
Bernard J. Cassidy General Counsel and Senior Vice President, Tessera Technologies, Inc.	February 12, 2009
Yar R. Chaikovsky Partner, Sonnenschein Nath & Rosenthal, LLP	May 5, 2009
Henry Chesbrough Adjunct Professor, Haas School of Business, U.C. Berkeley; Executive Director, Center for Open Innovation	May 4, 2009
Robert A. Clarke Director, Office of Patent Legal Administration, Patent & Trademark Office	March 19, 2009
Iain Cockburn Professor of Finance and Economics and Everett W. Lord Distinguished Faculty Scholar, Boston University School of Management	April 17, 2009
Thomas F. Cotter Briggs and Morgan Professor of Law, University of Minnesota Law School	December 5, 2008 February 11, 2009
Christopher A. Cotropia Associate Professor of Law, University of Richmond School of Law	March 19, 2009
Timothy Crean Chief Intellectual Property Officer, SAP AG	May 4, 2009
Marcus Delgado Chief IP Counsel, Cox Communications, Inc.	April 17, 2009

Participant	Hearing Date
Peter N. Detkin Founder & Vice Chairman, Intellectual Ventures, Inc.	December 5, 2008
Dianna L. DeVore Partner, Virtual Law Partners LLP	May 4, 2009
Q. Todd Dickinson Executive Director, American Intellectual Property Law Association	December 5, 2008
Mary E. Doyle Senior Vice President and General Counsel, Palm, Inc.	May 5, 2009
John F. Duffy Oswald Symister Colclough Research Professor of Law, George Washington University Law School	December 5, 2008
Daralyn J. Durie Partner, Durie Tangri Page Lemley Roberts & Kent LLP	May 5, 2009
Rebecca S. Eisenberg Robert and Barbara Luciano Professor of Law, University of Michigan Law School	May 4, 2009
Ron Epstein CEO, IPotential, LLC	May 4, 2009
Richard J. Gilbert Professor of Economics and Professor of the Graduate School (Emeritus), University of California, Berkeley	May 5, 2009
John M. Golden Assistant Professor, University of Texas School of Law	February 12, 2009
Stuart Graham Assistant Professor of Strategic Management, Georgia Institute of Technology	April 17, 2009
Gary Griswold President and Chief IP Counsel, 3M Innovative Properties (retired)	March 18, 2009

Participant	Hearing Date
Horacio Gutierrez Corporate VP & Deputy General Counsel, Microsoft Corporation	May 4, 2009
Bronwyn Hall Professor of Economics, U.C. Berkeley; Professor of Economics of Technology and Innovation, University of Maastricht	May 4, 2009
Sarah T. Harris Vice President and Chief Counsel Intellectual Property, AOL	March 18, 2009
Steven J. Hoffman CEO, ThinkFire	April 17, 2009
Carl B. Horton Chief Intellectual Property Counsel, General Electric Co.	March 18, 2009
Robert Hunt, Ph.D. Assistant Vice President, Federal Reserve Bank of Philadelphia	March 19, 2009
Paul M. Janicke HIPLA Professor of Law, University of Houston Law Center	February 11, 2009
Steven C. Jensen Partner, Knobbe Martens Olson & Bear, LLP	March 18, 2009
Philip S. Johnson Chief Intellectual Property Counsel, Johnson & Johnson	February 11, 2009
Brian Kahin Senior Fellow, Computer & Communications Industry Association	December 5, 2008
David J. Kappos Vice President and Assistant General Counsel, Intellectual Property Law and Strategy, IBM Corp.	March 19, 2009
Ron D. Katznelson, Ph.D. President, Bi-Level Technologies	March 18, 2009

Participant	Hearing Date
Joe E. Kiani Chief Executive Officer and Chairman of the Board of Directors, Masimo Corp.	March 18, 2009
F. Scott Kieff Professor, Washington University School of Law; Senior Fellow, Hoover Institution	March 19, 2009
William E. Kovacic Chairman, Federal Trade Commission	December 5, 2008
Noreen Krall Vice President and Chief IP Counsel, Intellectual Property Law, Sun Microsystems, Inc.	March 18, 2009
Stephen G. Kunin Partner, Oblon, Spivak, McClelland, Maier & Neustadt, P.C.	March 19, 2009
Jeffrey P. Kushan Partner, Sidley and Austin LLP	December 5, 2008
Jack Lasersohn Partner, The Vertical Group; Member, Board of Directors, National Venture Capital Association	February 11, 2009
Anne Layne-Farrar Director, LECG, LLP	February 11, 2009 February 12, 2009
Michelle K. Lee Associate General Counsel and Head of Patents and Patent Strategy, Google Inc.	May 5, 2009
Mark A. Lemley William H. Neukom Professor of Law, Stanford Law School; Director, Stanford Program in Law, Science and Technology	April 17, 2009 May 5, 2009
Dr. Gregory K. Leonard Senior Vice President, NERA Economic Consulting	February 11, 2009

Participant	Hearing Date
Aron Levko Principal, PricewaterhouseCoopers	February 11, 2009
Gail Levine Assistant General Counsel, Verizon Communications Inc.	February 11, 2009
Gary H. Loeb Vice President, Intellectual Property, Genentech	February 11, 2009 February 12, 2009
Bryan Lord Vice President, Finance and Licensing and General Counsel, Amberwave Systems Corp.	February 11, 2009
Douglas B. Luftman Associate General Counsel of Intellectual Property, Palm, Inc.	February 12, 2009
Richard J. ("Chip") Lutton Jr. Chief Patent Counsel, Apple Computer, Inc.	May 4, 2009
Taraneh Maghamé Vice President, Patent Policy & Government Relations Counsel, Tessera Technologies, Inc.	February 11, 2009
Steven C. Malin Counsel, Sidley & Austin, LLP	February 12, 2009
James E. Malackowski President & Chief Executive Officer, Ocean Tomo, LLC	April 17, 2009
Kenneth M. Massaroni Senior Vice President and General Counsel, Seagate Technology	February 12, 2009
Daniel P. McCurdy Chief Executive Officer, Allied Security Trust; Chairman, PatentFreedom, LLC	December 5, 2008
The Honorable Roderick R. McKelvie Partner, Covington & Burling; formerly Judge, United States District Court for the District of Delaware	December 5, 2008

Participant	Hearing Date
John T. McNelis Partner and Chair of the Patent Group, Fenwick and West	May 5, 2009
Peter S. Menell Professor of Law, U.C. Berkeley Boalt Hall School of Law; Director, Berkeley Center for Law and Technology	May 5, 2009
Robert P. Merges Wilson Sonsini Goodrich & Rosati Professor of Law and Technology, U.C. Berkeley Boalt Hall School of Law; Director, Berkeley Center for Law & Technology	May 4, 2009
Michael V. Messinger Director, Sterne, Kessler, Goldstein & Fox	March 19, 2009
Michael Meurer Michaels Faculty Research Scholar and Professor of Law, Boston University School of Law	December 5, 2008
Christine Meyer Vice President, NERA Economic Consulting	February 12, 2009
The Honorable Paul R. Michel Chief Judge, Court of Appeals for the Federal Circuit (retired)	December 5, 2008
Raymond Millien founder, PCT Companies and CEO, PCT Capital, LLC	December 5, 2008
Joseph S. Miller Associate Professor, Lewis & Clark Law School; Visiting Associate Professor, University of Georgia Law School	December 5, 2008
Steven W. Miller Vice President & General Counsel - Intellectual Property, The Procter & Gamble Company	March 18, 2009
Carol Mimura Assistant Vice Chancellor for Intellectual Property & Industry Research Alliances (IPIRA), University of California, Berkeley	May 4, 2009

Participant	Hearing Date
Jeffrey Myers Vice President and Assistant General Counsel, Intellectual Property Enforcement, Pfizer, Inc.	March 18, 2009
Vern Norviel Partner, Wilson Sonsini Goodrich & Rosati	May 5, 2009
Vince O'Brien Managing Partner, OSKR, LLC	May 5, 2009
Lee Petherbridge Associate Professor of Law, Loyola Law School, Los Angeles	May 5, 2009
Marshall Phelps Corporate Vice President for IP Policy and Strategy, Microsoft Corporation	May 4, 2009
Richard F. Phillips Chief Attorney, Technology, ExxonMobil Chemical Company	March 18, 2009
Laura G. Quatela Chief Intellectual Property Officer & Vice President, Eastman Kodak Co.	April 17, 2009
Arti K. Rai Elvin R. Latty Professor of Law, Duke University School of Law	March 19, 2009
Teresa Stanek Rea Partner, Crowell & Moring, LLP	March 19, 2009
Edward R. Reines Partner, Weil, Gotshal & Manges, LLP	February 11, 2009
Kevin H. Rhodes President and Chief Intellectual Property Counsel, 3M Innovative Properties Co.	February 11, 2009 February 12, 2009
Kevin G. Rivette Chair, PTO Patent Public Advisory Committee	May 5, 2009

Participant	Hearing Date
The Honorable Sue L. Robinson Judge, United States District Court for the District of Delaware	February 11, 2009
Alexander H. Rogers Senior Vice President and Legal Counsel, Qualcomm Inc.	March 18, 2009
William C. Rooklidge Partner, Howrey, LLP	May 5, 2009
Paul Ryan Chairman & CEO, Acacia Research	April 17, 2009
Matthew M. Sarboraria Senior Patent Counsel, Oracle Corporation	March 18, 2009
Jason Schultz Acting Director, Samuelson Law, Technology & Public Policy Clinic, U.C. Berkeley Boalt Hall School of Law	May 5, 2009
John W. Schlicher Attorney, Lafayette, California	May 5, 2009
Herbert F. Schwartz Adjunct Professor of Law, University of Pennsylvania Law School and New York University Law School; Partner, Ropes & Gray, LLP (retired)	March 19, 2009
Maggie Shafmaster Senior Vice President & Chief Patent Counsel, Genzyme Corp.	March 18, 2009
Suzanne M. Shema Senior Vice President, General Counsel and Corporate Compliance Officer, ZymoGenetics, Inc.	May 4, 2009
David Simon Chief Patent Counsel, Intel Corporation	February 11, 2009
P. Martin Simpson, Jr. Managing Counsel - Business and Land Use, Office of General Counsel, University of California	May 5, 2009

Participant	Hearing Date
Steven D. Singer Partner, WilmerHale Chair, Technology Transactions and Licensing Practice Group and Co-Chair, Life Sciences Group	March 18, 2009
John M. Skenyon Principal, Fish & Richardson P.C.	February 11, 2009
Russ Slifer Chief Patent Counsel, Micron Technology, Inc.	March 18, 2009
Henry E. Smith Professor, Harvard Law School	February 12, 2009
Jon Soderstrom, Ph.D. Managing Director, Office of Cooperative Research, Yale University	March 18, 2009
Alex Sousa Counsel, Innovalight, Inc.	May 4, 2009
Christopher J. Sprigman Associate Professor, University of Virginia School of Law	February 12, 2009
John A. Squires Chief Intellectual Property Counsel, Goldman Sachs & Co.	December 5, 2008
Jennifer M. Stec Intellectual Property Counsel, Ford Global Technologies	March 18, 2009
Scott Stern Associate Professor of Management and Strategy, Kellogg School of Management, Northwestern University	March 19, 2009
Henry Su Partner, Howrey, LLP	February 12, 2009
John R. Thomas Professor of Law, Georgetown University Law Center	December 5, 2008

Participant	Hearing Date
Tracey R. Thomas Chief IP Strategist and License Negotiator, American Express Co.	April 17, 2009
E. Earle Thompson Vice President and Chief Intellectual Property Counsel, SanDisk Corp.	May 4, 2009
John Thorne Senior Vice President and Deputy General Counsel, Verizon Communications Inc.	March 18, 2009
Marian Underweiser Intellectual Property Law Counsel, IBM	February 11, 2009
Duane R. Valz VP & Associate General Counsel, Global Patents, Yahoo!	December 5, 2008
Lee VanPelt VanPelt, Yi & James, LLP	May 4, 2009
Samson Vermont Assistant Professor of Law, George Mason University School of Law	April 17, 2009
Polk Wagner Professor of Law, University of Pennsylvania School of Law	April 17, 2009
Donald R. Ware Partner, Foley Hoag, LLP	February 12, 2009
Stuart L. Watt Vice President, Law & Intellectual Property Officer, Amgen, Inc.	May 4, 2009
Thomas G. Woolston Chief Executive Officer, MercExchange, LLC	March 18, 2009
Mallun Yen Vice President, Worldwide Intellectual Property, Cisco Systems, Inc.	December 5, 2008

Participant	Hearing Date
Rosemarie Ziedonis Assistant Professor of Strategy, Stephen M. Ross School of Business, University of Michigan and Co-Director, Program in Law, Economics, and Technology, Michigan Law	May 4, 2009

Participants on Selected Panels from the May 26, 2010 FTC/DOJ/PTO Workshop on the Intersection of Competition Policy and Patent Policy: Implications for Promoting Innovation[2]

William Barr
former General Counsel, Verizon Communications, Inc.

Bernard J. Cassidy
Executive Vice President and General Counsel, Tessera Technologies, Inc.

Mark Chandler
Senior Vice President & General Counsel, Cisco Systems

Colleen Chien
Assistant Professor of Law, Santa Clara Law

Joseph Farrell
Director, Bureau of Economics, Federal Trade Commission

Patrick Gallagher
Director, National Institute of Standards & Technology, U.S. Department of Commerce

Stuart Graham
Chief Economist, U.S. Patent and Trademark Office

Brian Kahin
Senior Fellow, Computer & Communications Industry Association

[2]The listed participants took part in the three panels held of the workshop that explored issues discussed in this report: Panel 2 – Permanent Injunctions in the District Courts and ITC; Panel 3 – Standard Setting, Patent Rights, and Competition Policy; and the Wrap-Up Discussion panel. A full transcript from the workshop, an agenda, and biographies of the panelists are available at http://www.ftc.gov/bc/workshops/ipmarketplace.

Alice A. Kipel
Partner, Steptoe & Johnson, LLP

Anne Layne-Farrar
Director, LECG

Amy A. Marasco
General Manager, Standards Strategy, Microsoft Corp.

Stanford McCoy
Assistant U.S. Trade Representative for Intellectual Property and Innovation,
Office of the U.S. Trade Representative, Executive Office of the President

Christine McDaniel
Economic Adviser to Chairman Shara L. Aranoff,
U.S. International Trade Commission

Douglas A. Melamed
Senior Vice President & General Counsel, Intel Corp.

Carl Shapiro
Deputy Assistant Attorney General for Economic Analysis, Antitrust Division,
U.S. Department of Justice

Emily Ward
Vice President and Deputy General Counsel, eBay, Inc.

APPENDIX D
PUBLIC COMMENTS AND PRESENTATIONS AT HEARINGS

Public Comments[3]

Name	Comment Date
Acacia Research Corporation (Ryan, Paul)	May 14, 2009
American Intellectual Property Law Association (Crowne, Jim)	May 18, 2009
Biotechnology Industry Organization (DiLenge, Tom)	May 15, 2009
Choate, Pat	February 3, 2009
Coalition for Patent Fairness (Pincus, Andrew)	February 5, 2009
Cochran, William	February 5, 2009
Computer & Communications Industry Association (Schruers, Matthew)	February 5, 2009
Craig, Barbara	November 10, 2008
Dolak, Lisa	February 3, 2009
Durdik, Paul	February 4, 2009
Furstenwerth, Greg	December 2, 2008
IBM Corporation (Mortinger, Alison)	February 12, 2009
Innovation Alliance (Thomas, Eric)	February 6, 2009

[3]All public comments submitted to the FTC during the course of this project are available at http://www.ftc.gov/bc/workshops/ipmarketplace.

Name	Comment Date
Jones, Nathan	November 17, 2009
Kidder, Douglas	May 15, 2009
Lass, Stanley	February 4, 2009
Licensing Executives Society USA and Canada (Painchaud, Francois)	May 14, 2009
Licensing Executives Society USA and Canada (Painchaud, Francois)	May 15, 2009
Martin, Michael	May 15, 2009
Masse, Benjamin	February 5, 2009
Morgan, Paul	December 11, 2008
Morgan, Paul F.	January 12, 2009
Morgan, Paul F.	February 24, 2009
NanoBusiness Alliance (Murdock, Sean)	February 5, 2009
Nordin, Miles	March 29, 2009
NERA Economic Consulting (Leonard, Gregory)	March 9, 2009
Pharmaceutical Research and Manufacturers of America (Tauzin, Billy)	February 10, 2009
Prakash-Canjels, Gauri	April 16, 2009
Quillen, Cecil (Four comments submitted)	February 5, 2009
Rearden LLC (Perlman, Steve)	February 5, 2009

Name	Comment Date
Schlicher, John	May 15, 2009
Shane, Scott	February 5, 2009
Software & Information Industry Association (Kupferschmid, Keith)	February 5, 2009
Strategic Advisory Group (Mattathil, George)	November 12, 2008
Sun Microsystems, Inc. (Anastasio, Michael)	February 5, 2009
Trainor, Nuala	May 15, 2009
Verizon Communications Inc. (Levine, Gail)	March 20, 2009
Verizon Communications Inc. (Levine, Gail)	May 15, 2009
Vertical Group on behalf of the National Venture Capital Association (Lasersohn, Jack)	March 6, 2009
Wi-Lan Inc.	February 5, 2009
Wisconsin Alumni Research Foundation (Gulbrandsen, Carl)	May 15, 2009
Wren, Stephen	February 4, 2009
Wren, Stephen	February 5, 2009

Panelist Presentations at the Hearings[4]

Keith Agism, *Study of the Evolving IP Marketplace*, (June 9, 2009)

Ashish Arora, *Markets for Technology and the Division of Innovative Labor: A View from the Ivory Tower* (March 19, 2009)

James Bessen, *Patent Notice and Markets for Technology* (March 19, 2009)

Henry Chesbrough, *Specialisation and Markets for IP* (May 4, 2009)

Iain M. Cockburn, *Licensing: A View from the Trenches (Selected findings from the LES Foundation Surveys)* (April 2009)

Thomas Cotter, *Remedies for Patent Infringement: Theory and Practice* (December 5, 2008)

Peter Detkin, *To Promote the Progress...of Useful Arts: Investing in Invention* (December 5, 2008)

Q. Todd Dickinson, *Federal Trade Commission Workshop: Recent and Proposed Changes in Remedies Law* (December 5, 2008)

Stuart Graham, *Patents and Technology Markets: How is the Market Operating, and Can it be Improved?* (April 17, 2009)

Bronwyn Hall, *FTC Panel on Markets for IP and Technology* (May 4, 2009)

Robert Hunt, *The Federal Trade Commission's Hearing on "The Evolving IP Marketplace"* (March 19, 2009)

Paul Janicke, *Patent Damages* (February 2009)

Brian Kahin, *The Patent Ecosystem in IT: Business Practice and Arbitrage* (December 5, 2008)

Ron D. Katznelson, *"The Evolving IP Marketplace" Hearings on the Operation of IP Markets* (March 18, 2009)

F. Scott Kieff, *The Importance of Marinating on Patents* (March 19, 2009)

Mark A. Lemley, *Ignoring Patents; How to Make a Patent Market* (April 17, 2009)

Aron Levko, *2009 Patent Damages Study- Preliminary Results* (February 11, 2009)

Bryan P. Lord, *Hearing on Patent Damages* (February 11, 2009)

James E. Malackowski, *FTC Hearings on Developing Business Models and a National IP Economic Infrastructure* (April 17, 2009)

[4]All written presentations and materials provided by the panelists at the hearings are available at http://www.ftc.gov/bc/workshops/ipmarketplace.

Steve Malin, *Empirical Analysis of Permanent Injunction Decisions Following eBay* (February 12, 2009)

Daniel P. McCurdy, *Unique Operating Companies Involved in Patent Litigation with NPEs; Patent Litigation Involving NPEs and Operating Companies* (December 5, 2008)

Hon. Roderick R. McKelvie, *Seagate Plus One: How the District Courts are Implementing Seagate; Seagate Plus One (Article)* (December 5, 2009)

Robert Merges, *The Evolving IP Marketplace* (May 4, 2009)

Joseph Scott Miller, *Testimony of Professor Joseph Scott Miller, Lewis & Clark Law School-Legal Doctrines That Affect the Value and Licensing of Patents (Panel 3)* (December 5, 2008)

Raymond Millien, *The IP Marketplace Players,* (December 5, 2008)

John W. Schlicher, *Comments on Patent Damages, Injunctions, Recent Supreme Court Patent Decisions, and Other Issues Identified in the Notice of Hearings on the Intellectual Property Marketplace* (May 16, 2009)

Suzanne M. Shema, *The Need for Distinct Claims* (May 4, 2009)

John A. Squires, *Patent Remedies: Can Quanta Finish What eBay Started?* (December 5, 2008)

Scott Stern, *The Impact of the Patent System on the Market for Technology* (March 19, 2009)

Jay Thomas, *Patent Damages: Principles and Current Problems* (December 5, 2008)

Marian Underweiser, *Towards an Efficient Market for Innovation* (February 11, 2009)

Duane R. Valz, *Yahoo! Inc. - FTC Hearing on The Evolving IP Marketplace* (December 5, 2008)

R. Polk Wagner, *Patent Portfolios [Written]; Understanding Patent Quality Mechanisms* (January 6, 2009)

Donald R. Ware, *Introductory Remarks and Presentation* (February 12, 2009)

Mallun Yen, *Cisco Systems, Inc. FTC Hearing on the Evolving IP Marketplace* (December 5, 2008)

Rosemarie Ziedonis, *Startups as Sources of New Technologies...and Patents* (May 4, 2009)

APPENDIX E
ANNOUNCED AGENDA TOPICS FOR THE FTC HEARINGS ON THE EVOLVING IP MARKETPLACE[5]

KICKOFF HEARING
(December 5, 2008)

Opening Remarks: William Kovacic, Chairman, Federal Trade Commission

Panel 1: Developing Business Models

Some of the most significant recent changes in markets for intellectual property have occurred through the emergence of new business models involving the buying, selling and licensing of patents. The first panel will discuss the operation of emerging business models, aspects of the patent system that support those models, and industry responses. The panel will also explore the implications these developing business models have for patent valuation and licensing.

Keynote Address: The Honorable Paul R. Michel, Chief Justice, Court of Appeals for the Federal Circuit

Panel 2: Recent and Proposed Changes in Remedies Law

This panel will explore recent and proposed changes in remedies law, their impact on innovation and consumers, and the use of economic analysis in determining remedies. Among other topics, the panel will consider: what economic evidence is relevant when analyzing whether to grant a permanent injunction; whether the legal rules governing patent damages result in awards that appropriately compensate patentees; and whether changes in willfulness doctrine have altered the behavior of patentees and potential infringers.

Panel 3: Legal Doctrines That Affect the Value and Licensing of Patents

In the third panel, participants will examine changes in legal doctrines that affect the value and licensing of patents brought about by recent Supreme Court cases on obviousness, declaratory judgment and exhaustion. The panel will also discuss the role of unpredictability and notice in the IP marketplace.

[5]Agendas describing the topics covered at the hearings and other materials related to the hearings (including full transcripts of testimony, lists of witnesses, etc.) are available at http://www.ftc.gov/bc/workshops/ipmarketplace.

DAMAGES
(February 11, 2009)

Panel 1: Standards for Assessing Patent Damages and Their Implementation by Courts

This panel will discuss trends in damage awards, the current standards governing patent damages, and their impact on patent value and innovation. It will examine various approaches to damages calculation and the evidence used in assessing damages, particularly in the context of reasonable royalty determinations. Policy concerns relating to the calculation of reasonable royalties and potential reforms will also be addressed.

Keynote Address: The Honorable Sue L. Robinson, United State District Court for the District of Delaware

Panel 2: Industry Roundtable Discussion

This panel, structured as an industry roundtable, will explore how patent damages affect licensing, business strategies, and innovation in various sectors of the economy. In particular, it will consider whether damage awards in patent cases result in awards that promote innovation. Panelists will examine various proposals to revise the standards for damage determinations and discuss how such changes would impact their industries.

PERMANENT INJUNCTIONS & WILLFULNESS
(February 12, 2009)

Panel 1: Changes in Injunction Law

This panel will explore permanent injunctions in patent cases in the wake of the Supreme Court's *eBay* decision. It will examine the ways the courts have analyzed whether to grant or deny injunctions, including the role of economic evidence in that analysis, and any trends that have developed. Panelists will consider the implications of these developments for innovation, competition, and consumer welfare.

Panel 2: Industry Roundtable Discussion

This panel will explore recent changes in injunction law and willfulness standards, and their impact on innovation, licensing and business strategies. Among other topics, the panel will consider the impact of the *eBay* decision on patent valuation and licensing; whether the changes in the willfulness doctrine have altered the behavior of patentees and potential infringers; how these court decisions have changed investment in R&D; and how changes in remedies law have implicated incentives to bring, defend or settle patent suits.

INDUSTRY ROUNDTABLES
(March 18, 2009)

Four panels featuring representatives from universities and entrepreneurs, the IT and electronics industries, manufacturing and diversified companies, and the life sciences will examine the operation of IP and technology markets and the impact of patent policies on those markets. Panelists will discuss the factors they consider in determining how to use patents in the IP marketplace, for instance, whether to enforce exclusivity or enter licensing agreements. The panels will consider whether these markets operate efficiently and transparently, and what could be done to improve their operation. The effect of recent Supreme Court decisions and uncertainty in the patent system will be discussed, as will experience with the patent system's notice function.

THE OPERATION OF IP MARKETS AND THE NOTICE FUNCTION OF PATENTS
(March 19, 2009)

Keynote Address: **Herbert F. Schwartz, Former Partner, Ropes & Gray and Adjunct Professor, University of Pennsylvania and New York University Law Schools**

Panel 1: **Economic Perspectives on IP and Technology Markets**

Panelists will examine how patents facilitate technology transfer, whether markets for technology and IP operate efficiently and transparently, and what could be done to improve their operation. The effect of recent Supreme Court decisions on licensing decisions will be discussed.

Panel 2: **Fulfilling the Patent System's Public Notice Function**

Experts from academia and the bar will address the extent to which the patent system adequately fulfills its notice function – for example, ensuring that the firms seeking to develop and introduce innovative technologies can obtain clear and reliable information regarding the existence and scope of patent rights that could cover those technologies. Specifically, panelists will consider how various patent law doctrines or procedural aspects of the system affect notice, including (1) legal standards such as rules of claim construction and standards governing indefiniteness, written description, and enablement, and (2) examination practice and procedures, including notice available from the information that applicants are required to supply during the examination process, the information provided by examiners in allowing claims, the use of continuing applications, and the publication of applications and evolving claims.

MARKETS FOR INTELLECTUAL PROPERTY
(April 17, 2009)

Keynote Address: James E. Malackowski, President & CEO, Ocean Tomo

Panel 1: Roundtable Discussion

Some of the most significant recent changes in markets for intellectual property have occurred through the emergence of new business models involving the buying, selling and licensing of patents. This panel will discuss valuing and monetizing patents, strategies for buying and selling patents, and the role of secondary markets for intellectual property.

Panel 2: Recent Scholarship in Patent Markets

As markets for intellectual property have developed and evolved, so has the scholarship analyzing them. This panel will showcase some of the recent academic thinking about the development and functioning of markets for intellectual property and the policy implications surrounding them.

THE IP MARKETPLACES IN THE LIFE SCIENCES AND IT INDUSTRIES
(May 4, 2009 Berkeley, CA)

Panels 1 & 2: Industry Roundtable Discussions

Panels 1 and 2 will examine the operation of IP and technology markets in the life sciences and IT industries, respectively: how and why companies buy, sell and license patents; how patents support innovation and technology transfer; what aspects of the patent system create difficulties when seeking freedom to operate; and how the potential of patent litigation affects the operation of IP markets.

Panel 3: Markets for IP and Technology: Academic Perspectives

Panelists will examine how patents facilitate technology transfer, whether markets for technology and IP operate efficiently and transparently, and what could be done to improve their operation.

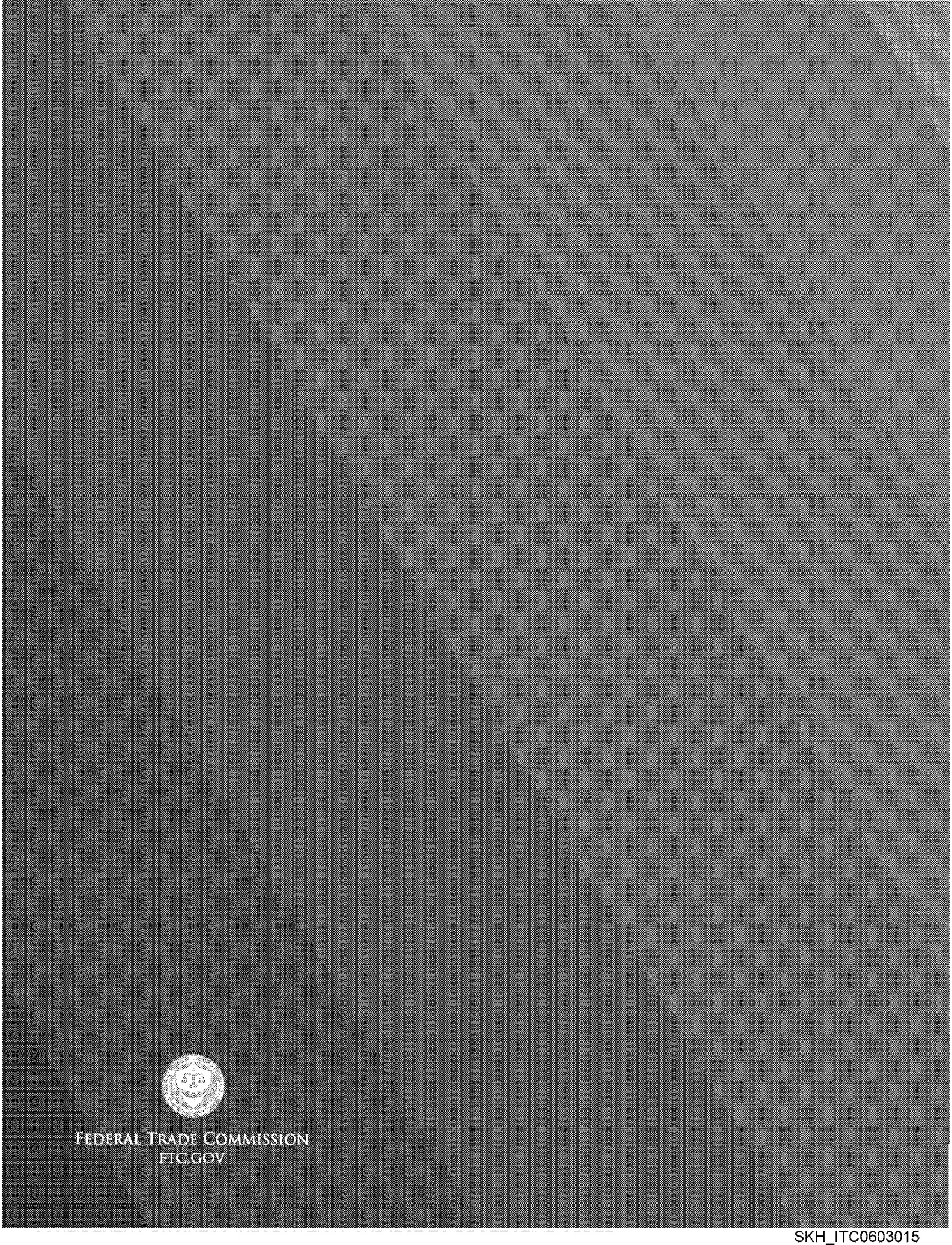
THE NOTICE FUNCTION OF PATENTS AND PATENT REMEDIES
(May 5, 2009 Berkeley, CA)

Panel 1: The Notice Function of Patents

Experts from academia and the bar will address the extent to which the patent system adequately fulfills its notice function, for example, ensuring that firms seeking to develop or license innovative technologies can obtain clear and timely information regarding the existence and scope of relevant patents and patent applications. Specifically, panelists will consider how various patent law doctrines and patent examination procedures affect notice, including (1) legal standards such as rules of claim construction and standards governing indefiniteness, written description, and enablement, and (2) examination practices and procedures, including notice available from information supplied by applicants and examiners, the use of continuing applications, and the publication of applications. Panelists will also discuss the extent to which the sheer number of potentially relevant patents and patent applications hinders effective notice and will consider whether any adjustments to the patent system are warranted.

Panel 2: Patent Remedies

This panel will discuss trends in damage awards, the current standards governing patent damages, and their impact on patent value and innovation. It will examine various approaches to damages calculation and the evidence used in assessing damages, particularly in the context of reasonable royalty determinations. This panel will also explore permanent injunctions in patent cases in the wake of the Supreme Court's *eBay* decision and the impact of recent changes to the doctrine of willful infringement.


FEDERAL TRADE COMMISSION
FTC.GOV