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An Empirical Study: Willful Infringement & Enhanced Damages in Patent Law After *Halo*

Karen E. Sandrik
Willamette University College of Law

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AN EMPIRICAL STUDY: WILLFUL INFRINGEMENT & ENHANCED DAMAGES IN PATENT LAW AFTER *HALO*

Karen E. Sandrik*

ABSTRACT

For decades, companies and attorneys have instructed teams of engineers, researchers, and computer scientists to ignore patents. The reasoning for this advice: if there is no pre-suit knowledge of a patent, then it is nearly impossible for a patent holder to prove that enhanced damages are warranted. Pre-suit knowledge is a prerequisite for a finding of willful infringement, which is itself a prerequisite for awarding enhanced damages. The median patent damages award is around ten million dollars, and large companies like Intel, Teva Pharmaceuticals, Microsoft, and Abbott Laboratories have all recently faced billion-dollar patent infringement judgments. In this landscape, a multiplier of up to three times the compensatory damages is strong motivation for companies to purposely create a patent-ignorant work environment. Yet this advice defeats an important goal of patent law: the disclosure and dissemination of technological information. How can technology companies learn from new and nonobvious innovation disclosed in patents if their heads are stuck in the sand?

*In this empirical study with data spanning 2010 to 2020, I provide a data-driven answer to whether this deliberate ignorance strategy is effective. The answer, in short, is that reading patents, conducting patent clearance searches, and/or responding to cease-and-desist letters does not, in isolation, open the door to enhanced damages. Finally, by employing an original data set to seek this answer and potential solutions to deliberate patent ignorance, this study provides empirical statistics regarding willful infringement and enhanced damages. This includes empirical statistics illustrating the impact of the 2016 Supreme Court decision, *Halo Electronics v. Pulse Electronics*.*

* Associate Professor of Law & Associate Dean for Faculty, Willamette University College of Law. The author would like to thank participants at the 18th Annual Works-in-Progress Intellectual Property Colloquium (WIPIP 2021) and at the 2021 Virtual Intellectual Property Scholars Conference for reading drafts and/or providing helpful feedback, especially including Glynn Lunney, Mark Lemley, Jason Rantanen, Tom Cotter, Bernard Chao, and Greg Reilly, as well as participants at a WUCL Workshop. The author is also indebted to Peter Molk, for encouragement and inspiration to undertake this first empirical project, to Mary Rumsey and Tamara Palmer, for their invaluable research support, and to Heather Kitada-Smalley, for many statistics lessons and help with data cleaning and statistical analyses.

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I. INTRODUCTION

There is a long-standing narrative in U.S. patent law that companies should ignore patents.¹ This narrative has been built over the course of dec-

1. See Mark A. Lemley, *Ignoring Patents*, 2008 MICH. ST. L. REV. 19, 21 (“[B]oth researchers and companies in component industries simply ignore patents. Virtually everyone does it. They do it at all stages of endeavor. Companies and lawyers tell engineers not to read patents in starting their research, lest their knowledge of the patent disadvantage the company by making it a willful infringer.”); see also David L. Schwartz, *On Mass Patent Aggregators*, 114 COLUM. L. REV. SIDEBAR 51, 68–69 (2014) (“While admittedly anecdotal, according to lore, these industries intentionally ignored patents of others during their development of products, avoided patent searches and prelaunch patent clearance, and generally refused to license patents.”); NAT’L RSCH. COUNCIL, *A PATENT SYSTEM FOR THE 21ST CENTURY* 119 (Stephen A. Merrill et al. eds., 2004) (“Exposure to claims of willful infringement has led to a practice

ades, relying on advice from attorneys and in-house counsel,² and based, at least in large part, on Section 284 of the Patent Act. Section 284 instructs courts that they “may increase the damages up to three times the amount found or assessed” in a patent infringement suit.³ While there is no further statutory guidance on how to interpret enhanced damages in the Patent Act, courts have historically interpreted this statute to require a finding of willful infringement prior to enhancing damages.⁴ An allegation of willful infringement requires a pleading of pre-suit knowledge of the patents-in-suit.⁵ If there was complete ignorance of any such patents prior to the commencement of the lawsuit, it has been difficult for a patent holder to make a

of deliberately avoiding learning about issued patents, a development sharply at odds with the disclosure function of patent law.”); E-mail from Ed Black, President & CEO, Comput. & Comm’n Indus. Ass’n, to Philippe Baechtold, World Intell. Prop. Org. (WIPO) (July 16, 2009), https://www.wipo.int/export/sites/www/scp/en/meetings/session_14/studies/ccia.pdf (“In the United States, in-house patent attorneys have routinely discouraged, if not forbidden, engineers and designers from reading patents because of the risk of enhanced liability when willful infringement is found.”); *Risks and Benefits of Patent Searching*, IP CHECKUPS (Dec. 5, 2019), <https://www.ipcheckups.com/risks-and-benefits-of-patent-searching> (“Some legal counsel and patent attorneys often recommend that companies do not search for patents. And, in some cases companies create a policy restricting engineers from search for patents.”)

2. Edwin H. Taylor & Glenn E. Von Tersch, *A Proposal to Shore Up the Foundations of Patent Law That the Underwater Line Eroded*, 20 HASTINGS COMM’NS & ENT. L.J. 721, 737 (1998) (“As matters now stand many companies discourage employees from reading patents. This presumably lessens the chance that the company will be found to have knowledge of a patent. However, this defeats the basic purpose of the patents [sic] laws, dissemination of information.”); Dennis Fernandez, *Top-10 Most Common Intellectual Property Rights Mistakes During Venture Capital Due Diligence*, FERNANDEZ & ASSOCS., LLP, <http://www.iploft.com/Top10.pdf> (last visited Nov. 7, 2021) (“Additionally in many cases, it may be appropriate for companies as a matter of policy to discourage looking at issued patents owned by other entities.”). In the tech sector perhaps the most, “it has been the practice of in-house attorneys to discourage the reading of patents, at least historically.” Colleen V. Chien et al., *Enhanced Damages, Litigation Cost Recovery, and Interest*, in PATENT REMEDIES AND COMPLEX PRODUCTS 90, 101 (C. Bradford Biddle et al. eds., 2019). Moreover, academics are aware that that even without opining on current practices, given the availability of enhanced damages and how they work in the United States, care must also be taken to ensure that the availability of enhanced damages does not discourage productive learning from patents or “otherwise-beneficial challenges to the validity of issued patents.” *Id.* at 100.

3. 35 U.S.C. § 284.

4. See *infra* Part II; see also Dmitry Karshedt, *Enhancing Patent Damages*, 51 U.C. DAVIS L. REV. 1427, 1434–35 (2018) (explaining that there is not a “clear answer even with respect to the basic purpose of” enhanced damages in patent law, yet “[i]n recent times, consensus has developed that such damages should be reserved for ‘willful’ patent infringement, however defined”). “Willful” conduct is also the current touchstone after the Supreme Court in *Halo Electronics, Inc. v. Pulse Electronics, Inc.*, 136 S. Ct. 1923, 1930, 1934 (2016), stated that enhanced damages in patent law “should generally be reserved for egregious cases typified by willful misconduct” as is “consistent with the history of enhanced damages under the Patent Act [] as providing that ‘punitive’ or ‘increased damages’ could be recovered ‘in a case of willful or bad-faith infringement.’”

5. See, e.g., *Adidas Am., Inc. v. Skechers USA, Inc.*, No. 3:16-cv-1400-SI, 2017 WL 2543811, at *3 (D. Or. June 12, 2017) (“Knowledge of the patent by the alleged infringer is . . . a prerequisite to proving willful infringement.”).

case for willful infringement in the first instance. Motivated to study the downstream implications of this long-standing narrative that companies should ignore patents, this Article seeks to first better understand modern-day enhanced damages. This Article ultimately challenges the advice given to engineers, researchers, and computer scientists in the United States,⁶ and argues that current data on willful infringement and enhanced damages does not fully support this practice of deliberate ignorance or indifference to patents for purposes of avoiding an enhanced damages award.

In doing so, this Article makes a significant contribution to the literature by providing a novel empirical data set covering willful infringement and enhanced damages decisions reaching final resolution between 2010 and 2020. Part of this contribution is an assessment of the impact of the 2016 U.S. Supreme Court opinion, *Halo Electronics, Inc. v. Pulse Electronics, Inc.*, on willful infringement findings and the awarding of enhanced damages.⁷

In the *Halo* opinion, the Supreme Court overruled the Federal Circuit's objective recklessness standard for willfulness, finding that the two-part test was "unduly rigid" and inconsistent with the Patent Act.⁸ Instead of an objective recklessness test, the *Halo* Court stated that an enhanced damages award is "designed as a 'punitive' or 'vindictive' sanction" for an infringer's conduct that is "willful, wanton, malicious, bad-faith, deliberate, consciously wrongful, flagrant, or—indeed—characteristic of a pirate."⁹ With little more than this descriptive language and a green light for district courts to exercise discretion, patent commentators were quick to make predictions regarding the impact of *Halo* on willfulness findings and enhanced damages.

Some patent commentators theorized that it would be easier for plaintiff patentees to obtain enhanced damages.¹⁰ Others thought that the "facts surrounding the accused infringer's knowledge and intent *at the time* of the alleged willful infringement" would be more important under *Halo*,¹¹ notably including the reliance of accused infringers on the opinions of counsel.¹²

6. See discussion *infra* Part VI.

7. *Halo*, 136 S. Ct. 1923.

8. See *id.* at 1932–34.

9. *Id.* at 1932.

10. See, e.g., Michael Sandonato & Dennis McMahon, *Halo v. Pulse and Stryker v. Zimmer: SCOTUS Finds Seagate Test Objectively Unreasonable*, IP WATCHDOG (June 24, 2016), <https://www.ipwatchdog.com/2016/06/24/halo-v-pulse-stryker-v-zimmer-scotus/id=70317> (opining the "increased focus on the infringer's state of mind, in addition to other aspects of the Supreme Court's *Halo* decision, should make it easier for plaintiffs to obtain enhanced damages").

11. See Kara R. Fussner, *Discretion Beats Out Bright Line Test for Enhanced Patent Damages: Halo v. Pulse*, IP WATCHDOG (June 23, 2016), <https://www.ipwatchdog.com/2016/06/23/discretion-beats-bright-line-test-enhanced-patent-damages-halo-v-pulse/id=70295>.

12. See David Hricik, *Halo, Civil Procedure, and Defending On-Going Infringement Suits*, PATENTLY-O (June 25, 2016), <https://patentlyo.com/hricik/current-affairs/2016/06>

Another prediction was that *Halo* would result in more willfulness findings and more affirmations of those findings by district courts when compared to the findings and post-trial decisions under the previous standard.¹³

It has now been five years since the *Halo* decision, and there has yet to be a comprehensive study of *Halo*'s impact on willful infringement findings and awards of enhanced damages.¹⁴ There has also been little data-driven engagement by policymakers, courts, and scholars with enhanced damages since the *Halo* decision.¹⁵ By examining data on willfulness findings and enhanced damages from 2010 to 2020, the empirical study presented in this Article is designed to evaluate whether these predictions from patent commentators were accurate. This empirical study is also designed to evaluate willful infringement and enhanced damages more generally since *Halo*. Analysis of the data reveals three key impacts of the *Halo* decision on willfulness findings. Since *Halo*,

- (1) willfulness findings have increased by 27.8%;
- (2) enhanced damages findings have increased by 8.7%; and
- (3) judges are significantly more likely to find willfulness (representing an 18.6% increase in willfulness findings).

Part II provides an overview of the two most recent standards of willful infringement, the affirmative duty of care standard and the objective recklessness standard. Part II then further explores the current *Halo* standard and its interpretation by district courts in recent years. Part III highlights the key findings of two previous empirical studies on willful infringement and en-

/procedure-defending-infringement.html (“Of course, the obvious lesson going forward is that it will be more likely for accused infringers to rely upon an opinion of counsel indicating lack of infringement or invalidity . . .”).

13. Michael G. Stockwell, *Who Decides Enhanced Damages?*, 45 AIPLA Q.J. 645, 646 (2017).

14. There is one empirical study that was conducted that looked at three variables in cases from December 2013 to December 2018: “(1) the final decision of willful infringement in the district court, (2) whether enhanced damages were awarded, (3) and the venue of the litigation.” See Veena Tripathi, *Halo from the Other Side: An Empirical Study of District Court Findings of Willful Infringement and Enhanced Damages Post-Halo*, 103 MINN. L. REV. 2617, 2635–36 (2019). The value of Tripathi’s study is impacted by the inclusion of motions to dismiss regardless of whether the motions were a final decision on the merits. See *id.* at 2636. Moreover, there are significant errors within the data set, including many instances of duplicative cases, leading to potentially biased results. See *id.* app. at 2650–75.

15. Although not data-driven per se, Professor Dmitry Karshedt has published a compelling article challenging the current interpretation of enhanced damages, arguing that the willfulness doctrine in patent law should “include reckless failures to search for patents as a route to making infringers eligible for enhanced damages.” Karshedt, *supra* note 4, at 1428. He makes the point that “[m]any policymakers, judges, and scholars justify patent law on economic-utilitarian grounds. It is therefore unsettling that when it comes to damages for patent infringement in excess of the compensatory baseline, courts have followed an approach that reflects primarily moral, rather than economic, considerations.” *Id.* at 1427.

hanced damages that were conducted for the period of 1983 to 2000¹⁶ and September 2004 to July 2010.¹⁷ Part IV highlights four open research questions after *Halo*, as well as how data was collected, coded, and analyzed. Part V covers the main results of this study. It provides data on reported versus unreported decisions, the increase in willfulness findings after *Halo*, as well as the increase in enhanced damages findings after *Halo*. The data also shows the impact of the identity of the factfinder (bench trial versus jury trial) on the outcomes of willfulness and enhanced damages, the stage of the resolution of the willfulness allegations, and how different venues have responded to *Halo*.

Part VI then argues that despite the increased findings of willfulness and enhanced damages post-*Halo*, companies do not need to tell their teams of engineers and scientists to “ignore” or “stay away” from patents. Relying on data regarding how district courts adjudicated willfulness and awarded enhanced damages from 2010 to 2020, this Article provides insight into how patent policies and procedures should be re-drafted and enforced in light of *Halo*. In particular, data analysis reveals that when district courts found that the defendant acted in good faith despite the willfulness finding, the courts declined to enhance damages 100% of the time.¹⁸ Similarly, when district courts found that the defendant had a legitimate defense to the willfulness made and ultimately proved by the plaintiff, the courts declined to enhance damages 88% of the time. Yet when the district courts found that the defendant harbored motivation to harm the plaintiff patent holder, enhanced damages were granted 100% of the time. Where the defendant directly copied the plaintiff patent holder’s patents, courts meted out enhanced damages 87.5% of the time. Finally, when the district courts found that the defendant engaged in litigation misconduct, enhanced damages were granted 96% of the time.

Overall, this Article shows the impact of *Halo*. While the impact is significant, and perhaps troubling, this Article also shows that district courts are increasingly persuaded by defendants’ respective patent positive-work environments to avoid granting enhanced damages. Armed with this new information, patents do not need to be ignored for purposes of avoiding an enhanced damages award. Companies can read and study patents to make more informed business practices, reduce redundant research, and help provide collaboration opportunities. Part VII offers a short conclusion.

16. This first study is then-Professor Kimberly Moore’s prior to her appointment to the Federal Circuit Court of Appeals. Kimberly A Moore, *Empirical Statistics on Willful Patent Infringement*, 14 FED. CIR. BAR J. 227 (2004).

17. This second study is Professor Christopher Seaman’s empirical study of the impact of *In re Seagate Technology, LLC*. Christopher B. Seaman, *Willful Patent Infringement and Enhanced Damages After In re Seagate: An Empirical Study*, 97 IOWA L. REV. 417 (2012).

18. See *infra* Section VI.C (explaining how a defendant can be both a willful infringer and also one that acted in good faith).

II. WILLFUL PATENT INFRINGEMENT

Section 284 of the Patent Act provides the basic outline for awarding patent damages. First, “[u]pon finding for the claimant the court shall award the claimant damages adequate to compensate for the infringement.”¹⁹ This compensatory or base damages award can be no less than a reasonable royalty, including interest and costs.²⁰ Second, “the court may increase the damages up to three times the amount found or assessed.”²¹ This second part of § 284 is often termed by patent practitioners and policymakers as enhanced damages, increased damages, supracompensatory damages, or punitive damages. This Article will refer to the potential trebling of damages as “enhanced damages.”

The Patent Act is silent on how to interpret the enhanced damages portion of § 284. The Patent Act also does not provide any guidance as to the purpose of enhanced damages (i.e., moral, retributive, economic, etc.), or what facts might warrant an increase in compensatory damages. Nevertheless, the Patent Act does provide litigants a starting point for assessing damages. In short, patent infringement is often described as a strict liability offense,²² meaning that no intent is needed for a finding of infringement. Infringement can be completely unintentional or even accidental. Despite this, “an accused infringer’s intent often plays an important role in patent litigation.”²³

Put simply, a defendant’s actions matter. Whether a trial court justifies its close inspection of a defendant’s actions based on the U.S. Supreme Court’s most recent explanation for enhanced damages—that they serve to punish the malicious pirate²⁴—or the Federal Circuit’s reasoning—that they serve “an economic deterrent to the tort of infringement”²⁵—the fact is that the trial court is given discretion to make this decision.

Discretion has long been given to the trial court in the context of enhanced damages. The current patent statute is largely the same as it was in the Patent Act of 1836, which states, “it shall be in the power of the court to render judgment for any sum above the amount found by such verdict as the actual damages sustained by the plaintiff, not exceeding three times the

19. 35 U.S.C. § 284.

20. *Id.*

21. *Id.*

22. *See, e.g., In re Seagate Tech., LLC*, 497 F.3d 1360, 1368 (Fed. Cir. 2007) (“Because patent infringement is a strict liability offense, the nature of the offense is only relevant in determining whether enhanced damages are warranted.”).

23. Seaman, *supra* note 17, at 421.

24. *Halo Elecs., Inc. v. Pulse Elecs., Inc.*, 136 S. Ct. 1923, 1932 (2016) (explaining “Section 284 allows district courts to punish the full range of culpable behavior”). This is similar to an early justification for enhanced damages. *See, e.g., Seymour v. McCormick*, 57 U.S. 480, 489 (1853) (“It is true, where the injury is wanton or malicious, a jury may inflict vindictive or exemplary damages, not to recompense the plaintiff, but to punish the defendant.”).

25. *Rite-Hite Corp. v. Kelley Co.*, 819 F.2d 1120, 1126 (Fed. Cir. 1987).

amount thereof, according to the circumstances of the case.”²⁶ The courts have worked out answers to seemingly basic questions regarding enhanced damages, concluding, for example, that generally a showing of willfulness is a prerequisite to enhanced damages.²⁷ Yet these answers, particularly as to “why” and “when” enhanced damages will be awarded, are inconsistent and unclear from opinion to opinion.

The following sections briefly detail how courts have adjudicated the willfulness standard in the past several decades, starting with the due care standard, moving to the objectively reckless standard, and ending with the current egregious wrongdoing standard.

A. Past Standard: Affirmative Duty of Care

In 1983, the Federal Circuit created a uniform, national standard of willfulness.²⁸ In *Underwater Devices, Inc. v. Morrison-Knudsen Co.*, the Federal Circuit explained its affirmative duty of care standard for willful infringement:

Where . . . a potential infringer has actual notice of another’s patent rights, he has an affirmative duty to exercise due care to determine whether or not he is infringing. Such an *affirmative duty* includes,

26. Patent Act of July 4, 1836, ch. 357, § 14, 5 Stat. 117, 123. Before 1836, in the Patent Act of 1793, Congress set a mandatory minimum of treble damages. Patent Act of Feb. 21, 1793, ch. 11, § 5, 1 Stat. 318, 322 (stating an infringer “shall forfeit and pay to the patentee, a sum, that shall be at least equal to three times the price, for which the patentee has usually sold or licensed to other persons, the use of the said invention”); see also Karen Sandrik, *Punishing the Malicious Pirate in Patent Law*, 37 REV. LITIG. 369, 375–83 (providing a brief summary of the early history of enhanced damages).

27. The Federal Circuit has made this exact point, likely many times. See, e.g., *In re Seagate*, 497 F.3d at 1368 (“Although a trial court’s discretion in awarding enhanced damages has a long lineage in patent law, the current statute, similar to its predecessors, is devoid of any standard for awarding them. Absent a statutory guide, we have held that an award of enhanced damages requires a showing of willful infringement.”). In dicta, the U.S. Supreme Court also described the second part of § 284 as providing “‘punitive or ‘increased’ damages” that can be recovered “in a case of willful or bad-faith infringement.” *Aro Mfg. Co. v. Convertible Top Replacement Co.*, 377 U.S. 476, 508 (1964).

28. The Federal Courts Improvement Act, passed in 1982, created the Federal Circuit and granted it exclusive appellate jurisdiction over matters involving patents (among other things). Pub. L. No. 97-164, 96 Stat. 25. In particular, the Federal Circuit was tasked with bringing consistency and uniform standards to patent law, in effect making the court “act as the manager and developer of the patent law” leading to “a clearer, more coherent, and more predictable patent doctrine.” R. Polk Wagner & Lee Petherbridge, *Is the Federal Circuit Succeeding? An Empirical Assessment of Judicial Performance*, 152 U. PA. L. REV. 1105, 1115–16 (2004).

inter alia, the duty to seek and obtain competent legal advice from counsel *before* the initiation of any possible infringing activity.²⁹

The facts of *Underwater Devices* are illustrative of why the Federal Circuit created this willfulness standard. In short, the inventor in this case obtained two patents covering both the method and apparatus for laying underwater pipes.³⁰ These patents were subsequently assigned to Underwater Devices, Inc.³¹ Underwater Devices had a routine practice of informing prospective subcontractors for construction contracts on underwater pipelines about its two patents.³² One of these prospective subcontractors that bid on an underwater-sewer project was Morrison-Knudsen Co.

During this bidding process, Underwater Devices informed all bidders that it was willing to license its two patents to all bidders on equal terms. This is how Morrison-Knudsen first learned of Underwater Devices's two patents.³³

Ultimately, Underwater Devices offered to license its two patents covering the method and apparatus of laying underwater pipes to Morrison-Knudsen for \$200,000.³⁴ Morrison-Knudsen rejected the offer to license from Underwater Devices, relying on a short opinion—eight sentences long—from its in-house counsel stating that the two patents were invalid. Moreover, in-house counsel informed Morrison-Knudsen that it should “refuse to even discuss the payment of a royalty,” unless Underwater Devices decided to bring a patent infringement suit.³⁵

And bring a patent infringement suit is exactly what Underwater Devices did in November 1974. The trial court found that Morrison-Knudsen willfully infringed the two patents. The court multiplied the \$200,000 reasonable royalty rate, the original offer to license, by three.³⁶ On appeal, the Federal Circuit affirmed, stating that an infringer has “an affirmative duty to exercise due care.”³⁷ Although Morrison-Knudsen argued that it exercised good faith and due care in getting an opinion letter of infringement on the two patents, the Federal Circuit rejected this argument. It explained that the in-house counsel was not a patent counsel, and that Morrison-Knudsen

29. *Underwater Devices Inc. v. Morrison-Knudsen Co.*, 717 F.2d 1380, 1389–90 (Fed. Cir. 1983) (first emphasis added) (citation omitted), *overruled by In re Seagate Tech., LLC*, 497 F.3d 1360 (Fed. Cir. 2007) (en banc).

30. *Underwater Devices*, 717 F.2d at 1382.

31. *Id.* at 1383.

32. *Id.* at 1384.

33. *See id.* at 1384.

34. *Id.*

35. *Id.* at 1385.

36. *Id.* at 1386.

37. *Id.* at 1389.

“knew or should have known that it proceeded without the type of competent legal advice upon which it could justifiably have relied.”³⁸

After *Underwater Devices*, the value and importance of the opinion letter grew. As the Federal Circuit stated, “[p]ossession of a favorable opinion of counsel is not essential to avoid a willfulness determination; it is only one factor to be considered, albeit an important one.”³⁹ Moreover, practitioner guidance after *Underwater Devices* was clear, “failure to obtain and follow an opinion of counsel often result[ed] in a finding of willful infringement.”⁴⁰ Within just a few years, an “adverse inference” rule appeared, whereby an infringer’s failure to obtain and disclose an opinion letter “would warrant the conclusion that [the alleged infringer] either obtained no advice of counsel or did so and was advised that its [activities] would be an infringement of valid U.S. patents.”⁴¹

While *Underwater Devices* stood for the affirmative duty of care willfulness standard, in a subsequent opinion the Federal Circuit explained that “[w]illfulness’ in infringement, as in life, is not an all-or-nothing trait, but one of degree. It recognizes that infringement may range from unknowing, or accidental, to deliberate, or reckless, disregard of a patentee’s legal rights.”⁴² The duty of care standard—something less than intentional or deliberate infringement with no actual knowledge required⁴³—was the standard for willfulness until 2007.⁴⁴

38. *Id.* at 1390. The Federal Circuit further stated that “M-K obtained its counsel’s advice after it commenced its infringing activities.” *Id.* Moreover, counsel “did not evaluate the validity or infringement of the Robley patents before M-K began the infringing activities.” *Id.*

39. *Electro Med. Sys., S.A. v. Cooper Life Scis., Inc.*, 34 F.3d 1048, 1056 (Fed. Cir. 1994).

40. JOHN SKENYON ET AL., PATENT DAMAGES LAW & PRACTICE § 1:21 (2020).

41. *Kloster Speedsteel AB v. Crucible Inc.*, 793 F.2d 1565, 1580 (Fed. Cir. 1986), *overruled by* *Knorr-Bremse Systeme Fuer Nutzfahrzeuge GmbH v. Dana Corp.*, 383 F.3d 1337 (Fed. Cir. 2004).

42. *Rite-Hite Corp. v. Kelley Co.*, 819 F.2d 1120, 1125–26 (Fed. Cir. 1987).

43. *See State Indus., Inc. v. Mor-Flo Indus., Inc.*, 883 F.2d 1573, 1581 (Fed. Cir. 1989) (explaining that actual knowledge of the at-issue patent was not required, and that “[t]he standard for proving willfulness” was whether an accused infringer had “prudently conduct[ed] himself with any confidence that a court might hold the patent invalid or not infringed” (quoting *Ryco, Inc. v. Ag-Bag Corp.*, 857 F.2d 1418, 1428 (Fed. Cir. 1988))).

44. There is much to say about the issue of opinion letters, the way they rebutted willfulness claims, and how the disclosure letters should or should not impact attorney-client privilege. This Article will not delve into those issues, but other articles have done so. *See, e.g.*, Mark A. Lemley & Ragesh K. Tangri, *Ending Patent Law’s Willfulness Game*, 18 BERKELEY TECH. L.J. 1085 (2003) (explaining the importance of opinion letters in defending a willfulness allegation and the issues surrounding the disclosure of these opinion letters); William F. Lee et al., *The Doctrine of Willful Patent Infringement After Knorr-Bremse: Practical Problems & Recommendations*, 7 SEDONA CONF. J. 169, 169 (2006) (arguing that the Federal Circuit changed the law of willfulness “but [did] not eliminate the practical dilemmas facing parties seeking to defend against charges of willful patent infringement”); Kevin J. Kelly, Comment, *Placing the Burden Back Where It Belongs: A Proposal to Eliminate the Affirmative Duty from Willful Infringement Analyses*, 4 J. MARSHALL REV. INTELL. PROP. L. 509, 512

B. Past Standard: Objective Recklessness

In 2007, the Federal Circuit ordered an *en banc* hearing of a case involving three questions on willfulness. First, “[s]hould a party’s assertion of the advice of counsel defense to willful infringement extend waiver of the attorney-client privilege to communications with that party’s trial counsel?”⁴⁵ Second, “[w]hat is the effect of any such waiver on work-product immunity?”⁴⁶ And third, “[g]iven the impact of the statutory duty of care standard announced in *Underwater Devices*, should this court reconsider the decision in *Underwater Devices* and the duty of care standard itself?”⁴⁷

In response to these questions, the *Seagate* Court explicitly acknowledged “the practical concerns stemming from our willfulness doctrine, particularly as related to the attorney-client privilege and work product doctrine.”⁴⁸ The Federal Circuit then took the “opportunity to revisit [the] willfulness doctrine,” and unanimously overruled the affirmative duty of due care standard because it “fail[ed] to comport with the general understanding of willfulness.”⁴⁹ In doing so, the Federal Circuit put forth a new two-part test for proving willfulness:

[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. The state of mind of the accused infringer is not relevant to this objective inquiry. 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.⁵⁰

Most notably, this new two-part “objective recklessness” standard did away with the duty of care requirement that essentially forced parties to first obtain and then produce an opinion letter on patent infringement and/or validity at trial. The Federal Circuit explained that “[b]ecause we abandon the affirmative duty of due care, we also reemphasize that there is no affirmative obligation to obtain opinion of counsel.”⁵¹ Further, the *Seagate* objective recklessness standard shifts the onus of proving lack of willful infringement from the accused infringer (who previously needed to show an

(2005) (arguing “questions are unanswered and confusion remains as to what the affirmative duty demands”).

45. *In re Seagate Tech., LLC*, 214 F. App’x 997, 997 (Fed. Cir. 2007).

46. *Id.*

47. *Id.* (internal citation omitted).

48. *In re Seagate Tech., LLC*, 497 F.3d 1360, 1369 (Fed. Cir. 2007).

49. *Id.* at 1370–71.

50. *Id.* at 1371 (internal citation omitted).

51. *Id.*

opinion letter or other similar good faith acts) to the patent holder.⁵² Many practitioners, academics, and policymakers predicted that this new, stricter standard of objective recklessness would have a substantial impact on the process of adjudication of willfulness and the outcomes of such willfulness trials.⁵³

Indeed, in practice, this is precisely what happened. The objective recklessness standard enabled defendants to avoid liability for enhanced damages by developing an objectively reasonable legal theory at trial. An objectively reasonable legal theory, one of invalidity or noninfringement, was ultimately one that was a good faith, non-frivolous legal theory.⁵⁴ The availability of this non-frivolous legal theory was available even if the infringer “was unaware of the arguable defense when he acted.”⁵⁵ It was also one that came to be treated as a pure question of law.⁵⁶ The second step of the *Seagate* standard required patent holders to show that the risk of infringement “was either known or so obvious that it should have been known to the accused infringer.”⁵⁷ This part of the test was deemed a question of fact, normally decided by a jury, and turned on subjective factors akin to bad faith.⁵⁸ Both factors had to be proven by clear and convincing evidence.⁵⁹

52. See Seaman, *supra* note 17, at 430 (highlighting this shift of burden from the accused infringer to the patent holder); see also *Kellogg v. Nike, Inc.*, 592 F. Supp. 2d 1166, 1171 (D. Neb. 2008) (“The burden is on the patentee to prove willful infringement . . .”).

53. See, e.g., SIMPSON THACHER & BARTLETT LLP, *IN RE SEAGATE: A NEW STANDARD FOR WILLFUL PATENT INFRINGEMENT* 12 (2007), <http://www.stblaw.com/docs/default-source/cold-fusion-existing-content/publications/pub629.pdf?sfvrsn=> (“In addition to the extraordinarily high burden the court’s new standard places on patent plaintiffs, the test will also create a virtual ‘trial within a trial’ that introduces a host of unique procedural issues for the trial courts to resolve.”); Gene Quinn, *Why Open Source Stalls Innovation and Patents Advance It*, IP WATCHDOG (July 5, 2010), <https://www.ipwatchdog.com/2010/07/05/open-source-stalls-innovation/id=11506> (“Willful infringement is exceptionally difficult to prove . . .”).

54. See *Karshtedt*, *supra* note 4, at 1459 (“In practice, this approach enabled defendants to avoid liability for enhanced damages as long as they could develop an objectively reasonable—essentially, non-frivolous—legal theory of patent noninfringement or invalidity in the course of litigation, often long after infringement began.”).

55. *Halo Elecs., Inc. v. Pulse Elecs., Inc.* 136 S. Ct. 1923, 1930 (2016) (citing *In re Seagate Tech., LLC*, 497 F.3d at 1371).

56. See, e.g., *Bard Peripheral Vascular, Inc. v. W.L. Gore & Assocs., Inc.*, 682 F.3d 1003, 1007 (Fed. Cir. 2012); *Emblaze Ltd. v. Apple Inc.*, 38 F. Supp. 3d 1108, 1129 (N.D. Cal. 2014); *Univ. of Pittsburgh of Commonwealth. Sys. of Higher Educ. v. Varian Med. Sys., Inc.*, 877 F. Supp. 2d 294, 300 (W.D. Pa. 2012).

57. *In re Seagate*, 497 F.3d at 1371.

58. See *Karshtedt*, *supra* note 4, at 1460 (explaining that the “second prong, which would normally be decided by a jury if the plaintiff overcame the ‘objective’ threshold, typically turned on subjective factors”).

59. See *In re Seagate*, 497 F.3d at 1371.

C. Current Standard: Egregious Wrongdoing

After years of the two-part objective reckless *Seagate* test, the Supreme Court granted certiorari in *Halo* and *Stryker Corp. v. Zimmer, Inc.*, a pair of patent infringement cases involving allegations of willful infringement. In a unanimous decision, Chief Justice Roberts described the *Seagate* test as one that was “unduly rigid, and [] impermissibly encumbers the statutory grant of discretion to district courts.”⁶⁰ Justice Breyer’s concurrence similarly described the two-part test as taking “too mechanical an approach to the award of enhanced damages.”⁶¹ The *Halo* Court used the facts of the consolidated cases to show why the *Seagate* test was unduly rigid and could have the effect of “insulating some of the worst patent infringers.”⁶²

In the first case, *Halo*, the patent holder (Halo) was in competition with the defendant (Pulse).⁶³ The patent holder demonstrated that the defendant was aware of the patents-in-suit as early as 1998,⁶⁴ and that the patent holder’s counsel notified the defendant’s then-president in July 2002 that a license to the patents was available.⁶⁵ Writing again a few months later, the patent holder’s counsel was more direct and explained in general terms that the defendant’s technology might be infringing their patents.⁶⁶ After receiving this second letter, the defendant had a company engineer look at the patents. After just two hours of analysis, the engineer concluded that the patents were invalid in light of prior products that its company manufactured.⁶⁷ Without any further assessment, the defendant continued to sell its allegedly infringing products.⁶⁸ The patent holder brought suit in 2007.

In the district court, the jury found that the defendant infringed the patent holder’s valid patents and that “it was highly probable that [the defendant]’s infringement was willful.”⁶⁹ Yet for the objective prong—the one that was treated as a question of law—the district court found that the patent holder failed to satisfy the objective reckless prong of the *Seagate* test because the defendant “reasonably relied on at least its obviousness defense.”⁷⁰ Although the defendant lost on this argument at trial, their defense was not “objectively baseless.”⁷¹

60. *Halo Elecs., Inc. v. Pulse Elecs., Inc.*, 136 S. Ct. 1923, 1932 (2016).

61. *Id.* at 1936 (Breyer, J., concurring).

62. *Id.* at 1932 (majority opinion).

63. *Id.* at 1930.

64. *Halo Elecs., Inc. v. Pulse Elecs., Inc.*, 769 F.3d 1371, 1376 (Fed. Cir. 2014).

65. *Halo Elecs., Inc. v. Pulse Eng’g, Inc.*, 810 F. Supp. 2d 1173, 1181 (D. Nev. 2011).

66. *Id.* at 1182 (“There is reason to believe that surface mount products manufactured by your Company . . . may possess features similar to those embodied in the patented devices described in Halo’s patents previously provided to you.”).

67. *Halo*, 769 F.3d at 1376.

68. *Id.*

69. *Id.*

70. *Id.*

71. *Id.*

The other case, *Stryker*, also involved direct competitors. In this case, however, “[t]he jury had heard testimony that Zimmer had ‘all-but instructed its design team to copy Stryker’s products.’”⁷² The defendant, Zimmer, also engaged in a “high-risk/high-reward strategy of competing immediately and aggressively,” and “opt[ed] to worry about the potential legal consequences later.”⁷³ The jury found that Zimmer had engaged in willful infringement and the district court awarded treble damages on account of the “flagrancy and scope of” the infringement, yet the Federal Circuit vacated the enhanced damages award because Zimmer’s counsel “asserted ‘reasonable defenses’ at trial.”⁷⁴

These cases demonstrated that under the two-part objectively reckless test, so long as the infringer puts forth a good faith, non-frivolous legal theory, it does not matter if the patent holder proves that the risk of infringement was known.

The Supreme Court found this result unsatisfactory and, accordingly, abrogated the *Seagate* objective recklessness test. Justice Roberts stated that:

Section 284 gives district courts the discretion to award enhanced damages against those guilty of patent infringement. In applying this discretion, district courts are “to be guided by [the] sound legal principles” developed over nearly two centuries of application and interpretation of the Patent Act. Those principles channel the exercise of discretion, limiting the award of enhanced damages to egregious cases of misconduct beyond typical infringement. The *Seagate* test, in contrast, unduly confines the ability of district courts to exercise the discretion conferred on them.⁷⁵

The Supreme Court was clearly dissatisfied with the *Seagate* test—specifically its lack of grounding in the statutory language of Section 284 and its mechanical application that allowed a defendant to easily avoid liability. Yet, it is unclear from the *Halo* opinion what the standard for willfulness is moving forward. Beyond repeated, descriptive language stating that enhanced damages, there is little guidance for district courts.⁷⁶ Also, it is unclear what effect, if any, *Halo* would have on enhanced damages findings. Judges use the *Read* factors when deciding whether to enhance damag-

72. *Halo Elecs., Inc. v. Pulse Elecs., Inc.*, 136 S. Ct. 1923, 1931 (2016).

73. *Id.*

74. *Id.* For more background on these cases and how they played out at their various stages, see Sandrik, *supra* note 26, at, 383–93.

75. *Halo*, 136 S. Ct. at 1935 (alteration in original) (citation omitted).

76. *See id.* at 1932 (stating that enhanced damages “are not to be meted out in a typical infringement case, but are instead designed as a ‘punitive’ or ‘vindictive’ sanction for egregious infringement behavior,” behavior that “has been variously described in our cases as willful, wanton, malicious, bad-faith, deliberate, consciously wrongful, flagrant, or—indeed—characteristics of a pirate”).

es.⁷⁷ These factors include, among others, the closeness of the case; the duration of the infringer's misconduct, what, if any, remedial action the infringer took; the infringer's motivation for harm; and whether the infringer attempted to conceal its misconduct.⁷⁸

The lack of guidance and the removal of the objective recklessness barrier created plenty of discussions regarding enhanced damages in patent law. A central question to this Article is: how will district courts exercise the discretion afforded to them by the *Halo* Court when faced with allegations of willful infringement?

The Federal Circuit reviewed its first post-*Halo* willfulness case in *WBIP, LLC v. Kohler Co.*⁷⁹ Perhaps in an effort to figure out what might serve to guide enhanced damages analyses, the Federal Circuit stated that “[k]nowledge of the patent alleged to be willfully infringed continues to be a prerequisite to enhanced damages.”⁸⁰ Professor Dmitry Karshtedt, who persuasively argues that district courts err by not embracing a tort-law view of recklessness in the enhanced damages context,⁸¹ emphasizes the Federal Circuit's prerequisite of knowledge by stating that post-*Halo* the relevant legal standard is “actual knowledge or bust.”⁸²

Practitioners have made a similar point, observing that after *Halo*, “[w]ithout facts supporting knowledge of the alleged patent infringement, courts have granted motions for summary judgment of no willful infringement.”⁸³ Some district court have stated the actual knowledge standard explicitly: “[k]nowledge of the patent by the alleged infringer is . . . a prerequisite to proving willful infringement.”⁸⁴ Others state it implicitly, like when the Northern District of California held that even though Samsung copied Apple's product, “because Samsung had no knowledge of the [asserted patent] before the instant suit was filed, Samsung's conduct before the instant suit . . . does not constitute willful patent infringement.”⁸⁵

77. See *Read Corp. v. Portec, Inc.*, 970 F.2d 816, 827 (Fed. Cir. 1992). For examples of district courts looking to these factors for guidance post-*Halo*, see *Centripetal Networks, Inc. v. CISCO Sys., Inc.*, 492 F. Supp. 3d 495 (E.D. Va. 2020); *Mich. Motor Techs., LLC v. Volkswagen Aktiengesellschaft*, 472 F. Supp. 3d 377 (E.D. Mich. 2020); *Finjan, Inc. v. Blue Coat Sys., Inc.*, No. 13-cv-03999-BLF, 2016 WL 3880774 (N.D. Cal. July 18, 2016).

78. *Halo*, 136 S. Ct. at 1932. This Article will not fully dive into the results of the data of these factors, as it is beyond the scope of this paper. Yet these factors are visited briefly in Section VI.C. These factors will be more fully discussed in a future article.

79. *WBIP, LLC v. Kohler Co.*, 829 F.3d 1317 (Fed. Cir. 2016).

80. *Id.* at 1341 (citing *Halo*, 136 S. Ct. at 1932–33).

81. Karshtedt, *supra* note 4, at 1482–1516.

82. *Id.* at 1466–69 (titling a subsection “Post-*Halo*: Actual Knowledge of Bust” and working through recent case law to illustrate this point).

83. Rachel Weiner Cohen, Holly Victorson & Kellye Quirk, *The Halo Effect: Willful Infringement and Enhanced Damages in Light of Halo*, 69 AM. U. L. REV. 1067, 1082 (2020).

84. *Adidas Am., Inc. v. Skechers USA, Inc.*, No. 3:16-cv-1400-SI, 2017 WL 2543811, at *3 (D. Or. June 12, 2017).

85. *Apple Inc. v. Samsung Elecs. Co.*, 258 F. Supp. 3d 1013, 1024 (N.D. Cal. 2017).

While some articles have analyzed cases to determine how district courts negotiated allegations of willfulness⁸⁶, this Article offers data on willfulness adjudication post-*Halo*. This data and accompanying analysis can answer questions such as: Are district courts more likely to find willfulness under *Halo* than under *Seagate*? Did *Halo* have an impact on enhanced damages? And does this data provide information that is useful for companies seeking to establish patent policies and procedures?

III. PRIOR EMPIRICAL STUDIES

This Article will first examine two empirical studies that analyze willful patent infringement and enhanced damages in patent law. These studies are instrumental in providing a blueprint from which we can learn about willfulness and enhanced damages adjudication since 1983. While each study furthers the understanding of how willful infringement is plead and adjudicated—and provides insight as to resulting enhanced damages—neither study includes decisions after the *Halo* decision. Moreover, neither study has a disruptive Supreme Court opinion. As a result, this Article provides data from the past decade, setting forth a novel data set that can be used to assess the evolution of willfulness and enhanced damages adjudication since the *Halo* opinion.

The first study, by then-Professor and now Chief Federal Circuit Judge Kimberly Moore, examined willful infringement cases in district courts and the Federal Circuit from 1983 to 2000.⁸⁷ The second study, by Professor Christopher Seaman, specifically examined the impact of Federal Circuit opinion *In re Seagate*.⁸⁸ Professor Seaman evaluated a six-year period, September 2004 to July 2010.⁸⁹

Judge Moore's study has two separate parts. The first part is an intensive two-year study (1999–2000) looking at every patent infringement case that terminated during litigation.⁹⁰ These cases could be terminated for any reason and at any period in the litigation process—settlement, pre-trial motion, trial, or post-trial motion.⁹¹ There are three key results in this part.

86. See, e.g., Cohen, Victorson & Quirk, *supra* note 83 at 1082–83 (analyzing district court opinions post-*Halo* regarding requisite knowledge in willfulness allegations); Zachery D. Olah, *Artificial Enhancement: Limiting Enhanced Damages Awards for Patent Infringement*, 68 AM. U. L. REV. 305, 318–19 (2018) (arguing that district courts after *Halo* have looked to the *Read* factors in navigating willfulness allegations and corresponding enhanced damages deliberations).

87. Moore, *supra* note 16.

88. Seaman, *supra* note 17.

89. See *id.* at 436.

90. Moore, *supra* note 16, at 230–31.

91. *Id.*

The first key result of this two-year study is that willful infringement was alleged in the originally filed complaint 92.3% of the time.⁹² This seems troubling because it “suggest[s] that willfulness claims are plaguing patent law.”⁹³ Yet this is also not surprising. During the 1999 to 2000 period, plaintiffs were not required to plead any specific facts or knowledge that gave rise to their belief that the defendant(s) were willful infringers.⁹⁴ If specific facts or knowledge are not required, there is very little reason that a plaintiff patentee would have to forego an inclusion of willfulness in the original complaint. The risk is low that a plaintiff patent holder would be adversely affected by alleging willfulness, such as receiving a sanction from bad faith motion practice, but the potential reward is high: tripled compensatory damages. And even if the willfulness allegation is simply used to increase pressure for a favorable settlement—perhaps not how policymakers and others would want a plea of willfulness used—including a plea of willfulness is a no-brainer. An allegation of willfulness has value.⁹⁵

Judge Moore highlighted that there is another way to assess the statistic that willfulness appears in in 92.3% of all complaints filed from 1999 to 2000. In short, if there is some factual basis in these original complaints with allegations of willfulness, then it is important that the law, or the application of the law, does not “dilute the effectiveness of the punitive damages.”⁹⁶

The second key result is that in 1999 and 2000, “[w]illfulness was never decided on summary judgment.”⁹⁷ Judge Moore concluded that this is likely a “good thing”⁹⁸ because willfulness is a highly factual question, and thus it is appropriate that willfulness be resolved by the factfinder.⁹⁹ Of the 143

92. *Id.* at 232 (further explaining that “[i]f we were to look by patent, rather than by suit, willfulness was alleged with regard to 92.8% of the 2709 patents at issue in these 1721 patent infringement cases”).

93. *Id.*

94. *Id.* (“Plaintiffs never plead specific facts that give rise to their beliefs regarding the defendant’s willfulness. Their willfulness allegation is usually phrased in the prayer for relief as a demand for increased damages or enhanced damages and attorney fees.”).

95. *See also* Seaman, *supra* note 17, at 442–43 (looking at Judge Moore’s data and further anecdotal evidence that willfulness is routinely alleged after *Seagate* and stating “a patentee has little incentive to not pursue a potentially viable willfulness claim”).

96. Moore, *supra* note 16, at 234. One potential reason Judge Moore gave for this high number of cases pleading willful infringement is that willful infringers are less willing to enter into license agreements, thereby leading to the result that litigated cases include more particularly egregious defendants. While it is a great example of looking at the data from all angles—exercising caution about drawing inferences without robust analysis—Judge Moore’s data on willfulness outcomes at trials seems to show that this particular way of looking at the data “is not likely to explain the high incidence of willful infringement allegations.” *Id.*

97. *Id.* (“In the data of all cases terminated from 1999–2000, willfulness was decided in 143 cases, or 2.1% of all cases. Willfulness was only decided if and when the case went to trial.”).

98. *Id.*

99. *See id.*

cases that went to trial on the issue of willfulness, willful infringement was found in 55.7% of the cases.¹⁰⁰ Ninety-five of these cases were jury trials and forty-eight were bench trials.¹⁰¹

The third key result is that willfulness findings by jury versus judge did not vary significantly: 56.0% in jury trials and 60.4% in bench trials.¹⁰² Yet the factfinder did play a significant role in the decision of whether to enhance damages. When the jury found the infringer willful, the judge declined to enhance damages 63.2% of the time.¹⁰³ Yet when the judge was the one that found an infringer willful, the judge declined to enhance damages only 13% of the time.¹⁰⁴ In other words, when a jury made the initial willfulness finding, the judge enhanced damages only 36.8% of the time. Yet, when the judge made the willfulness finding, the judge enhanced damages 87.0% of the time.

Concerned that a two-year study was too small of a sample size, the second part of Judge Moore's study expanded the data set to include all willful infringement cases from 1983 to 2000.¹⁰⁵ In that eighteen-year period study, there are two key results.

First, her study showed that there was a greater impact on the willfulness outcomes in judge versus jury trials than in the two-year study. Willfulness was found 67.7% of the time in jury trials and 52.6% of the time in bench trials.¹⁰⁶ Similar to the two-year study, judges were much more likely to enhance damages when they were the factfinders compared to when a jury was the factfinder. When a judge made the initial willfulness decision, the judge enhanced damages 91.9% of the time.¹⁰⁷ When a jury made the initial willfulness decision, the judge enhanced damages only 60.6% of the time.¹⁰⁸ As Judge Moore pointed out, one inference we can draw from this statistic is that the judge is acting like a check on jury willfulness findings.¹⁰⁹

The second key result comes from the inclusion of Federal Circuit cases in Judge Moore's study. Over the course of eighteen years, there were 107 appeals on the issue of willfulness.¹¹⁰ The Federal Circuit largely upheld jury willfulness determinations: "93.8% of the cases finding willfulness were affirmed and 100% of the jury cases finding no willfulness were af-

100. *Id.* at 236.

101. *Id.*

102. *Id.*

103. *Id.* at 237. Judge Moore writes that this statistic means, "[i]n short, the jury finding was irrelevant." *Id.*

104. *Id.*

105. *Id.* at 231.

106. *Id.* at 237.

107. *Id.*

108. *Id.*

109. *Id.*

110. *Id.* at 238.

firmed.”¹¹¹ The Federal Circuit overturned more bench trials, “77.5% of the bench trials finding willfulness were affirmed and 82.8% of the bench trials finding no willfulness were affirmed.”¹¹²

Finally, in other empirical work on forum shopping and venue, Judge Moore found that for infringement and validity outcomes, the venue had a statistically significant impact on those outcomes.¹¹³ Testing if a similar pattern was true in willfulness outcomes, Judge Moore found that while there was some variation between district courts on willfulness outcomes, venue did not have a statistically significant impact.¹¹⁴

The second empirical study of enhanced damages is by Professor Christopher Seaman.¹¹⁵ Seaman’s study specifically tested the impact of *In re Seagate* on willfulness findings and enhanced damages at the district court level. Recall that the *Seagate* Court changed the prior standard of willfulness (the affirmative duty of care standard) to one that had both an objective and subjective prong. Moreover, the new *Seagate* two-part standard placed the burden of proof for establishing willfulness on the patent holder.

With this new standard, in particular the objective recklessness prong, patent commentators believed that the new willfulness standard would be “exceptionally difficult to prove,”¹¹⁶ that “only the clearest case of infringement and validity would seem to satisfy” it,¹¹⁷ and that resolution of willfulness by pre-trial motions would significantly increase.¹¹⁸ Seaman gathered data to test whether these predictions of the post-*Seagate* willfulness era were true. More generally, his study investigated what impact, if any,

111. *Id.*

112. *Id.*

113. See Kimberly A. Moore, *Forum Shopping in Patent Cases: Does Geographic Choice Affect Innovation*, 79 N.C. L. REV. 889, 919 & tbl.10 (2001). And in regard to the term “statistically significant,” I believe the author followed standard data science practices in ascribing the following to the resulting p-values, with p-value defined as the probability of observing results that are or are not due to chance alone. These p-values can be categorized by statistically highly significant ($p < 0.001$), statistically significant ($p < 0.05$), or not statistically significant ($p < 0.1$). *P Values*, STATS DIRECT, https://www.statsdirect.com/help/basics/p_values.htm (last visited Nov. 14, 2021) (“Most authors refer to statistically significant as $P < 0.05$ and statistically highly significant as $P < 0.001$ (less than one in a thousand chance of being wrong).”); see also *infra* note 171.

114. Moore, *supra* note 113 at 919 & tbl.10 (reporting 85% of cases resulted in a willful finding in the Northern District of Illinois and only 42% of cases resulted in a willful finding in the District of Massachusetts).

115. Seaman, *supra* note 17.

116. Quinn, *supra* note 53.

117. SIMPSON THACHER & BARTLETT LLP, *supra* note 53, at 12.

118. See, e.g., Matthew Cook Bernstein, *Difficulties Prevailing on Willful Infringement Post-Seagate*, MINTZ LEVIN PAT. LITIG. GRP. NEWSL. (Mintz Levin, Boston, Mass.), May 2010, at 1, <https://www.jdsupra.com/legalnews/brief-mintz-levin-patent-litigation-gro-44951> (“Prior to *Seagate*, parties would seldom move for summary judgment on the issue of willfulness, and courts would even less frequently grant these motions. . . . Now, however, it is becoming more routine for accused infringers to move for summary judgment of no willful infringement prior to trial, and courts are actually granting these motions. . . .”).

Seagate had on willful patent infringement and enhanced damages in district courts.

Seaman's data set consisted of 309 district-court decisions that all reached "a final decision on the merits on willfulness between September 2004 and July 2010."¹¹⁹ His data set was compiled through a combination of Westlaw and LexisNexis searches, as well as by reviewing patent jury verdicts identified by Patstats.org and searching a separate database of intellectual-property litigation.¹²⁰ Like Judge Moore, Seaman defines a final decision on the merits to include jury trials, bench trials, and post-trial motions (e.g., a judgement as a matter of law (JMOL)).¹²¹ Unlike Judge Moore, Seaman's data set also includes pre-trial motions, including motions for summary judgment.¹²² Moreover, Seaman's data set did not include any appeals opinions.¹²³ Overall, Seaman's study includes decisions where a willfulness claim was resolved by pre-trial motion, trial, or post-trial motion. This excludes default judgments.

There are four key results in Seaman's study. The first is that willfulness findings did not dramatically plummet after *Seagate*, contrary to what practitioners and scholars predicted. Indeed, Seaman recorded only about a 10% decline in willfulness findings after *Seagate*.¹²⁴ In the approximately three years prior to *Seagate*, willful infringement was found in 48.2% of the decisions that reached a final willfulness decision on the merits.¹²⁵ In the approximately three years after *Seagate*, willful infringement was found in 37.2% of the decisions that reached a final willfulness decision on the merits.¹²⁶ This difference in the pre-*Seagate* and post-*Seagate* findings was not statistically significant, although it was close to the standard 0.05 significance threshold ($p = 0.052$).¹²⁷

The second key result is that the procedural stage at which willfulness was commonly decided changed after Judge Moore's study. In the three years prior to *Seagate*, "16.8% of cases decided willfulness on pretrial motions."¹²⁸ In the three years after *Seagate*, 26.9% of all decisions decided willfulness on pretrial motions.¹²⁹ Yet Seaman included motions to dismiss and motions for summary judgment. There is not a breakdown of these two distinct pre-trial motions in Seaman's study, so it is unclear how much of

119. Seaman, *supra* note 17, at 436.

120. *Id.* at 433–34.

121. *See id.* at 435.

122. *See id.* at 435.

123. *Id.* at 435–36.

124. *Id.* at 417 ("Surprisingly, [this Article] determines that willful infringement was found in only about 10% fewer cases after *Seagate*.").

125. *Id.* at 441.

126. *Id.*

127. *Id.*

128. *Id.* at 440 & fig.1.

129. *Id.* at 440 fig.2, 441.

this increase was due to the rise in the number of motions to dismiss in enhanced damages compared to that evaluated in Judge Moore's study.

The third key result relates to a key finding of Judge Moore's study. In Judge Moore's study from 1983 to 2000, willfulness was found in 52.6% of bench trials and 67.7% of jury trials.¹³⁰ In Seaman's study, the pre-*Seagate* numbers are similar; willfulness was found in 53.9% of bench trials and 60.9% of jury trials.¹³¹ Yet in Seaman's post-*Seagate* time period, August 2007 to July 2010, willfulness was found in just 18.5% of bench trials.¹³² This difference is highly statistically significant, demonstrating that the "difference [is] not due to chance alone."¹³³ The jury willfulness findings remained consistent at 61.9%.¹³⁴

Seaman explains in his study that the impact of *Seagate* on bench trials is due in part to an increase in district-court decisions granting JMOLs.¹³⁵ Yet even with the pre-verdict JMOL excluded from the data set, Seaman's study shows a statistically significant impact on post-*Seagate* bench trials.¹³⁶ In short, this is not the only explanation of why the post-*Seagate* bench trial is so different from how judges were adjudicating willfulness before *Seagate*.

Seaman offers another explanation: judges and juries do not have the same understanding of what "willful" conduct is after *Seagate*.¹³⁷ Federal judges have many years of training and familiarity with how an objective recklessness standard is different than a negligence-like standard.¹³⁸ The objective recklessness standard has a much higher degree of culpability. The jury's willfulness findings are virtually unchanged after *Seagate*. Perhaps this reflects that at least some jurors did not "comprehend a difference between an infringer's failure to satisfy an 'affirmative duty of due care' and acting with recklessness regarding the patentee's rights."¹³⁹

The fourth key finding concerns venue. Similar to Judge Moore's study on forum shopping and venue, Seaman's study found some variation in the willfulness findings among various districts, but this variation was not statistically significant.¹⁴⁰ However, as in Judge Moor's study, Seaman's data

130. See *supra* text accompanying note 106.

131. Seaman, *supra* note 17, at 445 tbl.3.

132. *Id.*

133. *Id.* at 445.

134. *Id.* at 445 tbl.3.

135. *Id.* at 445 ("Part of this result is due to an increase in district-court decisions granting motions for JMOL during trial on willfulness after *Seagate*.").

136. *Id.* ("If pre-verdict JMOL decisions are excluded from the data set (11 of 27 cases), willful infringement was still found in less than a third (31.3%) of all bench trials, which remains statistically significant ($p = 0.024$).").

137. *Id.* at 446.

138. *Id.*

139. *Id.* at 446–47.

140. See *id.* at 451 & tbl.4.

revealed a trend in certain districts. For example, the Eastern District of Texas had the highest percentage of willfulness determinations at 52.3%, with the Northern District of Illinois in second at 46.2%, and the District of Minnesota the lowest at 27.3% and the District of Massachusetts second lowest at 30.0%.¹⁴¹

Overall, these willfulness statistics illustrate that there “is a substantial decline in willfulness findings” from 1983–1999 (63.8%) to September 2004–August 2007 (48.2%) and August 2007–July 2010 (37.2%).¹⁴²

IV. DATA & METHODOLOGY

In this part, I describe the methodology that undergirds this empirical study, starting with the research questions that motivated this study. Then I provide a brief description of the data collection process. Finally, I describe the analysis process used after coding the data. Like Seaman’s study, I limit my data to district courts. Part V then provides the results.

A. Open Research Questions after Halo

After yet another change in the willfulness standard—from the *Seagate* two-part objectively reckless standard to the *Halo* egregiousness standard—there were a number of open questions. These questions lead to criticism, predictions, and assumptions voiced primarily by academics and practitioners. A number of these questions motivated this empirical study. Four of the main open questions after *Halo* are discussed below.

The first post-*Halo* research question is: how will district courts interpret the word “egregious”? After *Halo*, the general benchmark for enhanced damages is no longer willfulness.¹⁴³ This is significant. Willfulness has been the defining benchmark of enhanced damages since at least 1894, when the Supreme Court assessed patent damages and found that “[t]here is no pretense of any wanton and *willful* breach by the plaintiff.”¹⁴⁴ This raises a number of questions about the nature of unlawful conduct, as the American Bar Association journal points out: “The new touchstone is ‘egregious misconduct,’ which, as noted by the Supreme Court, has historically been termed ‘willful, wanton, malicious, bad-faith, deliberate, consciously

141. *Id.*

142. *Id.* at 444 & tbl.2 (“[T]he cumulative impact of the Federal Circuit’s decisions in *Knorr-Bremse* and *Seagate*, rather than *Seagate* only, may account for the decrease in willfulness findings since 1999.”).

143. George W. Jordan III, *Halo v. Pulse: A New Chapter for Enhanced Patent Damages*, ABA LANDSLIDE (Mar./Apr. 2017), https://www.americanbar.org/groups/intellectual_property_law/publications/landslide/2016-17/march-april/halo-v-pulse-new-chapter-willfulness-enhanced-patent-damages/#65 (“Due to *Halo*, willfulness is no longer the touchstone for enhanced damages.”).

144. *Cincinnati Siemens-Kungren Gas Illuminating Co. v. Western-Siemens-Lungren Co.*, 152 U.S. 200, 204 (1894) (emphasis added).

wrongful, flagrant,’ or ‘characteristic of a pirate.’”¹⁴⁵ Does this mean that egregious misconduct exists when there is “intentional conduct by a person who lacks a good faith belief that the patent is not infringed?”¹⁴⁶ Or does egregious misconduct truly look more like that of a malicious pirate—one who intentionally rips away someone else’s property for their own gain?

The United States Department of Justice has argued that enhanced damages are appropriate in three instances of egregious misconduct: (1) intentional conduct, or bad-faith conduct under a subjective standard; (2) reckless conduct, as traditionally used in tort law; and (3) other types of egregious litigation misconduct, like corporate espionage.¹⁴⁷ The first research question in this empirical study seeks to empirically evaluate how district courts have interpreted the word “egregious,” and to assess whether district courts moved on to egregiousness after years of adjudicating with the term “willfulness.” This opening research question is important to the thesis of this Article—that a company policy of deliberately ignoring patents for purposes of avoiding enhanced damages is unnecessary and can be ineffective—because if the term “egregious” is not clearly defined thereby increasing uncertainty, I would expect companies to ignore patents more.

The second research question is: will the lower standard of proof announced by the Court in *Halo*, as compared to the standard announced in *Seagate*, open the floodgates to enhanced patent damages (and perhaps then cause companies to further bury their heads in the sand)?¹⁴⁸ Although the standard of willfulness is the key change—perhaps leading to more willfulness findings—will *Halo* also impact the frequency and/or dollar value of enhanced damages awards? This question provokes further questions about patent policy and company procedures. For example, should companies return to the pre-*Seagate* era of opinion letters to help “build a record that the

145. Jordan, *supra* note 143.

146. *Id.*

147. Transcript of Oral Argument at 24–26, *Halo Elecs., Inc., v. Pulse Elecs., Inc.*, 136 S. Ct. 1923 (2016) (Nos. 14-1513 & 14-1520), https://www.supremecourt.gov/oral_arguments/argument_transcripts/2015/14-1513_4e46.pdf.

148. Many practitioners and academics in patent law voiced this concern and/or made a prediction that it would be easier to obtain enhanced damages. *See, e.g.*, Jordan, *supra* note 143 (“Should we be concerned that this lower standard of proof might open the floodgates to enhanced patent damages?”); Halo v. Pulse *So Far: Impacts of the New Standard for Enhancing Patent Damages*, BOOKOFF MCANDREWS BLOG (Dec. 20, 2016), <https://www.bomcip.com/blog/halo-v-pulse-far-impacts-new-standard-enhancing-patent-damages> (opining that changes after *Halo* “show that the new standard for proving willful infringement, while amorphous in some ways, is more attainable” and that as a result, “[w]illful infringement may . . . be a more important consideration now, for both patent owners and potential infringers, than it has been in the past decade”); David Long, *Supreme Court Ruling Increases Patent Owners’ Ability to Get Enhanced Damages* (Halo v. Pulse), ESSENTIAL PATENT BLOG (June 13, 2016), <https://www.essentialpatentblog.com/2016/06/supreme-court-ruling-increases-patent-owners-ability-get-enhanced-damages-halo-v-pulse> (arguing that *Halo* increases patent owners’ ability to be awarded enhanced damages); Sandonato & McMahon, *supra* note 10.

company did not act in bad faith”?¹⁴⁹ Further, if companies had changed their behavior regarding patent reading or clearance in light of *In re Seagate*, should they change it again in light of *Halo*?

The third research question motivating this empirical study is how will the role of the jury change after *Halo*, if at all? In the two-part *Seagate* objective recklessness test, the role of the jury was to determine if the patent holders either knew or should have known about the risk of infringement.¹⁵⁰ This was a subjective inquiry, where juries basically conducted a gut-feeling analysis as to whether the defendant acted in bad-faith. This was often at odds with how courts adjudicated the objective part of *Seagate*. Amicus briefs filed in *Halo* specifically invited the Supreme Court to speak to the role of the jury in willfulness allegations.¹⁵¹ Two such examples, citing different statutory bases, argued that a willfulness inquiry should solely be a question of law, not fact.¹⁵² Again, this is an important research question that should be answered before determining whether a deliberate ignorance strategy is an effective one.

The fourth research question derives from my own decade-long academic interest in enhanced damages. Given that *Halo* has ostensibly provided an easier to satisfy willfulness standard, does the claim—first set forth by Judge Moore—that willfulness allegations are “plaguing” patent law bear out in the data? If so, perhaps the “ignore patents” advice is better than it seems at first blush when we look at downstream effects.

B. Data Collection

In order to have data-driven answers to the above questions, it was important to gather a data set that was as complete as possible. I tried to gather all district court decisions on willfulness decided between 2010 and 2020.

149. See Erik R. Puknys & Yanbin Xu, *Willful Infringement After Halo*, FINNEGAN (Sept. 14, 2016), <https://www.finnegan.com/en/insights/articles/willful-infringement-after-halo.html> (suggesting that potentially “accused infringers should build a record that the company did not act in bad faith, such as [by] obtaining an opinion letter from counsel, as soon as possible”); see also Hricik, *supra* note 12.

150. See *supra* Section II.B.

151. See, e.g., Brief for EMC Corp. as Amicus Curiae Supporting Respondents at 28–31, *Halo Elecs., Inc., v. Pulse Elecs., Inc.*, 136 S. Ct. 1923 (2016) (Nos. 14-1513 & 14-1520); Brief for Askeladden LLC as Amicus Curiae Supporting Neither Party at 31 n.8, *Halo Elecs., Inc., v. Pulse Elecs., Inc.*, 136 S. Ct. 1923 (2015) (Nos. 14-1513 & 14-1520); Brief for Mentor Graphics Corp. et al. as Amici Curiae Supporting Neither Party at 20–27, *Halo Elecs., Inc., v. Pulse Elecs., Inc.*, 136 S. Ct. 1923 (2015) (Nos. 14-1513 & 14-1520).

152. See Brief for Mentor Graphics Corp. et al. as Amici Curiae Supporting Neither Party, *supra* note 151, at 20–27 (arguing that like a patentee lacks a Seventh Amendment right to a jury trial on claim construction, a patentee lacks a Seventh Amendment right to a jury trial on willfulness allegations); Brief for EMC Corp. as Amicus Curiae Supporting Respondents, *supra* note 151, at 28–31 (basing its argument that any factual determinations of willfulness should be decided by a court on § 284 and FED. R. CIV. P. 52).

Appeals decisions are not included in this data set.¹⁵³ This paper is focused on understanding how district courts are adjudicating willfulness from 2010 to 2020 and particularly how district courts have responded to *Halo*. The facts leading to willfulness, and how a jury and a judge interpret those facts, are at the crux of why companies choose to not read patents. As a result, the focus here remains on district courts throughout the Article.

Of course, not all district court decisions are reported to Westlaw or Lexis. Further, not all decisions are accompanied by an opinion that provides reasoning for these decisions. It is within these limitations that a comprehensive data set was created.

I started my search for all willfulness decisions on Westlaw, which is why most of my data comes from Westlaw. I ran similar searches on LexisNexis, and using docket databases, Pacer and Bloomberg Law. I found a handful of decisions in district databases and identified two in local news reports.¹⁵⁴ I cross-referenced these decisions on Westlaw and/or LexisNexis, but these databases did not have a copy of the decisions. This confirmed both that I needed to look outside of the traditional databases for decisions, but also that I had exhausted my searches within these traditional case-base databases.

My data set includes both reported and unreported decisions; unreported decisions are almost twice as common as reported decisions. The only decisions in the data set are those in which a final decision on the merits of a willfulness claim was made. All findings of willfulness after entry of default judgments were excluded, as the nature of a default judgement is that the parties did not contest the issue of willfulness.¹⁵⁵

Unique to this study, a final decision on the merits does not include a successful motion to dismiss a claim of willful infringement. This is one of several factors that sets this work apart from Seaman's study and a more re-

153. The main reason that I chose to include only district-court decisions in this study is that a Federal Circuit decision is rare, and an instance of Federal Circuit review of a willfulness or enhanced damage decision is even more rare. This makes the inclusion of Federal Circuit opinions distracting in that they are both exceptional and by their nature focused on particular issues of law. As explained above, this paper is focused on how behavior of parties leads to allegations of willful infringement.

154. David Schwartz and Ted Sichelman have helpfully published a short piece on data sources for patents. See David L. Schwartz & Ted Sichelman, *Data Sources on Patents, Copyrights, Trademarks and Other Intellectual Property*, in 2 RESEARCH HANDBOOK ON THE LAW & ECONOMICS OF INTELLECTUAL PROPERTY 2 (Peter S. Menell & David L. Schwartz eds., 2019).

155. See FED. R. CIV. P. 55. As Professor Seaman pointed out in his empirical study, “[i]ncluding these default judgements would have misleadingly skewed the study’s results towards higher willfulness findings. Upon entry of default, the complaint’s factual allegations relating to liability are deemed to be true. As a result, entry of a default judgement—typically because the accused infringer failed to answer the complaint—almost always resulted in a finding of willfulness.” Seaman, *supra* note 17, at 435 n.130 (citation omitted).

cent post-*Halo* empirical study.¹⁵⁶ Motions to dismiss are not included for three reasons.

First, there are inconsistent standards post-*Halo* on what is needed to successfully plead a claim for willful infringement.¹⁵⁷ This reflects, at least in part, the new pleading standards established in *Bell Atlantic Corp. v. Twombly*¹⁵⁸ and *Ashcroft v. Iqbal*.¹⁵⁹

Second, the Supreme Court abrogated Form 18 on December 1, 2015.¹⁶⁰ Form 18 provided an easy way to plead direct patent infringement, requiring a plaintiff to provide little more than the asserted patent number and a general statement alleging that the defendant's products or method embodied the asserted patent's invention.¹⁶¹ While this was expected after the heightened pleading standard established in *Twombly* and *Iqbal*, it is a disruption in the middle of my data set's timeline.

The change to the pleading standard and the disruption to the way in which a party files a patent infringement complaint added distracting noise to my results. This was not surprising, given that if I included motions to dismiss in my data set, the data set would have increased by 226 decisions. For scaling purposes, this would have increased the data set by 86.9%.

156. See, e.g., Tripathi, *supra* note 14, at 2636 (noting the data set includes all motions to dismiss). Using Tripathi's data set as an example, from December 2013 through December 2018, Tripathi found 158 district court cases. *Id.* at 2635. Of these 158 cases, 57 cases were resolved by a motion to dismiss. The means that motions to dismiss represent 36.1% of the entire data set. Professor Seaman also included motion to dismiss in his data set, yet he only included them when they resolved the issue of willfulness for that case (for example, when the pleading was amended but the patentee did not reassert willfulness). It is unclear how many cases in his data were resolved by motions to dismiss. See Seaman, *supra* note 17, at 435.

157. See Cohen et al., *supra* note 83, at 1080 (2020) (noting that “[a]lthough several district courts have granted motions to dismiss bare allegations of willful infringement, others have not”).

158. *Bell Atl. Corp. v. Twombly*, 550 U.S. 544, 555–56 (2007) (explaining that to adequately state a claim, allegations must establish a plausible claim to relief above the speculative level).

159. *Ashcroft v. Iqbal*, 556 U.S. 662, 684 (2009) (making clear that the stricter pleading standard announced in *Twombly* applies to all civil actions in federal court, including antitrust and discrimination suits); see also Allison K. Levine, *Form 18's Proper Place after Twombly and Iqbal*, MAYER BROWN, <https://www.mayerbrown.com/-/media/files/news/2011/07/form-18s-proper-place-after-twombly-and-iqbal/files/form-18s-proper-place/fileattachment/11307.pdf> (last visited Nov. 15, 2021) (arguing that the new, higher standard of pleading was in conflict with the direct pleading permitted in Form 18 for patent infringement).

160. See Jason E. Stach & Jonathan J. Fagan, *Life After Form 18: A One-Year Retrospective on Pleading Direct Infringement*, FINNEGAN, <https://www.finnegan.com/en/insights/articles/life-after-form-18-a-one-year-retrospective-on-pleading-direct.html> (last visited Nov. 30, 2021) (explaining that “on December 1, 2015, the Supreme Court did away from Form 18”).

161. See Jonathan DeFosse, *Patent Infringement Pleading Standards Remain Unsettled Five Years After the Abrogation of Form 18 – Part I: Inconsistent Federal Circuit Guidance*, SHEPPARD MULLIN INTEL. PROP. L. BLOG (Oct. 27, 2020), <https://www.intellectualpropertylawblog.com/archives/patent-infringement-abrogation-form-18>.

Third, a successful motion to dismiss a claim for willful infringement does not necessarily speak to the merits of the claim for willful infringement. A party may decide not to amend the complaint after a court dismisses the plea for willful infringement for a variety of reasons. This is likely particularly true after disruptive events, like the abrogation of Form 18 and the Supreme Court's 2016 *Halo* opinion. I had very little insight into why a party decided not to amend their complaint, and I did not assume that a party decided not to amend its complaint because it did not have the facts to support willful infringement. Together, these three reasons meant that I chose not to report on motions to dismiss in this Article.

That said, successful motions for summary judgement are included in the data set, as the judge will consider the merits of the case, not just the sufficiency of the pleading. The substantial majority of the decisions here resulted in a written opinion, but I have endeavored to find all instances of final decisions.

Finally, as mentioned above, my data only includes district court decisions. It does not include any decision from the Federal Circuit level, nor does it change any district court decisions after a review (and sometimes an overturning) of a district court decision on willfulness.

Using the databases detailed above, I reviewed more than 7,000 decisions dated from January 1, 2010 to December 31, 2020, and identified only those that reached a final decision on the merits of willfulness. What criteria merited an inclusion of a decision? First, there must be a pleading of willfulness in a patent infringement suit. The overwhelming majority of patents included are utility patents, though the data set contains a handful of design patents. Second, there must be a ruling on whether that willfulness was supported or not supported by the facts. If a decision satisfied both of these criteria, I included it in the dataset.

I identified 260 decisions that met those two criteria. Of those 260 decisions, 129 resulted in a willfulness finding and 131 resulted in a finding of no willfulness. Of the 129 decisions that resulted in willfulness, 110 resulted in determinations by the court as to whether to enhance damages. That means that between the end of the liability stage of trial and the end of the remedies stage of trial (whether bifurcated or not), nineteen decisions had settled or otherwise been terminated.

Graph 1, at the end of this Section, displays the size of my data set and the year the decision was reached. It breaks down the decisions into those reaching a willfulness finding and those that resulted in a no willfulness finding. Of the 110 decisions that reached the damages award stage, seventy resulted in the court choosing to enhance damages.

It is not surprising to see a high settlement rate after a court determines that the patent is valid and was willfully infringed. These numbers are simi-

lar to previous empirical work on willfulness and enhanced damages.¹⁶² Like Seaman noted in his empirical study, the number of decisions identified that reached a final decision on the merits might “appear low, [but] it is important to note that the overwhelming majority of patent cases settle before reaching a [final] decision on the merits.”¹⁶³ Seaman’s study identified only 309 cases that had a final decision on the merits, representing just approximately 1.9% of all filed cases in the relevant time period.¹⁶⁴ For reference, another study shows that in 2017, about 4,600 patent infringement complaints were filed, but only 122 trials took place.¹⁶⁵ As in similar studies, the total number of decisions in my data set might appear low. As discussed at length above, this is in part because I intentionally excluded all willfulness allegations resolved by a motion to dismiss.

Lastly, there is a selection bias here. The vast majority of patent cases settle prior to trial.¹⁶⁶ While it is unclear what unique factors lead parties to settle,¹⁶⁷ it is clear that the cases that proceed through the invalidity and infringement stages, past a willfulness finding, and to the damages stage are exceptional.

162. See, e.g., Seaman, *supra* note 17, at 435–40.

163. *Id.* at 436–37.

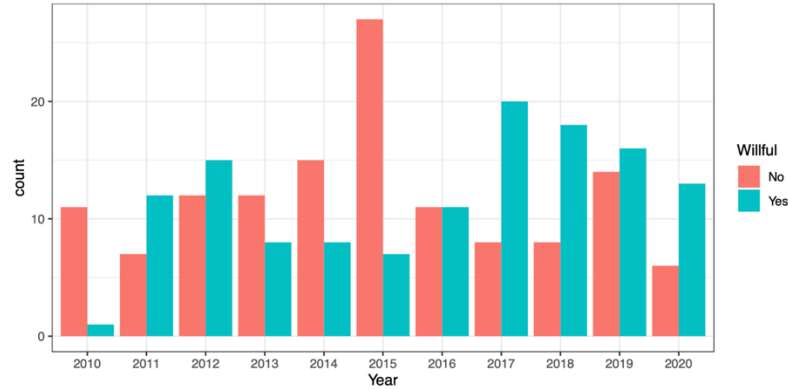
164. *Id.* at 436.

165. L. BUS. RSCH. LTD., *THE PATENT LITIGATION LAW REVIEW* 286 & n.36 (Trevor Cook ed., 2d ed. 2018).

166. Michael A. Carrier, Mark A. Lemley & Shawn Miller, *Playing Both Sides? Branded Sales, Generic Drugs, and Antitrust Policy*, 71 HASTINGS L.J. 307, 337 (2020) (“Most patent lawsuits settle.”); see also Shawn P. Miller et al., *Who’s Suing Us? Decoding Patent Plaintiffs Since 2000 with the Stanford NPE Litigation Dataset*, 21 STAN. TECH. L. REV. 235, 267 tbl.7 (2018) (finding 72% of patent lawsuits filed in 2014 had settled by February 2016).

167. See John R. Allison, Mark A. Lemley & David L. Schwartz, *Understanding the Realities of Modern Patent Litigation*, 92 TEXAS L. REV. 1769, 1777–78 (2014) (discussing selection bias and high settlement rates in patent litigation).

Graph 1. District Court Decisions
Reaching Final Willfulness Decision on the Merits



C. Data Coding Methodology

In preparing the data set, I hand coded each decision for multiple variables using a standardized set of coding instructions to ensure that my coding was consistent. These variables fall into three categories: details about the decision, details about the parties, and details about the willfulness and enhanced damages outcomes and reasoning.

The first category, details about the decision, is straightforward. It includes whether the decision was reported, the venue, and the date of the final determination of the willfulness.

The second category, details about the parties, is likewise straightforward. Details about the parties in this study include whether the parties were U.S.- or foreign-based and whether the defendant was an individual, a small party (less than 500 employees), or a large party (more than 500 employees). As part of this category, I also noted how long the judge had been on the bench when the final decision of willfulness was made, the gender of the judge, and the political affiliation of the president that appointed the judge.

The third category are the variables regarding willfulness and enhanced damages outcomes as well as factors leading to these outcomes. This category includes the final decision on willfulness, whether a judge or jury made the willfulness determination, the procedural posture when willfulness was decided (for example, pretrial motion, at trial, or post-trial motion), the base damages amount, if applicable, the enhanced damages amount, if applicable, and, finally, the noted presence or absence of the *Read* factors.¹⁶⁸ Recall from above that when deciding whether or not to enhance damages, a

168. See *Read Corp. v. Portec, Inc.*, 970 F.2d 816, 827 (Fed. Cir. 1992).

judge considers the following factors: (1) whether the infringer deliberately copied the ideas or design of the patentee; (2) whether the infringer, when it knew of the at-issue patent protection, investigated the scope of the patent and formed a good-faith belief that the patent was invalid or not infringed (by, for example, obtaining an opinion of counsel); (3) the infringer's behavior as a party to the litigation; (4) the infringer's size and financial condition; (5) the closeness of the case; (6) the duration of the infringer's misconduct; (7) remedial action by the infringer; (8) the infringer's motivation for harm; and (9) whether the infringer attempted to conceal its misconduct.¹⁶⁹

After the data was cleaned, it was loaded into R, a statistical computing and graphics software geared towards data analysis.¹⁷⁰ This data was analyzed using several different statistical tests. These included a two-sample t-test for equality of proportions with a 95% continuity correction, which was performed to determine whether the presence or absence of these variables made a statistically significant impact on willfulness findings and the amount and frequency of enhanced damages.

V. RESULTS

This part explains six key results of this study. It contains various graphs and tables illustrating these results and employs statistical hypothesis testing when appropriate.¹⁷¹

A. Reported vs. Unreported Decisions: Little Difference in Outcomes

The first key result is straightforward but important. Despite concerns expressed by academics,¹⁷² there was very little difference between willful-

169. *Id.*

170. Matti Vuorre, *Introduction to Data Analysis Using R*, JEPS BULL. (Dec. 5, 2016), <https://blog.efpsa.org/2016/12/05/introduction-to-data-analysis-using-r> (providing basic details about what R is and is not).

171. "Statistical hypothesis testing is the method by which the analyst makes [the] determination" whether or not "the results in the data are not explainable by chance alone." Will Kenton, *Statistical Significance*, INVESTOPEDIA (Apr. 18, 2021) https://www.investopedia.com/terms/s/statistically_significant.asp. I follow standard data science practices previously described in Part III. *See supra* note 113; *see also* NOREAN RADKE SHARPE ET AL., *BUSINESS STATISTICS: A FIRST COURSE* 310 (3d ed. 2017) ("We can define a 'rare event' arbitrarily by setting a threshold for our P-value. If our P-value falls below that point, we'll reject the null hypothesis. We call such results *statistically significant*. The threshold is called an alpha level. Not surprisingly, it's labeled with the Greek letter [alpha]. Common [alpha]-levels are 0.10, 0.05, 0.01, and 0.001.")

172. *See e.g.*, John R. Allison & Lisa Larrimore Ouellette, *How Courts Adjudicate Patent Definiteness and Disclosure*, 65 DUKE L.J. 609, 672 (2016) ("We also suspect that district court decisions are less likely to be reported in Westlaw than circuit court ones, and that decisions invalidating patents are probably more likely to be reported than those finding patents not invalid.")

ness findings and enhanced damages awards in reported decisions compared to unreported decisions. There is a reasonably high chance, however, that I do not have the full population of unreported decisions. Unreported decisions are not selected for publication in a hard copy reporter series (e.g., Federal Reporters),¹⁷³ and as a result they may be less likely to appear in an online database. Also, Westlaw and the other traditional databases do not account for all decisions published in reporters.¹⁷⁴

Table 1 below shows that nonreported decisions are about twice as common as reported ones, yet the frequency that a court makes a willfulness finding is nearly identical. Table 2 illustrates that the same is true for enhanced damages. Similarly, the difference in the mean and standard deviation in the dollar value of enhanced damages was not statistically significant.

Table 1. Willfulness Findings in Unreported vs. Reported Decisions

	n	Yes (Willful)	No (Not Willful)	Percentages of Willfulness ¹⁷⁵
Unreported	168	85	83	50.6
Reported	92	44	48	47.8
* 2-sample test for equality of proportions with 95% continuity correction ** p-value = 0.7662 (Not Significant)				

Table 2. Enhanced Damages Findings in Unreported vs. Reported Decisions

	n	Yes (Enhanced Damages Awarded)	No (Enhanced Damages Not Awarded)	Percentages of Enhanced Damages Awarded
Unreported	67	23	44	34.3
Reported	43	26	17	60.5
* 2-sample test for equality of proportions with 95% continuity correction ** p-value = 0.7257 (Not Significant)				

173. *What Is the Difference Between Unpublished and Unreported Cases?*, LEXISNEXIS SUPPORT CTR., http://lexisnexis.custhelp.com/app/answers/answer_view/a_id/1083949/~what-is-the-difference-between-unpublished-and-unreported-cases%3F (last visited Nov. 14, 2021) (explaining why some cases are not selected for publication).

174. *See, e.g.*, Allison & Ouellette, *supra* note 172, at 628 (explaining that “not all decisions are reported in Westlaw” and “although [Westlaw’s] database includes many unpublished decisions, its coverage is slightly less comprehensive for district court cases”).

175. The percentages here indicate the proportion of positive (“yes”) willfulness findings represented in the table cell, which was calculated by taking the number of “yes” willfulness cases in a particular cell (e.g., 85) of the table divided by the total number of willfulness cases in the row of the table (e.g., 168), and then converted to a percentage.

B. After Halo: Willfulness Findings Increase

The second key result of this study is that willfulness findings increased by 27.8% after *Halo*. The increase is highly statistically significant.

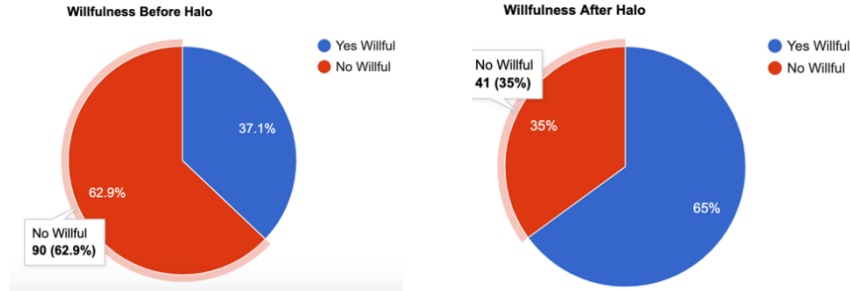
Recall that the previous two studies on willfulness found that there was an overall decline in overall willfulness findings from 1983 to 2010. This includes the following data points: from 1983 to 1999, 63.9% of decisions resulted in a finding of willfulness; from September 2004 to August 2007, 48.2% of decisions resulted in a finding of willfulness; and from August 2007 to July 2010, just 37.2% of decisions resulted in finding of willfulness.¹⁷⁶ After *Halo*, there were predictions that (1) the lower standard of proof, compared to *Seagate*, would lead to an increase in willfulness findings and (2) that an increased in willfulness findings would lead to a similar increase in enhanced damages findings. My data affirms the first prediction was accurate. My data affirms that the second prediction was somewhat accurate. There was an increase in enhanced damages findings, but not at the same rate of willfulness findings.

Between January 2010 and June 2016, the rate of willfulness findings was 37.1%. Between July 2016 and December 31, 2020, the period after *Halo*, the rate of willfulness findings increased to 64.9%. This is an increase of 27.8% of willfulness findings in a four-and-a-half-year period, demonstrating the significant impact of *Halo*. This is illustrated in Table 3 and Graph 2.

Table 3. Willfulness Findings Before & After *Halo*

	n	Yes (Willful)	No (Not Willful)	Percentages of Willfulness Findings
Before <i>Halo</i>	143	53	90	37.1
After <i>Halo</i>	117	76	41	64.9
* 2-sample test for equality of proportions with 95% continuity correction ** p -value = 1.357e05 (Highly Significant)				

176. Seaman, *supra* note 17, at 444.

Graph 2. Willfulness Findings Before & After *Halo*

This result is noteworthy in light of the empirical statistics in Seaman's study and Judge Moore's study. Seaman tested the three years prior to *Seagate* and the three years after *Seagate* and found that willfulness findings only decreased by about 10%.¹⁷⁷ I would have expected a more substantial decline after *Seagate*.

Given this surprising result, I re-tested it with my larger data set. In particular, I wanted to retest this relatively little decline because the time to get to trial, commonly one to three years, can vary dramatically.¹⁷⁸ It is therefore possible that three years was not enough time to fully evaluate the impact of the new objective recklessness standard on willfulness findings. Since my data set after *Halo* is similarly short, about four and a half years, it was particularly important for me to test of Seaman's result.

It is evident that Seaman's study captured the decline in willfulness findings accurately, as my analogous numbers taken from a larger time period are almost exactly the same. In the period I studied prior to *Halo*, 2010 through the middle of 2016, willful infringement was found 37.1% of the decisions (defined as reaching a final decision on the merits) found willfulness compared to Seaman's 37.2%.¹⁷⁹ While my rate would be lower if I adopted Seaman's inclusion of motions to dismiss, at bottom, our results tell a similar story.

While there may still be lingering concern that four and a half years is too short to accurately measure the full impact of any one Supreme Court decision, this study demonstrates that *Halo* had an immediate impact on

177. *Id.* at 441.

178. See PRICEWATERHOUSECOOPERS, 2017 PATENT LITIGATION STUDY: CHANGE ON THE HORIZON? 7 (2017), <https://www.pwc.com/us/en/forensic-services/publications/assets/2017-patent-litigation-study.pdf> (noting the median time to trial for patent cases is about thirty months).

179. My definition is narrower than Seaman's definition of final decision on the merits. See *supra* Section IV.B.

willfulness findings. Whether or not the impact on willfulness findings holds constant or evolves further is a question left for further studies.

C. After Halo: Enhanced Damages Slightly Increases

The third key result is that enhanced damages findings increased by 8.7% after *Halo* in decisions where there was a prior finding of willfulness. This means that the downstream impact of increased willfulness findings post-*Halo* on enhanced damages findings was weakened comparatively to the increased willfulness findings detailed above, but there was still an impact. Before *Halo*, judges enhanced damages 60.3% of the time. After *Halo*, this number rose to 69.0%. However, this 8.7% increase is not statistically significant,¹⁸⁰ so I cannot conclude that the increase did not simply happen by chance. Table 4 illustrates this result.

Table 4. Enhanced Damages Findings Before & After *Halo*

	n	Yes (Enhanced Damages Awarded)	No (No Enhanced Damages)	Percentages of Enhanced Damages Awarded
Before <i>Halo</i>	68	41	27	60.3
After <i>Halo</i>	42	29	13	69.0
* 2-sample test for equality of proportions with 95% continuity correction ** <i>p</i> -value = 0.4695 (Not Significant)				

Although practitioners predicted that enhanced damages would increase after *Halo*, this result is nevertheless surprising. *Halo* changed the standard of willfulness—whether an alleged infringer is held responsible for engaging in egregious wrongdoing. Egregious wrongdoing is the first of a two-step analysis for determining whether enhanced damages are appropriate.

At the second step, which was not changed by *Halo*, the judge determines whether enhanced damages are appropriate by reference to the factors laid out in the 1992 Federal Circuit’s opinion in *Read Corp. v. Portec, Inc.*¹⁸¹ From 2010 to 2020, 89.1% of all district courts applied the *Read* factors when deciding whether to enhance damages. In the handful of times that the district courts did not directly cite to *Read*, the factors were referenced in 98% of decisions. Accordingly, 98.2% of all judges that assessed enhanced damages during this time period looked to the *Read* factors. After *Halo*, district courts continue to rely on the *Read* factors in their enhanced damages analysis. These factors will be discussed further in Part VI.

180. This means that because the *p*-value was greater than the alpha (0.05), the “null hypothesis” (in this instance, that the increase in enhanced damages after *Seagate* was due to chance) fails to be rejected.

181. *Read Corp. v. Portec, Inc.*, 970 F.2d 816, 827 (Fed. Cir. 1992).

D. After Halo: Judges Find More Willfulness

The fourth key finding of this study is that the outcomes of bench trials and jury trials became more similar after *Halo*. Moreover, when given descriptive language and a green light to exercise discretion, the outcome, whether in jury or bench trials, was more findings of willfulness.

Before *Seagate*, Judge Moore's study found relatively little difference between the rate at which juries found willfulness at trial compared to that of a judge conducting a bench trial. For the period between 1983 and 1999, 67.7% of jury trials and 52.6% of bench trials resulted in willfulness findings. Between September 2004 and August 2007, however, the rate decreased: 60.9% of jury trials and 53.9% of bench trials resulted in willfulness findings. After *Seagate* changed the objective recklessness standard, this number changed once again. From August 2007 through July 2010, 61.9% of jury trials resulted in willfulness findings compared to just 18.5% of bench trials.

My study found that after 2010, the outcomes between bench and jury trials continued to diverge. Table 5 illustrates these willfulness findings.

Table 5. Factfinder from 2010-2020: Bench Trials vs. Jury Trials

	n	Yes (Willful)	No (Not Willful)	Percentages of Willfulness Findings
Bench	126	18	108	14.3
Jury	134	111	23	82.8
* 2-sample test for equality of proportions with 95% continuity correction ** p-value = 2.2e-16 (Highly Significant)				

Isolating just the bench trials number and breaking them down before and after *Halo*, there is a statistically significant difference in how judges adjudicate willfulness in bench trials after *Halo*. Before *Halo*, that is, operating under the *Seagate* standard of objective recklessness, judges were reluctant to find willfulness. Judges found that the infringer had acted willfully in just 8.23% of willfulness bench trials. Yet after *Halo*, when judges were told to use their discretion and focus on the egregiousness conduct of the infringer, the infringer was found to have acted willfully in 26.8% of the willfulness bench trials. This represents a significant shift (p -value = 0.01164), or about an 18.6% increase, in the rate at which judges found willfulness in bench trials after *Halo* changed the willfulness standard. The difference in the rate at which juries made willfulness findings increased only slightly, about 6%. This result may be explained, at least in part, by

changes to jury instructions reflecting the *Halo* opinion.¹⁸² Table 6 illustrates these findings.

Table 6. Factfinder Before and After *Halo*

	n	Yes (Willful)	No (Not Willful)	Percentages of Willfulness Findings
Bench: Before <i>Halo</i>	85	7	78	8.23
Bench: After <i>Halo</i>	41	11	30	26.8
* 2-sample test for equality of proportions with 95% continuity correction ** <i>p</i> -value = 0.01164 (Significant)				
Jury: Before <i>Halo</i>	58	46	12	79.3
Jury: After <i>Halo</i>	76	65	11	85.5
* 2-sample test for equality of proportions with 95% continuity correction ** <i>p</i> -value = 0 (Not Significant)				

E. After *Halo*: Less Resolution on Pre-Trial Motions

The fifth key finding of my empirical study is that judges are less likely to decide willfulness at the pre-trial stage through a summary judgment motion after *Halo*. In Part III, I noted that Seaman’s study reported that 16.8% of the willfulness allegations were resolved at the pre-trial stage before *Seagate*. This was a significant increase over the 1983 to 2000 time period, where Judge Moore found willfulness was never decided at the pre-trial stage. After *Seagate*, pre-trial resolution rose to 26.9%.¹⁸³

Moreover, my data from 2010 until the 2016 *Halo* opinion shows that pre-trial resolution occurred more frequently than in the 1983 to 2000 period. In the four and a half years before *Halo*, 39.8% of all willfulness decisions were resolved by pre-trial motion. In 2015, my data shows 51.4% of all willfulness decisions were resolved by pre-trial motion, likely an all-time high. While the *Halo* Court seemingly did not have this statistic available to them when making its decision, this statistic affirms the U.S. Supreme Court’s impression in *Halo* that the two-part *Seagate* test had turned into a

182. Compare AIPLA, MODEL PATENT JURY INSTRUCTIONS 57 (2012), <https://www.law.berkeley.edu/wp-content/uploads/2016/05/Appendix-E-PSM-5-6-16.pdf> (showing that the AIPLA’s Model Patent Jury Instructions before *Halo* used the following language, largely mirroring that in *In re Seagate*: “Willfulness must be proven that it is highly probable that . . . [[t]he Defendant] acted despite an objectively high likelihood that its actions infringed a valid patent, and [] [t]his objectively high likelihood of infringement was either known or so obvious that it should have been known to [the Defendant].”), with AIPLA, MODEL PATENT JURY INSTRUCTIONS 54 (2019), https://www.aipla.org/docs/default-source/student-and-public-resources/publications/2019-11-13—aipla-model-patent-jury-instructions.pdf?sfvrsn=1787faa5_0 (stating that the AIPLA’s Model Patent Jury Instructions after *Halo* uses the following language, largely mirroring that in *Halo*: explaining that the jury “may consider whether [the Defendant]’s behavior was malicious, wanton, deliberate, consciously wrongful, flagrant, or in bad faith.”).

183. See *supra* text accompanying notes 128–29.

mechanical test that most infringers could avoid with decent defense counsel.

Yet after *Halo*, this number fell dramatically and rapidly. In the four and a half years after *Halo*, just 16.9% of all willfulness decisions were resolved by pre-trial motion. This is almost the exact same figure to that found by Seaman in his study of the period prior to *Seagate* and post 2000. Just as the willfulness findings seem to harken back to a previous era, after *Halo*, the rate of pre-trial resolution has returned to a pre-*Seagate* era.

Finally, while I did not conduct statistical computing on these pre-trial numbers because of the relative sparsity of the data, a 22.9% decrease of pre-trial resolution of willfulness after *Halo* is noteworthy. It is hard to believe this has occurred because of chance, although bias is possible here because most of one year of the four and a half years studied took place in 2020, the beginning of the global pandemic.

F. After Halo: Venues Respond Differently

The sixth key finding of this study centers on the impact of venue in willfulness outcomes. Previous studies tested whether venue impacted willfulness outcomes, yet none has established a statistically significant relationship.¹⁸⁴ Does that remain true after *Halo*? In short, yes. This may only be due to sparse data,¹⁸⁵ an issue that will be resolved with more time. Yet even with sparse data, we can see descriptive trends in the data, as illustrated by the following graphs and tables. These trends tell stories that merit future inquiry.

Table 7 illustrates the breakdown of willfulness in the seven districts that saw the most willfulness decisions from 2010 to 2020. The total number of willfulness decisions in this data set is 260, and this table shows that the District of Delaware by itself represents 18.1% of all willfulness decisions. The Eastern District of Texas represents 15.0% of all willfulness decisions. Together, these two districts alone account for 33.1% of all willfulness findings.

184. See *supra* notes 113 & 140 and accompanying text. While sparse data should not be used to draw inferences from any statistical modeling, this data can still be used to describe trends in the data.

185. Unfortunately, like with the pre-trial resolution above, the data here is too sparse to do statistical models. Simply, drawing inferences with this little of data is dangerous, as other variables may be creating noise and bias that impacts the data in unknown ways. For example, there are only 10 cases in the Southern District of New York. One judge, one large law firm, one particularly active patentee, etc. can make an impact that may go undetected.

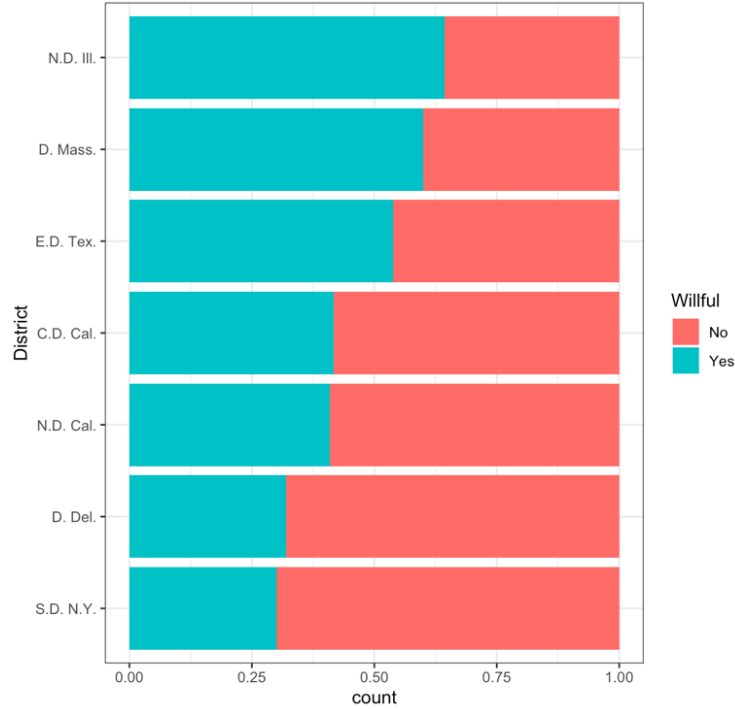
Table 7. Willfulness Outcomes in Top 7 Districts

Willful	D. Del.	E.D. Tex.	N.D. Cal.	N.D. Ill.	C.D. Cal.	S.D.N.Y	D. Mass
Yes	15	21	9	9	5	3	7
No	32	18	13	5	7	7	4
Total	47	39	22	14	12	10	11
Percentages of Willfulness Findings	31.9	53.8	40.0	64.3	41.7	30.0	60.0

This table also shows that the District of Delaware and the Eastern District of Texas have very different willfulness outcomes. Just 31.9% of the decisions in Delaware result in willfulness findings, while 53.8% of the decisions in the Eastern District of Texas resulted in willfulness findings.

Graph 3, a proportional graph to help show the difference in outcomes, further illustrates these results. At the top is the Northern District of Illinois, finding willfulness in 60% of its decisions that reached a final decision on the merits. At the bottom of the graph is the Southern District of New York, finding willfulness in 30% of its decisions that reached a final decision on the merits.

Graph 3. Proportional Graph of Willfulness Outcomes in Top 7 Venues

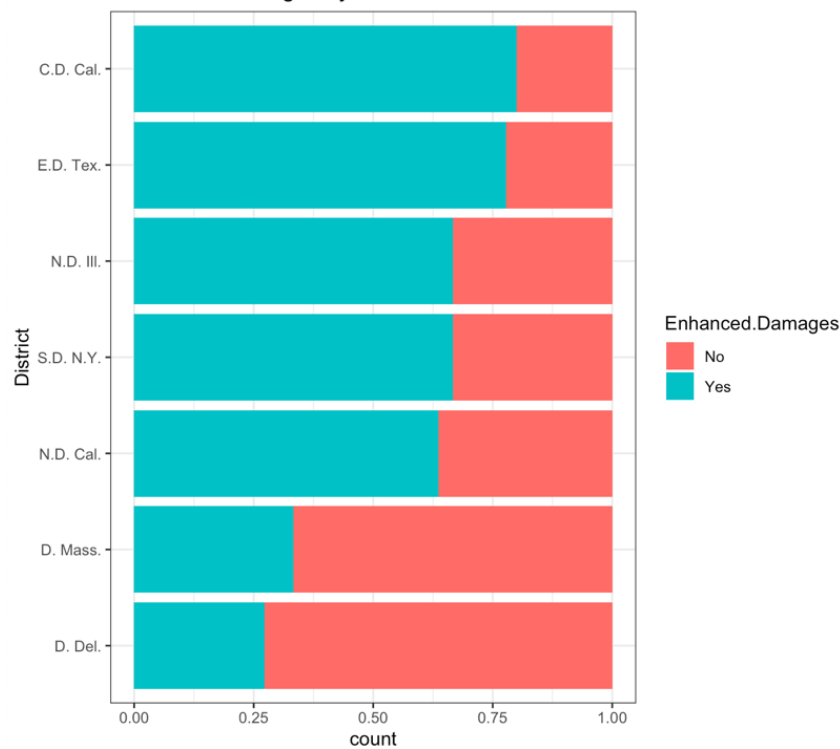


The data is similarly interesting with respect to which districts award enhanced damages after the finding of willful infringement. Looking again at the District of Delaware and the Eastern District of Texas in Table 8 below, the District of Delaware awarded enhanced damages in just 27.3% of its respective willfulness decisions. At the end of the spectrum, the Eastern District of Texas awarded enhanced damages (although not necessarily treble damages) in 77.8% of its respective willfulness decisions. Graph 4, like Graph 3, is a proportional graph to further depict these findings.

Table 8. Enhanced Damages in Top 7 Venues

	D. Del.	E.D. Tex.	N.D. Cal.	N.D. Ill.	C.D. Cal.	S.D.N.Y	D. Mass.
Enhanced	27.3	77.8	63.6	63.6	80.0	66.7	33.3

Graph 4. Proportional Graph of Enhanced Damages in Top 7 Venues



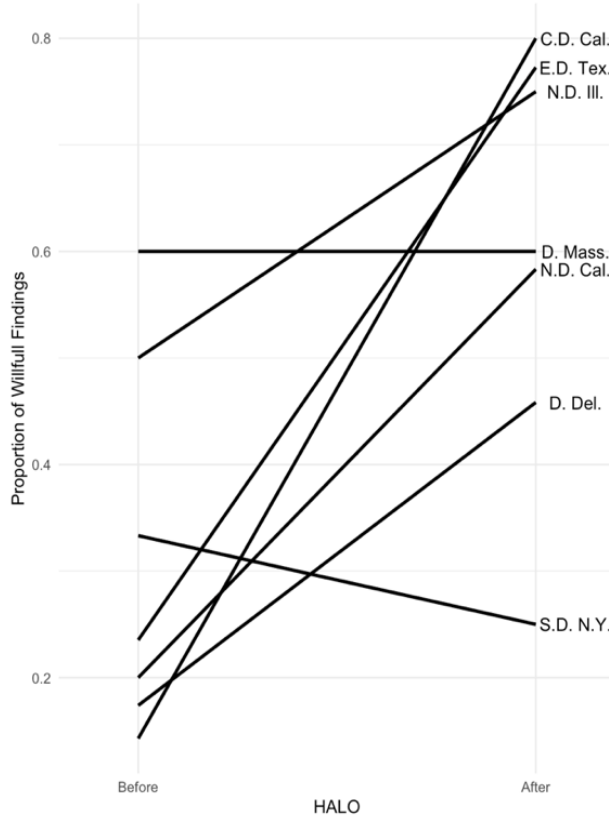
The findings above are all from 2010 to 2020, but the data shows how these particular seven district courts have responded to *Halo*. While the data is sparse and so caution is warranted when drawing inferences, by extrapolating from this data, at least in part, the data seems to describe which district courts (and their judges) changed their analysis of willfulness after the *Halo* opinion directly handed back discretion to district courts from the “unduly confines” of the *Seagate* test.¹⁸⁶

Still focusing on the seven district courts that had ten or more willfulness decisions, Graph 5 illustrates how these district courts reacted to the *Halo* decision. The line of each district courts starts on the left side of the graph and travels upward (reflecting an increase in willfulness findings after *Halo*), straight across (reflecting no or little change in willfulness findings

186. *Halo Elecs., Inc. v. Pulse Elecs., Inc.*, 136 S. Ct. 1923, 1935 (2016) (further stating that “district courts are ‘to be guided by sound legal principles’ developed over nearly two centuries of application and interpretation of the Patent Act” and that “[t]hose principles channel the exercise of discretion” (quoting *Martin v. Franklin Cap. Corp.*, 546 U.S. 132, 139 (2005))).

after *Halo*), or downward (reflecting a decrease in willfulness findings after *Halo*). Table 9 has the actual before and after *Halo* row percentages.

Graph 5. Line Graph Post-*Halo* Willfulness Findings



While the data is too sparse to confidently run statistical hypothesis tests, the trends showing that certain districts appear to be significantly impacted by *Halo*.

One such example is the Central District of California. Before *Halo*, just 14.3% of decisions resulted in willfulness results. Yet after *Halo*, the willfulness findings skyrocket to 80%. That is a 65.7% difference in a relatively—just four and a half years. It is also telling that the earlier reported number when we look at the data as a whole from 2010 to 2020, with 40% of all decisions in that time period resulting in a finding of willfulness, is not detailed enough to provide this more complete story. Looking at the District of Delaware and Eastern District of Texas, Delaware has a much

more modest change in willfulness numbers, 28.4%, compared to that of the Eastern District of Texas, 53.8%.

Table 9. The Impact of *Halo* in Top 7 Venues

	C.D. Cal.	E.D. Tex.	N.D. Ill.	D. Mass.	N.D. Cal.	D. Del.	S.D.N.Y.
Before <i>Halo</i>	14.3	23.5	50.0	60.0	20.0	17.4	33.3
After <i>Halo</i>	80.0	77.3	75.0	60.0	58.3	45.8	25.0
Difference in willfulness findings before & after <i>Halo</i>	65.7	53.8	25.0	0.0	38.3	28.4	8.3

G. Summary

Overall, this data set provides data-driven answers to several open research questions. First, academics should feel, at least in this context, a bit more comfortable looking to unreported decisions as representative of a typical decisions. This is true at least in terms of outcomes of decisions, as there was little difference in outcomes of willfulness findings and enhanced damages findings.

Second, the concern voiced by practitioners and academics that *Halo* significantly impacted the frequency of willfulness findings was validated by the data. Since *Halo*, there has been a 27.8% increase in willfulness findings across the United States. This result is highly statistically significant.

Third, the concern that *Halo* would have a significant impact on enhanced damages was not fully validated by the data. Although there was an increase, the finding was not statistically significant. There was just an 8.7% increase in the rate at which judges determined that enhanced damages were appropriate based on the willfulness finding. Although an almost 9% increase is noteworthy, we must keep in mind that this is after more decisions made it through the willfulness stage to the enhanced damages stage. Moreover, this increase may be due to a number of variables that were not measured here.

For example, it probably takes time for litigants to adjust to the new normal. Right after the Supreme Court hands down a new standard, some litigants might feel invigorated to continue pushing forward in litigation while others might feel the exact opposite (e.g., more likely to settle). *Halo* drew much attention from the patent community and spurred predictions that willfulness findings and enhanced damages would both increase; one

can imagine that many defendants with potentially stronger cases against them regarding the level of willfulness may have settled. I was unable to capture the strength of willfulness cases in my data set and thus unable to measure how the potential strength or weakness of the case might impact the decision regarding settlement rates.

Fourth, judges responded to the *Halo* opinion by finding more willfulness. Since the *Halo* opinion, judges have found willfulness in 26.8% of bench trials, compared to just 8.23% prior to *Halo*. This represents an 18.6% increase, which is statistically significant. Juries are also more likely to find willfulness, yet the 6.2% increase is not statistically significant.

Fifth, this study shows that after *Halo*, the pre-trial resolution rate is similar to that of the pre-*Seagate* time period. In the four and a half years since the *Halo* opinion, 16.9% of all willfulness opinions were resolved before trial. In comparison, in 2015 and just prior to *Halo*, 51.4% of the willfulness decisions were resolved prior to trial. These numbers certainly seem significant, but my data is too sparse to run the appropriate statistical models. This finding touches on the biggest caveat to this study: the number of willfulness decisions is small, and there are even fewer decisions that make it through to the enhanced damages stage. This is both a caveat for the results of this study—little data is not a good thing in data science—but it also an important take away from this study—there is not much here (at least relatively speaking) in the past eleven years of willfulness litigation. This is more fully addressed in Part VI.

Sixth, this study shows that forum shopping is likely to continue. For patent holders that were not already trying to get their cases filed in the Eastern District of Texas or now the Western District of Texas,¹⁸⁷ for example, this study shows the potential value in litigating in that forum by a patent holder's perspective. It is seemingly more likely to receive a finding of enhanced damages there, at least compared to other venues. And for defendants, it provides recent data on the outcomes in forums such as the District of Delaware and shift in outcomes in the Central District of California.

VI. IMPLICATIONS FOR COMPANIES & ATTORNEYS

This Part looks at potential downstream implications of these six key findings. It also briefly presents more data regarding how judges assess whether or not to enhance damages, focusing the discussion on implications for companies and attorneys regarding their internal patent policies and pro-

187. See Jonas Anderson & Paul R. Gugliuzza, *Federal Judge Seeks Patent Cases*, 71 DUKE L. J. 419, 419 (2021) (highlighting that “[i]n 2016 and 2017, the Waco Division received a total of five patent cases. In 2020, nearly eight hundred patent cases—more than 20 percent of all patent cases nationwide—were filed here.”).

cedures.¹⁸⁸ As stated above, there is repeated discussion surrounding the (perhaps largely anecdotal) testimony that companies and attorneys advise engineers, researchers, and computer scientists to deliberately ignore patents.¹⁸⁹ Moreover, companies and attorneys may provide this advice based on the notion that companies find patent clearance work impracticable or inefficient and find patent reading unfruitful.¹⁹⁰

I argue here that for purposes of avoiding enhanced damages, ignoring patents is unnecessary and perhaps even bad advice for three reasons, each addressed separately below.

A. Willfulness Findings & Enhanced Damages are Rare

First, the data on willfulness and enhanced damages does not support this advice. As previously stated, the biggest concern about this study is the small number of willfulness decisions that I have from the 2010 to 2020 period:¹⁹¹ just 260 decisions reached a final decision on the merits. This figure indicates how infrequently patent litigation results in a willfulness finding.¹⁹² This already small number decreases even further, by 42.3%, for willful infringement decisions that make it to the stage of trial, where the judge will grant or deny enhanced damages. This means that 110 decisions resulted in a willfulness finding, and within that number, seventy of the decisions resulting in some amount of enhanced damages. Of those seventy decisions, sixteen resulted in full trebling of base damages, as permitted by the Patent

188. A separate and future project, likewise relying on this original data, will explore the potential downstream impact on patent theory and future empirical studies regarding willful infringement and enhanced damages.

189. See *supra* note 1.

190. See, e.g., Thomas F. Cotter, *Reining in Remedies in Patent Litigation: Three (Increasingly Immodest) Proposals*, 30 SANTA CLARA HIGH TECH. L.J. 1, 4 (2013) (“[H]igh-tech firms in particular generally ignore patents, due both to the sheer quantities of patents granted and to the opacity with which they are drafted, which sometimes turns the ‘notice’ function of patents into something of a joke.”); Christa J. Laser, *The Scope of IPR Estoppel: A Statutory, Historical, and Normative Analysis*, 70 FLA. L. REV. 1127, 1176 (2019) (“In fields where businesses lose trust in the validity of issued patents, they may choose to operate in ignorance of them, finding that designing their products around sometimes thousands of patents is not justified when the PTAB or courts will likely find them invalid upon closer review.”); Tun-Jen Chiang, *Fixing Patent Boundaries*, 108 MICH. L. REV. 523, 542 (2010) (“The wily competitor should either spend the money to analyze the specification and prior art; or simply give up and treat patent infringement as a cost of doing business. Overwhelmingly, it appears that competitors in practice choose the latter option and ignore patents until sued, in the belief that paying infringement damages *ex post* is cheaper than analyzing patents *ex ante*.”); see also *Eidos Display, LLC v. Chi Mei Innolux Corp.*, No. 6:11-CV-00201-JRG, 2018 WL 1156284, at *6 (E.D. Tex. Mar. 5, 2018) (explaining that to the “careful reader this record suggests that Innolux gave little, if any, thought to the ‘958 Patent”).

191. Although these numbers are perhaps not that surprising given the previous studies low numbers, as discussed *supra* in Section III.

192. In comparison with the previous two empirical studies, these low numbers are not surprising.

Act. In sum, between 2010 and 2020, just sixteen decisions resulted in treble damages and fifty-four decisions resulted in some enhanced damages but not treble damages.

While these numbers should not be viewed in a vacuum without consideration of how factors impact these numbers, most notably, the extraction of value during settlement based on the potential of enhanced damages, these numbers should mean something to companies. It is not likely that a company will be subjected to an enhanced damages award, and this is particularly true if the company takes several steps, described below.

B. Ignorance is Not a Defense

Beyond the sheer likelihood of a willful infringement finding and an award of enhanced damages, there is a second reason why this is bad advice. Ignorance is not a defense to a patent suit and, relatedly, ignoring patents will still get you sued. The ignoring-patents advice also frustrates a main rationale behind the patent system—"the disclosure and dissemination of technical information."¹⁹³ And the longer a company sticks its head in the sand, the longer it goes without valuable knowledge. Actively seeking out knowledge of technical information disclosed in patents carries at least four significant benefits over deliberate ignorance. First, this knowledge can decrease the risk of infringement. Second, it may provide insight into a competitor's activity. Third, it may lead to collaboration opportunities (or at least licensing opportunities). And fourth, searching for patents and reading them may reduce redundant research, thereby expediting the time it takes to produce a downstream product or service.

Even if there is complete ignorance of an on-point patent, courts are tiring of this practice and "bad-faith" excuses. In *Motiva Patents LLC v. Sony Corp.*, a 2019 opinion, the defendant, HTC Corp., filed a motion to dismiss plaintiff Motiva Patents, LLC's claim for willful infringement.¹⁹⁴ It based this claim on Motiva's failure to adequately allege that HTC had pre-suit knowledge of the patents-in-suit.¹⁹⁵ This ordinarily works to get a motion to dismiss granted.¹⁹⁶ Yet in this instance, Motiva also alleged that HTC "has a

193. See Chien, et al., *supra* note 2, at 172 ("[E]nhanced damages have the potential to interfere with one of the primary rationales behind the patent system: the disclosure and dissemination of technical information.").

194. *Motiva Pats., LLC v. Sony Corp.*, 408 F. Supp. 3d 819, 823 (E.D. Tex. 2019). For a full discussion on the *Motiva* opinion and possible implications, see Thomas F. Cotter, *Willful Blindness (And Maybe Recklessness?) Can Support Finding of Willful Infringement*, COMPARATIVE PATENT REMEDIES (Oct. 2, 2019, 6:54 AM), <http://comparativepatentremedies.blogspot.com/2019/10/willful-blindness-and-maybe.html>.

195. *Motiva*, 408 F. Supp. 3d at 833.

196. See, e.g., *Rembrandt Soc. Media, LP v. Facebook, Inc.*, 950 F. Supp. 2d 876, 884 (E.D. Va. 2013) ("Rembrandt has not pled sufficient facts to invite the plausible inference that Facebook had the requisite pre-suit knowledge of either patent. Accordingly, the claims for willful infringement must be dismissed.")

policy or practice of not reviewing the patents of others.”¹⁹⁷ Further, Motiva alleged that HTC executed this policy prohibiting review of patents by “instructing its employees to not review the patents of others.”¹⁹⁸

Viewing these allegations as true, as is required at this stage of litigation, the district court held that because “Motiva has alleged that HTC has such a specific policy—a policy prohibiting review of patents—Motiva has plausibly alleged that HTC was willfully blind.”¹⁹⁹ The district court, citing Supreme Court holdings that willful blindness may supply the requisite knowledge requirement of indirect infringement, explained that “willful blindness” can also supply the requisite knowledge to make it past a motion to dismiss.²⁰⁰

There is a similar sentiment when courts are assessing enhanced damages, as opposed to willful infringement. In *Metso Minerals, Inc. v. Powerscreen International Distribution Ltd.*, a 2011 opinion, the district court stated in its enhanced damages analysis that “even if [] [defendant’s] belief of non-infringement was subjectively in good faith, this is negated by the Court’s finding that the Defendants evinced ostrich-like, head-in-the-sand behavior.”²⁰¹

Yet while the possibility of willful blindness allegation exists, there is also the reality that the patent owner bears the burden of proving willfulness. Indeed, one aspect for companies and attorneys to keep in mind when defending a patent infringement suit that alleges willfulness is that the motion to dismiss has changed in the past decade. While there the number of willfulness findings has increased to pre-*Seagate* levels, there is now also a robust practice of dismissing allegations of willfulness that fail to plead pre-suit knowledge or deliberate ignorance. As Judge Moore’s study shows, this

197. *Motiva*, 408 F. Supp. 3d at 825.

198. *Id.*

199. *Id.* at 834.

200. *Id.* at 833–34; see also Brief for Sixteen Intellectual Property Law Professors as Amici Curiae Supporting Respondent at 5, *Commil USA, LLC v. Cisco Sys., Inc.*, 575 U.S. 632 (2015) (No. 13–896), 2015 WL 860735 (“Before *Global Tech*, parties could have avoided liability for inducing infringement by simply ignoring patents altogether, burying their heads in the proverbial sand. Now such ostrich-like behavior will not immunize the party. . . . The message was clear: the law should not ‘protect[] parties who actively encourage others to violate patent rights and who take deliberate steps to remain ignorant of those rights despite a high probability that the rights exist and are being infringed.’” (quoting *Global-Tech. Appliances, Inc. v. SEB S.A.*, 563 U.S. 754, 768 n.8 (2011))); Charlotte Jacobsen, Filko Prugo & Ryan Sullivan, *Does Willful Blindness Beget Enhanced Patent Damages?*, LAW360 (Feb. 28, 2020, 2:42 PM), <https://www.law360.com/articles/1248314> (describing the uncertainly in the patent litigation landscape as there are cases opposite of *Motiva* where it is seemingly okay to have willful blindness and still avoid a willful infringement finding).

201. *Metso Mins., Inc. v. Powerscreen Int’l Distrib. Ltd.*, 833 F. Supp. 2d 333, 338 (E.D.N.Y. 2011) (further citing other courts that “an infringer ‘cannot be naive and be like ostriches and put their heads in the same and ignore obvious facts’ and then later claim entitlement to status as an ‘innocent infringer.’”) (citations omitted).

motion practice did not exist during the 1999 to 2000 period.²⁰² Moore stated that while almost every complaint alleged willful infringement, “[p]laintiffs [also] never plead specific facts that give rise to their beliefs regarding the defendant’s willfulness. Their willfulness allegation is usually phrased in the prayer for relief as a demand for increased damages or enhanced damages and attorney fees.”²⁰³ The data in my study plainly shows that this is no longer the case. A bare allegation of willful infringement nowadays rarely makes it past a motion to dismiss.²⁰⁴

This is good, but it also shows why companies may continue the practice of ignoring patents for purposes of enhanced damages awards. Most simply: it avoids the possibility of the patent owner having solid proof at an early stage of pre-suit knowledge. There is a lack of evidence, and it seems unlikely that there is a hidden smoking gun, so to speak. At most, the patent owner would likely show multiple letters were sent to the defendant to inform it that it may infringe the patent holder’s patent. The lack of evidence favors the defendant—the non-burdened party.

The practice of companies actively seeking to avoid trouble by reading or otherwise coming into close contact with others’ patents will certainly not go away overnight. Yet, as this Article has shown, the expansion of the legal standard from willfulness to willful blindness, the benefits of collaboration and knowledge, and the small likelihood of an enhanced damages award indicate that companies should now consider creating a patent-positive work environment as an alternative insulation policy to ignoring patents.

C. Insulation Through the Creation of a Patent-Positive Work Environment

The third reason why ignoring patents is bad advice from an avoidance perspective is that there are better ways to avoid willful infringement and enhanced damages in patent law. Looking almost exclusively to decisions after *Halo* as support, this Article argues that creating a patent-positive work environment can go a long way towards managing and minimizing the risk that a company will have an enhanced damages award assessed against it due to willful infringement. Moreover, because the Supreme Court con-

202. See *supra* text accompanying notes 92 & 94.

203. See Moore, *supra* note 16, at 232.

204. See, e.g., *Signify N. Am. Corp. v. Axis Lighting Inc.*, No. 19cv5516 (DLC), 2020 WL 1048927, at *3 (S.D.N.Y. Mar. 4, 2020) (“[A] plaintiff’s pre-suit notice letter, on its own, does not support a finding of willful patent infringement.”); *Mich. Motor Techs. LLC v. Volkswagen Aktiengesellschaft*, 472 F. Supp. 3d 377, 384 (E.D. Mich. 2020) (“The plaintiff’s allegation that the defendants ‘knew about the patent and nothing more’ will not make the grade.”); *InterMetro Indus. Corp. v. Capsa Sols., LLC*, 50 F. Supp. 3d 657, 666 (M.D. Pa. 2014) (explaining that the Defendant’s “pleadings represent a classic example of pleading ‘mere possibility,’ not the required ‘plausibility.’”).

ferred discretion to district court in *Halo*, district courts are speaking to this patent-positive work environment in a new, emboldened way.

In this context, a patent-positive work environment is one that respects patents, not ignores them. It is also an environment that seeks to both read and learn from patents, reducing the amount of redundant research and development and increasing licensing and collaboration opportunities. And if nothing else, this type of environment arms a company with more knowledge. This knowledge means more intentional planning on how to conduct business and assess risk.

Looking to the data from the *Read* factors in particular, the factors judges use when assessing whether or not to enhance damages, judges will hone in on two of several key factors: good faith and legitimate defense.

Good faith only appears in six of the enhanced damages decisions, but in all six the court declined to enhance damages. A 100% insulation rate. What, then, is the meaning of good faith?

Good faith occurs when a company relies on opinion letters, letters written by outside counsel that are thorough and completed by an outside professional. In one case, the court discussed two opinion letters, totaling 70 pages of material.²⁰⁵ The defendants' witnesses testified that "it was standard practice to obtain and rely on opinions of counsel before launching a product."²⁰⁶ Moreover, evidence was presented showing that it was the defendants' "practice to involve patent attorneys early in the product development process."²⁰⁷ Although the jury was not ultimately convinced these patent practices and policies fully insulated the defendants from infringing the patents willfully, the judge was convinced that the defendants had created a workplace environment that respected others' patents and that was geared towards avoiding infringing the rights of others.²⁰⁸ Although there has not been a resurgence of opinion letters like some patent commentators predicted after *Halo*, there are a handful of opinions reflecting that a part of a good faith defense often starts with a good faith inquiry as to whether the allegation of infringement is valid.²⁰⁹ That said, this is both helpful to know

205. *Acantha LLC v. DePuy Synthes Sales Inc.*, 406 F. Supp. 3d 742, 755 (E.D. Wis. 2019).

206. *Id.*

207. *Id.* at 759.

208. *See id.* ("Though the jury did not credit Defendants' argument that they had a good-faith belief that the '008 Patent was invalid and not infringed, it can nevertheless be inferred that Defendants had a good-faith belief that the patent was invalid.")

209. *See, e.g., Somaltus, LLC v. Noco Co.*, No. 1:17-CV-1111, 2018 WL 1484452, at *2 (N.D. Ohio Mar. 27, 2018) ("Rather, the 'key factor in determining whether a patentee performed a reasonable pre-filing inquiry is the presence of an infringement analysis,' which 'can simply consist of a good faith, informed comparison of the claims of a patent against the accused subject matter.'" (quoting *Q-Pharma, Inc. v. Andrew Jergens Co.*, 360 F.3d 1295, 1302 (Fed. Cir. 2004))); *Uniloc U.S., Inc. v. Apple Inc.*, No. 18-cv-00362-PJH, 2018 WL 2392561, at *3 (N.D. Cal. May 25, 2018).

but not feasible for many companies, as opinion letters are expensive and time consuming.

Beyond opinion letters, good faith also creates an environment that respects patents and seeks to invent/design around them with the aim of reducing redundancy and time to create something new. For example, a judge credited a company with good faith, speaking directly to the work environment, when the company approached its team of chemists with a patent in hand and said “look for the holes . . . areas that you don’t believe are being worked on by others that we might work on and still be able to get an invention.”²¹⁰ This was said in the context that the company “had limited resources” and did not want its researchers “wasting . . . time on working on something that wasn’t a novel idea.”²¹¹

The second factor worth noting here, the “legitimate defense” factor, appears in twenty-five of the enhanced damages decisions. Of these twenty-five decisions, the court declined to enhance damages 88.0% of the time. What, then, is a legitimate defense?

A legitimate defense is one that although it was unsuccessful in avoiding a finding of willful infringement, it was nevertheless not an easy decision for the factfinder to make. Instead, it was one where “nearly every aspect of th[e] case was ‘close.’”²¹² It is where there was “a hard-fought, hotly contested case involving factual and legal issues about which reasonable minds could differ.”²¹³ A plaintiff winning easily on summary judgment grounds or on every single issue across the trial means that a court will likely not find that there was a legitimate defense.²¹⁴

Both factors have great outcomes if they are present, a combined 90.3% insulation rate, so to speak, from an enhanced damages award. Yet they are not always easy to predict *ex ante*. How a court views a defense, and how long the jury takes to deliberate the infringement defense, can only be readily determined in hindsight. So besides affirming that companies should again spend money on an outside firm to conduct an infringement analysis and/or pay for good defense counsel, what other patterns does the data make apparent that can better inform current patent policies and procedures at companies?

210. *Idenix Pharms. LLC v. Gilead Scis., Inc.*, 271 F. Supp. 3d 694, 700 (D. Del. 2017).

211. *Id.*

212. *Id.* at 701.

213. *Rehco LLC v. Spin Master Ltd.*, No. 13-cv-2245, 2020 WL 7025091, at *12 (N.D. Ill. Nov. 30, 2020); *see also* *Erfindergemeinschaft UroPep GbR v. Eli Lilly & Co.*, No. 2:15-CV-1202-WCB, 2017 WL 3034655, at *10 (E.D. Tex. July 18, 2017) (finding that “this case was closely contested and presents several difficult legal issues”).

214. *See, e.g., Whirlpool Corp. v. TST Water, LLC*, No. 2:15-CV-01528-JRG, 2018 WL 1536874, at *6–7 (E.D. Tex. Mar. 29, 2018) (agreeing with Whirlpool when it claimed that “[t]he case was not close. Within a three-hour period, the jury returned a verdict that: (i) all seven asserted claims were infringed; (ii) all seven asserted claims are valid; (iii) TST owes damages of \$7.6 million; and (iv) TST acted willfully”).

Sometimes, bad behavior is easier to spot than good behavior. This is certainly the case in willful infringement and enhanced damages opinions. There are three factors that weigh in favor of enhancing damages that stand out in both their predictability of avoiding this behavior and in the court noticing this behavior: (1) motivation to harm, (2) copying, and (3) litigation misconduct. Motivation to harm and copying also often overlap, making it particularly easy to recognize in litigation and to avoid in practice by implementing and enforcing good patent policies and procedures.

Starting with the factor of motivation to harm, there were twenty cases where this factor was relevant to the discussion. In all twenty cases, the court awarded enhanced damages. This is the opposite of the good faith factor above in terms of the result. What, then, is motivation to harm?

Motivation to harm occurs when a company seeks to “free ride”²¹⁵ on another company’s success by intentionally copying and trying to enter the marketplace quickly to “displace [] [another’s] hold on it.”²¹⁶ In other words, a motivation to harm occurs where a defendant intentionally copies a patented invention or device to gain an unfair competitive advantage.²¹⁷ Notably, what is *not* motivation to harm? It is something more than ordinary competition. In short, “[s]imply because a company seeks to gain a competitive advantage . . . does not mean that the company has a motivation to harm.”²¹⁸

The second factor that, if present, predictably results in an enhanced damages award is copying. What is copying in this context?

A court looks for direct copying with this factor, and direct copying is unusual in patent law.²¹⁹ But direct copying is more frequently involved in enhanced damages awards than the other factors of motivation to harm and litigation misconduct. There were fifty-six enhanced damages cases where a court found the willful infringer copied the plaintiff’s patented technology.

215. *Id.* at *9.

216. *Chamberlain Group, Inc. v. Techtronic Indus. Co., Ltd.*, 315 F. Supp. 3d 977, 1014 (N.D. Ill. 2018) (“The evidence suggests that TTI recognized the peril of infringement and yet moved forward with its GD200s anyway. TTI’s actions . . . suggest that TTI wanted to enter the market quickly, and, if possible, displace Chamberlain’s hold on it. This preference for risk of infringement over the more labor-intensive creation of a non-infringing design weighs in favor of enhancing damages.”), *aff’d in part, vacated in part, rev’d in part*, 935 F.3d 1341 (Fed. Cir. 2019).

217. *See Apple Inc. v. Samsung Elecs. Co.*, 258 F. Supp. 3d 1013, 1035–36 (N.D. Cal. 2017) (making the distinction between simply seeking to gain a competitive edge to survive in the marketplace and seeking to do so by copying another’s patented technology).

218. *Power Integrations, Inc. v. Fairchild Semiconductor Int’l, Inc.*, No. 09-cv-05235-MMC, 2017 WL 130236, at *5 (N.D. Cal. Jan 13, 2017) (quoting *Power Integrations, Inc. v. Fairchild Semiconductor Int’l Inc.* 762 F. Supp. 2d 710, 724 (D. Del. 2011)).

219. *See Christopher A. Cotropia & Mark A. Lemley, Copying in Patent Law*, 87 N.C. L. REV. 1421, 1422 (2009) (“We find that a surprisingly small percentage of patent cases involve even allegations of copying, much less proof of copying. Copying in patent law seems to be very much the exception, not the rule, except in the pharmaceutical industry.”).

Out of these fifty-six cases, the judge awarded enhanced damages in 87.5% of them.

Copying is not just reading a patent and creating a similar product or device. Copying in this context is truly what most people likely think of when the word “egregious” is used. For example, in *Imperium IP Holdings (Cayman), Ltd. v. Samsung Electronics Co.*, the court explained that copying occurs when evidence is produced that a company “sought information on how” a particular patented device was made, including “ask[ing] specifically about” certain aspects of its technology, and “request[ing] source code” for multiple aspects of the technology.²²⁰ The company then further attended a training to better understand the technology, and yet all of this was seemingly done just for purposes of copying. That is, the purpose of information gathering was not done in order to figure out if a collaboration between the two companies was possible or even whether the particular patented technology was valid and/or infringed by the company’s own products.²²¹ Tellingly, as well, there was never any noted internal or external analysis of the plaintiff’s patents.²²²

If a company has good intentions in this instance, such as seeking a potential joint venture or licensing agreement, then certainly there must be some documentation of these non-nefarious motives. Without any such documentation, it looks like the company intentionally learned all there was to know about the patented device, not just by reading the corresponding patent, but by seeking out information from the company.

Finally, for litigation misconduct, out of the twenty-five cases where the court found that litigation misconduct had occurred, 96% of the cases resulted in the court determining that some amount of enhanced damages was appropriate. What is litigation misconduct?

Litigation misconduct is when a party fails “to produce certain key documents” and “misrepresent[s] certain facts.”²²³ Misconduct is particularly troubling to courts when direct copying is at issue.²²⁴ Litigation misconduct also occurs when there is a combination of the following activities: excessive motions practice, multiple instances of evasive and misleading conduct during discovery, re-argument of issues already decided by the court, continued assertion of claims and defenses that are untenable and result in a significant waste of resources, and filing multiple motions and trial briefs on

220. *Imperium IP Holdings (Cayman), Ltd. v. Samsung Elecs. Co.*, 203 F. Supp. 3d 755, 763–64 (E.D. Tex. 2016).

221. *Id.*

222. *Id.* at 764.

223. *Sunoco P’ship Mktg. & Terminals L.P. v. U.S. Venture, Inc.*, 436 F. Supp. 3d 1099, 1134 (N.D. Ill. 2020).

224. *See, e.g., id.* at 1135.

the eve of trial on issues already resolved by the court.²²⁵ When all of this happens in one case, even after admonishments by the court, this behavior would likely lead a judge to award enhanced damages.

Though a data-driven approach, companies and attorneys can and should re-think current patent policies and procedures. The data shows that claims of willful infringement and actual awards of enhanced damages are not plaguing patent law, at least not in the way that academics and practitioners feared. Moreover, the legal standard has changed, so a company can no longer safely engage in ostrich-like behavior to insulate itself from the potential of enhanced damages given the relatively new “willful blindness” case law. Finally, this type of behavior is unproductive in a world that relies more and more on collaborative efforts to create something new, useful, and nonobvious. The above discussion demonstrates that creating policies and procedures to encourage good-faith behavior when encountering patents, to avoid direct copying, and to avoid even the appearance that there is motivation to harm goes a long way towards minimizing exposure to a potential enhanced damages award. Even in the absence of litigation, this data on the *Read* factors may be helpful for companies to use when settling allegations of willfulness.

VII. CONCLUSION

This Article illustrates the impact of *Halo* on willfulness findings and enhanced damages with statistical analysis. This Article finds that *Halo* had a significant impact on willfulness findings, but not on enhanced damages awards. It also finds that judges have significantly changed the manner in which they adjudicated willful infringement after *Halo*. This, in turn, seems to influence how particular venues have responded to the new standard of willfulness.

Furthermore, this Article puts forth data that illustrates why companies can and should embrace a patent-positive work environment, thereby rejecting policies of deliberate ignorance or indifference to patents. This includes an environment where companies encourage their teams of engineers, scientists, and researchers to read patents and conduct in-house patent clearance searches prior to starting new research. Even in light of *Halo*, this Article argues that these changes in patent policies and procedures can be accomplished without substantially increasing potential exposure to enhanced damages. The results of this empirical study show that the instances in which enhanced damages are actually meted out are predictable, even if a

225. See *Tinnus Enters., LLC v. Telebrands Corp.*, 369 F. Supp. 3d 704, 720–22 (E.D. Tex. 2019). This was particularly surprising in this case as the court took the time in multiple instances to admonish the defendant. *Id.* at 721–22. Still, the defendant continued in this way of litigating through the eve of the trial. *Id.* at 720–21.

finding of willful infringement is not. When parties have a specific intent to harm competitors, the data shows that in almost every instance, enhanced damages will be awarded. This often occurs by deliberately copying the patented technology and cutting corners in product research and development, and/or when companies engage in abusive, wasteful, and/or misleading litigation conduct. Engaging in that sort of malfeasance is a far cry from simply reading patents to keep abreast of developments in one's industry and from conducting patent clearance searches prior to launching new research. With this informative data, it is now time to update the narrative surrounding willful infringement and enhanced damages, and to shape company policies and procedures accordingly.

