

Spring 2021

## Negligent Innovation

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### Recommended Citation

Oskar Liivak, *Negligent Innovation*, 48 Fla. St. U. L. Rev. 607 (2021) .  
<https://ir.law.fsu.edu/lr/vol48/iss3/5>

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# NEGLIGENT INNOVATION

OSKAR LIIVAK\*

## ABSTRACT

*Innovation is the buzzword of our time. Everyone wants to be an innovator. Corporations strive to be innovative. All this hype is good. Technological innovation is accepted as the single most important driver of economic growth. We should be obsessed with innovation. As such, it is not at all surprising that innovation and technological commercialization lie at the heart of justifications for the patent system. But there is something quite odd about these theories and indeed with our patent system: they never actually require innovation. A patentee is not obligated to take on the risky work of development and commercialization. They are never required to deliver the promise of their invention. A patentee can just wait for others to commercialize and then the patentee can emerge to hold-up and tax those actual innovators. And surprisingly, it is the commercialization theories, with their demands for strong patent protection, that provide cover for these non-innovators.*

*This Article aims to correct this by building a tort-based commercialization theory focused on protecting actual innovators. Significant benefits flow from this view. First, it describes unintentional patent infringement as a real accident, like a car crash. This demystifies patent liability by emphasizing the real, wasted resources that infringement entails. Second, this accident model provides a compelling explanation for some (but not all) independent inventor liability. Independent inventors should be liable for infringement only when they could have reasonably avoided the accident. Independent inventors should be liable when they are negligent innovators. Conversely though, for patent assertion entities, their inaction contributes to the accident, and their contributory negligence should reduce or eliminate patent remedies against inadvertent infringers. Third, this patent accident framing clarifies the long-standing puzzle of patent timing. It explains why patent rights attach early at the time of invention even when later commercialization is the ultimate goal.*

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\* Professor of Law, Cornell Law School. © 2020. The author would like to thank Emad Atiq, T.J. Chiang, Patrick Goold, Michael Heise, Mark Lemley, Irina Manta, and W. Bradley Wendell for their valuable comments and suggestions. The author would also like to thank participants of the Intellectual Property Works in Progress Conference, the Patent Conference, and in particular the Hofstra Law School Intellectual Property Colloquium for comments on earlier versions of this Article.

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## INTRODUCTION

Panicked eyes look up and focus on the too-fast approaching red light. The cellphone is jettisoned mid-text. Skidding tires desperately try to avoid the inevitable. The crush of metal and the pop of glass echo across the intersection. As radiator fluid spreads, the fact that an accident has occurred is quite evident. Many torts are just like this one. They are accidents involving obvious harm that could have been avoided. They involve understandable, accepted rules of the road designed precisely to prevent accidents. When people fail to abide by those rules and someone gets hurt, it is a tort. Through tort law, society allows victims to redress their injuries—society forces us to coordinate to avoid such accidents and society attaches a moral valence to the tortfeasor who fails to abide by them.<sup>1</sup>

Patent infringement has long been labeled a tort, yet it hardly seems to fit this mold. For sure, willful patent infringement via piracy

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1. JOHN C.P. GOLDBERG ET AL., TORT LAW: RESPONSIBILITIES AND REDRESS 3 (3d ed. 2012) (“When a person commits a tort, he acts in a manner that is figuratively ‘twisted’: His acts lack rectitude.”).

and copying is seen as wrongful, aligning with torts like conversion. Yet piracy is rather rare in patent law. Copying constitutes only a small fraction of patent cases.<sup>2</sup> The overwhelming majority of patent cases feature not copyists but rather defendants who have independently invented the subject matter and have inadvertently infringed.<sup>3</sup> In these cases patent law seems a far cry from regular torts.<sup>4</sup> Importantly, independent inventing defendants have not seemingly taken anything from the patent holder. In fact, how is infringement by an independent inventor morally problematic at all? Some argue that potential patent defendants should just ignore patents.<sup>5</sup> In a word, today there is no sense that we *ought* to obey patents. We all agree that we *ought* to avoid driving negligently, but there is not a similar sentiment for patents.<sup>6</sup> The best that patent law can currently muster is some vague hand waving about infringement indirectly causing harm to future incentives to invent.<sup>7</sup> Today, patent infringement is just not seen as a typical tort.

This view is a real mistake, and we should be seeking out a deeper connection between torts and patents. Patent law's distancing itself from basic tort principles has prevented us from recognizing how off-kilter the patent system has become. This is most evident with regards to innovation. Innovation is the process of creating, perfecting, and

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2. Christopher A. Cotropia & Mark A. Lemley, *Copying in Patent Law*, 87 N.C. L. REV. 1421, 1424 (2009) (finding only 10.9% of patent complaints include an allegation of copying by the defendant).

3. Patent law does not require copying as an element of liability. As long as someone is "mak[ing], us[ing], offer[ing] to sell, or sell[ing] . . . or import[ing] . . . [the] patented invention" then that person is infringing. See 35 U.S.C. § 271(a) (2018). A person can independently invent some technology without relying at all on a patent holder's work yet nonetheless infringe. See I WILLIAM C. ROBINSON, *THE LAW OF PATENTS FOR USEFUL INVENTIONS* 45-46 (1890) ("To one who has conceived and practically applied a new idea [patent law] gives the power, not only to prohibit other men from copying after him, but from inventing and applying the same idea for themselves. It recognizes no difference between the piracy of an invention by the wilful injurer and its entirely independent generation by a true inventor.").

4. Robert P. Merges, *A Few Kind Words for Absolute Infringement Liability in Patent Law*, 31 BERKELEY TECH. L.J. 1, 31-32 (2016) ("Car accidents are the classic example. When discussing optimal tort rules, it is plain to everyone that cost-effective minimization of the risk of physical injury is an important, or even essential, interest that society ought to care about a great deal. Patent infringement is entirely different. It does not involve physical harm. Moreover, it does not seem to involve an interest that is nearly as important or essential as those at stake in many tort cases.").

5. See Mark A. Lemley, *Ignoring Patents*, 2008 MICH. ST. L. REV. 19, 22 (2008).

6. For many if not most torts we do sense a morally infused duty to avoid harming others. See John C.P. Goldberg & Benjamin C. Zipursky, *Seeing Tort Law from the Internal Point of View: Holmes and Hart on Legal Duties*, 75 FORDHAM L. REV. 1563, 1576-77 (2006) ("[M]ost of us would acknowledge that we act under a legal duty to refrain from driving while intoxicated . . . When confronted with an instance of a conviction for driving under the influence, we generally do not think it correct to say, 'Oh, there's a guy who got hit with the drunk-driving tax'").

7. See Ted Sichelman, *Purging Patent Law of "Private Law" Remedies*, 92 TEX. L. REV. 517, 531 (2014) ("[T]he vindication of patent law rights via litigation is not meant to remedy a personal wrong inflicted on the inventor.").

ultimately disseminating technology. Innovation is about taking creations of the mind and actually getting them utilized. From the judiciary to economists to patent scholars, innovation and commercialization have been pushed as a critical justification of patent law for some time.<sup>8</sup> Innovation and commercialization are the most (and perhaps only) defensible goal of the patent system.<sup>9</sup> Not surprisingly then, innovation is found at the core of patent law discourse. Indeed, the patent theories that provide the most robust defense of the patent system are founded on the promise of innovation.<sup>10</sup>

Yet when we look a little deeper, things begin to look strange. Despite being sold on the promise of innovation, today's patent system (and the theories backing it) does not actually require patentees to innovate. The patent system does provide strong rights of exclusion that *can* be used to protect innovative efforts, but nothing requires patentees to do so. Rather, once a patent is obtained, a patentee can sit back and do nothing and then emerge to sue anyone else who has in fact innovated.<sup>11</sup> Rather than necessarily promoting innovators, the patent system can be used to tax them instead. This Article aims to rectify this unjustified taxation by providing an innovation-based justification for patents that provides strong protection for innovators but whose protections cannot be subverted by non-innovators aiming simply to tax actual innovators. A commercialization theory of patents need not and should not be an apology for patent assertion entities.

Patent theory's current troubles stem largely from its failure to take seriously its tort roots.<sup>12</sup> Torts focus on actual harms caused by a

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8. Giles S. Rich, *The Relation between Patent Practices and the Anti-Monopoly Laws*, 24(3) J. PAT. OFF. SOC'Y 159, 177 (1942); See also JOSEPH A. SCHUMPETER, CAPITALISM, SOCIALISM, AND DEMOCRACY 81-106 (3d ed. 1950); See Fritz Machlup, S. COMM. ON THE JUDICIARY, 85TH CONG., REP. ON AN ECONOMIC REV. OF THE PATENT SYSTEM 15, at 9 n.44 (Comm. Print 1958) ("That society should protect, and thereby stimulate, investment in innovation—not just invention—has been held by many; but few were as consistent in their conclusions as Joseph A. Schumpeter, who on these grounds favored permitting monopolistic practices of various sorts. He argued that temporary security from competition, through cartels, patents, or other restraints, would encourage firms to put more venture capital into innovating investment.").

9. See generally Oskar Liivak, *Establishing an Island of Patent Sanity*, 78 BROOK. L. REV. 1335 (2013).

10. See U.S. CONST. art. I, § 8, cl. 8 ("To promote the Progress of Science and useful Arts. . .").

11. Typically, an infringer is an innovator. Further, infringers are generally getting the technology into the hands of those that can use the technology. Perhaps they are doing so illicitly via piracy or inadvertently, but in any event, they are deploying technology. Of the acts that constitute infringement, "us[ing], offer[ing] to sell, or sell[ing] . . . [and] import[ing]" all evidence innovation by the infringer. See 35 U.S.C. § 271(a) (2018). Arguably even "making" the patented invention is a pre-cursor to innovation as presumably the infringing articles will soon be either sold (and used by purchasers) or directly used by the infringer. *Id.*

12. Some scholars, though, already see a strong connection between patent and tort.

tortfeasor. Yet modern patent law has never been able to clearly identify the actual harm caused by infringement.<sup>13</sup> Rather, modern patent law has dispensed with any requirement that the patentee establish the fact of harm. As a result, patent infringement has become an ethereal, indistinct injury untethered to any readily understandable harm. Damages are certainly awarded, but often, no clear injury is ever alleged.<sup>14</sup> Without guidance from tort law's focus on actual injuries, patent law has become untethered from economic reality, enabling the unfortunate result that non-innovators now regularly tax actual innovators.<sup>15</sup> By rediscovering the tort basis for patents and by putting the focus on actual injury to innovation, a number of issues are addressed at once.

First, using a tort framing patent law can build a commercialization-based foundation that provides unapologetically strong protection for actual innovators. Patentees are all protected from the intentional tort of piracy and copying. Furthermore, actual innovators need to be protected from inadvertent infringement by independent inventors. As described more below, this Article develops the idea of innocent patent infringement as a patent accident. By independently inventing and then selling the invention, an accident has occurred. The infringer's consumption of resources in reinventing and re-commercializing is wasteful; it was unnecessary. As the marginal cost of replicating the invention is often quite small, the already commercializing patentee could have met the demand for the invention. That waste is the accident. Where the patentee is actively innovating, then the later commercialization by the infringer is wasteful—the infringer has negligently innovated. And the infringer is liable for the accident. But the above tort result should not and need not apply to the nonpracticing patentee aiming simply to tax actual innovators. In the case of a patent assertion entity, when an independent inventor starts to sell the invention and thereby becomes the first to innovate, there is still a patent accident, but it looks a bit different. Fewer resources have been wasted redundantly as only one party has commercialized, and furthermore, as to blameworthiness,

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See Paul J. Heald, *Optimal Remedies for Patent Infringement: A Transactional Model*, 45 HOUS. L. REV. 1165, 1171 (2008) ("In establishing what constitutes infringement and what remedies apply, patent law's secondary function looks like tort law.").

13. Lost profits damages and established royalties are exceptions. These theories of damages do allege actual, identifiable, and non-circular damages.

14. Modern patent suffers from deep confusion as it understands the harm of patent infringement to be the harm of the unauthorized boundary transgression alone. It is as if the harm caused by a trespasser who hiked across and destroyed your vegetable garden is not the crushed cucumbers, but rather, the harm is the injury to your ethereal property boundary.

15. Without a clear understanding of the actual injury, it is impossible to sensibly decide how to provide "damages adequate to compensate for the infringement." 35 U.S.C. § 284 (2018). This is especially pronounced in the calculation of reasonable royalties where courts have largely dispensed with any need for proof of the fact harm. See *infra* Part VI.

the patentee holds much of the blame for not preventing the accident. As a result of their comparative negligence, the nonpracticing patentee should be unable to recover substantial damages. In short, the theory detailed here provides strong support for actual innovators while not permitting naked patent assertions against innocent infringers.

Second, this tort view of patents clarifies the long-standing questions surrounding independent inventor liability and, in fact, reframes that debate to focus on independent innovation. The tort basis described here provides justification for some (but not all) of today's independent inventor liability. The patent system can be seen as defining the rules of the road for promoting efficient coordination of innovative activities. Patentees and other innovators each have duties in this system. By commercializing, patentees do their part to avoid patent accidents as their commercialization efforts actively announce to the world the existence of the new technology. Other innovators have a duty to receive and to coordinate in accord with these broadcasts. A negligent innovator is an infringing independent inventor who failed to abide by that duty. A negligent innovator is an infringer who, though independently inventing, failed to stay abreast of the technologies that are already being commercialized and failed to avoid infringing the patented technology.

Third, this tort view answers open questions about patent timing. Until now, the debate had seen the timing of patent attachment as an irreconcilable trade-off between attaching patent rights early or late in the innovative process.<sup>16</sup> Early rights protect early transactions by the patentee, but early rights do little to require or mandate commercialization. Later attachment of rights at commercialization clearly forces active innovation, but such attachment leaves the innovator ill-equipped without property rights at critical early stages of the process. The tort framing shows that we can have both early rights to protect early transactions while still forcing commercialization.<sup>17</sup> Patent law can be understood as policing both intentional torts like piracy as well as unintentional patent accidents like negligent innovation. To get the benefits of early protection without the ills of naked patent assertion, patents can be granted early in the innovative process (attaching just after invention) and from the start, patentees can be strongly protected against copying. The patentee can safely approach and contract with financing and business partners without fear of piracy and copying. Yet these strong, early prohibitions to copying need not entangle inadvertent infringers. Inadvertent infringement should be framed, as are other unintentional torts, as a species of accident law. In particular,

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16. See Christopher A. Cotropia, *The Folly of Early Filing in Patent Law*, 61 HASTINGS L.J. 65, 128 (2009).

17. See *infra* note 173 and accompanying text.

inadvertent infringement should be understood as a bilateral accident, where both the patentee and potential infringers have respective duties and rules of the road that help efficient coordination and that help to avoid accidents. For patentees, their commercialization efforts are powerful mechanisms for providing notice and enabling coordination. Absent these notice mechanisms, patent law should find that the patentees themselves bear some (if not all) of the blame for ensuing patent accidents. Where an injured party is responsible for the accident, the defendant will generally not have to compensate the victim. This can be achieved in patent law by keying patent damages to the commercialization efforts of the patentee. If there are no efforts to commercialize then there is no harm, and nominal damages should be awarded. Damages for inadvertent infringement accrue as the patentee makes investments and begins to commercialize. Damages for inadvertent infringement rise in step with the investments and efforts undertaken by the patentee to provide notice that the patentee has an invention and is actively innovating. In short, patents can protect against piracy and copying from the start, but they punish inadvertent infringers only when and as the patentee makes investments toward commercialization. Independent inventors who fail to heed this information and fail to coordinate accordingly are negligent innovators who owe the patentee for the harm caused.

Lastly, this tort view has real promise in today's political economy of patent reform. There is a long-standing, intransigent deadlock pitting different sectors against each other. As to patents, the pharmaceutical industry has generally been in conflict with the high technology sector.<sup>18</sup> Strong patents are seen as essential for the existence of pharma. Meanwhile, patent assertion entities wielding strong patents have become the bane of Silicon Valley. These very well-heeled industries have fought and lobbied each other to a standstill. One demands stronger patents, the other demands weaker patents. The existing commercialization theories make this conflict seem inevitable. Yet their fight should not be about choosing between stronger or weaker patents. There is significant common ground. They both want to innovate. They should both be willing to back a system that provides strong protection for innovators while not providing cover for naked patent assertion. This tort framing provides that common ground and a theory to justify it.

The following sections expand these arguments. Section I argues that innovation is one of the central—if not the only—defensible goals of the patent system. Section II details the current state of commercialization theories, and it emphasizes the theories' failure to require actual commercialization and enablement of patent assertion

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18. Rana Foroohar, *Big Tech vs Big Pharma: The Battle over US Patent Protection*, FINANCIAL TIMES (October 16, 2017), <https://www.ft.com/content/6c5b2cca-ae8b-11e7-beba-5521c713abf4> [<https://perma.cc/CLB8-H45C>].



instead. Section III shows that tort law, especially an accident framing for unintentional patent infringement, has fundamental features that can address the shortcomings of today's commercialization theories. Section IV develops a tort-based commercialization theory that focuses on infringement as a class of torts focused on harms to innovation. It details some specific examples. Section V details how to implement this proposal with the current patent system. Section VI summarizes the strengths of the proposal and its impact on some long-standing related puzzles in patent law.

## I. EFFICIENT INNOVATION IS THE GOAL OF THE PATENT SYSTEM

Before embarking on a tort-based analysis of patents, it is worthwhile to first identify the goals of the patent system.<sup>19</sup> In other words, to begin, we need to first determine why we have the patent system and how inventors should be using it. With that in hand, we can begin to talk about patent infringement as a tort by focusing on the ways that others might harm those trying to beneficially use the patent system.

Though all agree that patents aim to promote advances in technology, there is still significant disagreement over the details, and there remains a number of alternative ways of promoting technology.<sup>20</sup> Patents are said to provide economic incentives that encourage various aspect of technological development.<sup>21</sup> For some, patents are thought to provide incentives to invent new technology.<sup>22</sup> For others, patents are thought to provide incentives to disclose new technology—rather than keeping it as a trade secret.<sup>23</sup> And for others, patents are thought to provide incentives to commercialize technology.<sup>24</sup>

A central premise of this Article is that the patent system should not be focused only on one of the particulars above, rather it is involved in the entire process of innovation, and innovation (from start to finish) is the central purpose of the patent system.

Innovation is the creation and *utilization* of new technologies. This last step is critical. As Richard Nelson makes the distinction, "Invention of a new and useful device is one thing; its production and use are something else again."<sup>25</sup> Creation of new technical knowledge is good, but it does not provide its benefits until that technology is

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19. JOHN C.P. GOLDBERG & BENJAMIN C. ZIPURSKY, *THE OXFORD INTRODUCTIONS TO U.S. LAW: TORTS*, 29-30 (2010) (The first step in tort analysis is to point to "basic interests that individuals . . . have.").

20. See F. SCOTT KIEFF ET AL., *PRINCIPLES OF PATENT LAW* 63-68 (6th ed. 2013).

21. *Id.* at 63-65.

22. *Id.*

23. *Id.* at 65-66.

24. *Id.* at 66-68.

25. Richard R. Nelson, *The Economics of Invention: A Survey of the Literature*, 32 J. OF BUS. 101, 102 (1959).

actually utilized. The last step is so important because that is where society finally gets the benefits of all this scientific and technological effort. Society gets benefits only when cancer patients are actually being cured, your internet bandwidth is increased, or the battery range of your electric car is improved. As put by Judge Giles Rich, “society will not be benefited until the invention passes into commercial channels.”<sup>26</sup>

The importance of innovation has not been lost on economists. In fact, utilization of technological advances has been shown to be the central driver of economic growth.<sup>27</sup> It is “crucial . . . from an economy-wide viewpoint.”<sup>28</sup> As technological knowledge grows, so do our human capabilities. With technological advances we learn how to make things faster, stronger, or more efficient. Innovation then is certainly worth promoting. Governments can encourage technological developments in many ways using grants, prizes, selective taxes, and patents.<sup>29</sup> Patents are of particular interest as they are well-suited for promoting and encouraging private investment and decision-making to take the risks and to lead the way. In other words, the patent system is built to support the entrepreneurial innovator.

Entrepreneurial innovators are those willing to create, market, and sell technological solutions to those who can utilize the new technology. In earlier work, I have argued that such entrepreneurial innovation is the only defensible goal of the patent system.<sup>30</sup> Through its grant of exclusive rights, the patent system enables inventors to get

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26. Rich, *supra* note 8, at 179 (quoting Conway P. Coe, Commissioner of Patents). See also *Rite-Hite Corp. v. Kelley Co., Inc.*, 56 F.3d 1538, 1575 (Fed. Cir. 1995) (Nies, J., dissenting) (“For our patent system to fully serve its goal of promoting economic growth, innovations must make it to market during the patent term.”).

27. See Robert M. Solow, *Technical Change and the Aggregate Production Function*, 39 REV. OF ECO. & STAT. 312, 316-17 (1957); Nelson, *supra* note 25, at 102 (“[E]ven a casual comparison of the goods on the market and the production techniques used to make them today with the goods and production techniques of fifty years ago dramatically indicates the tremendous role that invention has played in improving our standard of living.”); Peter S. Menell, *Intellectual Property: General Theories*, in 2 ENCYCLOPEDIA OF LAW & ECONOMICS 134 (Boudewijn Bouckaert & Gerrit de Geest eds., 2000) (“Robert Solow (1957) demonstrated that technological advancement and increased human capital of the labor force accounted for most (between 80 and 90 percent) of the annual productivity increase in the US economy between 1909 and 1949, with increases in the capital/labor ratio accounting for the remainder.”); see also Peter S. Menell & Suzanne Scotchmer, *Intellectual Property Law*, in HANDBOOK OF LAW AND ECONOMICS 1473, 1476 (A. Mitchell Polinsky & Steven Shavell eds., 2007); F. Scott Kieff, *Property Rights and Property Rules for Commercializing Inventions*, 85 MINN. L. REV. 697, 699 n.4 (2001).

28. JEAN TIROLE, *THE THEORY OF INDUSTRIAL ORGANIZATION* 389 (1988).

29. See Bryan D. Wright, *The Economics of Invention Incentives: Patents, Prizes, and Research Contracts*, 73 AM. ECON. REV. 691 (1983); Amy Kapczynski, *The Cost of Price: Why and How to Get beyond Intellectual Property Internalism*, 59 U.C.L.A. L. REV. 970, 986 (2012); Daniel J. Hemel & Lisa Larrimore Ouellette, *Beyond the Patents-Prizes Debate*, 92 TEX. L. REV. 303 (2013).

30. See Oskar Liivak, *Establishing an Island of Patent Sanity*, 78 BROOK. L. REV. 1335, 1337-38 (2013).

paid for their work by undergirding the myriad transactions necessary to move inventions from their creation all the way to their ultimate adoption and utilization.<sup>31</sup> As described throughout the rest of the Article, the patent system and its tort-based roots should be primarily directed at enabling and protecting those entrepreneurial innovators by coordinating and channeling behavior so as to avoid intentional and unintentional harms to efficient innovation.

#### A. *From Problem to Invention to Innovation*

The road to innovation is a long process with each step requiring risky investments. It is well worth exploring this long road from start to ultimate innovation. The process begins with an inventor recognizing the need for a technological solution to some problem. To spot a need often requires deep familiarity with the industry. Further, this is not just a technological question of science or engineering. Quantifying a need requires understanding both the economics of the industry and the value that a solution would bring. Even this earliest phase of finding a problem that is worth attacking is difficult and non-trivial.

Having a problem in hand, clever engineers now endeavor to solve it. Through hard work, skill, and creativity, the engineer (now known as the inventor) finds a solution. This phase of conceiving a solution to the problem forms the core of most discussions of the patent system. In fact, conceiving a technological solution forms the core of the patent system's definition of an invention.<sup>32</sup> This stage requires investments of scarce resources including, at the very least, the inventor's time.<sup>33</sup> Potential solutions have been considered and abandoned as dead ends. At long last a viable solution emerges. Patent law now allows the filing, and hopefully issuance, of a patent. Reaching issuance also requires scarce resources including the filing and prosecution of the patent. And yet, the road to innovation is far from over.

With the invention in hand and now with a patent to protect the invention, the inventor needs to commercialize it. Again, this requires

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31. See Rich, *supra* note 8, at 179 ("An inventor will not be rewarded and society will not be benefited until the invention passes into commercial channels. And it is just at this point that patent protection plays its most essential role, that of transforming the invention from the idea into a commercial enterprise.").

32. Oskar Liivak, *Finding Invention*, 58 FLA. ST. U. L. REV. 57, 67-72 (2012).

33. Edmund W. Kitch, *The Nature and Function of the Patent System*, 20 J. OF L. & ECON. 265, 276 (1977) (noting that "scarcity of resources that may be employed to use information, and it is that scarcity which generates the need for a system of property rights in information."); Henry E. Smith, *Intellectual Property as Property: Delineating Entitlements in Information*, 116 YALE L.J. 1742, 1745 (2007) ("If there is an allocation problem connected with activities like invention or commercialization, it involves not the information itself but the inputs used to discover and enhance the value of this information.").

more risk and expenditure.<sup>34</sup> The invention must be refined into a form that the industry can readily adopt. The inventor also must convince the industry to adopt the technology. In his work, Kitch focused on these costs of marketing and convincing consumers to become early adopters.<sup>35</sup> Marketing efforts are needed to introduce consumers to the invention and its advantages. And certainly, early adopters face real risks that this marketing must overcome. Early adopters are changing over to a new untried technology that surely brings some uncertainties. The innovator must expend considerable resources in this marketing and commercialization phase to overcome these uncertainties. As described below, these post-invention investments are a critically important feature for the patent accident discussion.<sup>36</sup> F. Scott Kieff noted that “[s]ome costs, however, will be borne only by the first mover, because once incurred they will yield benefits for the entire class of competitors, embracing first movers and second movers.”<sup>37</sup>

Though it has been said that “information wants to be free,”<sup>38</sup> this catchphrase overlooks a critical issue. Once its utility and desirability are proven and user demand is built, then technological information wants to be free. But before that happens, there can be a real challenge to get early adopters. Overcoming that initial inertia takes a dedicated steward to champion the technology to market. Commercialization and marketing of new, nonobvious technology are hard because such technology’s inherent nature means that users need to be convinced to switch from old ways. Once convinced that the patented technology does represent a better, cheaper, and more attractive solution to some

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34. See *Picard v. United Aircraft Corp.*, 128 F.2d 632, 643 (2d Cir. 1942) (Frank, J., concurring) (“The controversy between the defenders and assailants of our patent system may be about a false issue—the stimulus to invention. The real issue may be the stimulus to investment.”).

35. See Kitch, *supra* note 33, at 277 (“But expenditures necessary to identify the market for the product and to persuade potential customers of its utility can easily be captured by competitive imitations.”).

36. Earlier work by F. Scott Kieff has focused needed attention on these marketing expenditures. See Kieff, *supra* note 27, at 708.

37. *Id.* at 709. (“[A] second mover’s mere knowledge of a first mover’s success eliminates a great deal of risk from the second mover’s decision whether to embark on the same enterprise. The mere knowledge that a problem has been solved may provide psychological motivation to attempt a solution. In addition, successfully developed products and distribution channels are by their nature difficult to keep secret and can serve as working models for competitors to follow, thereby saving them the cost of weeding out worse alternatives. Furthermore, the costs of capital will decline throughout the industry because investors will become educated about its specific risks and potential for profit. Similarly, the education of consumers and arousal of consumer demand will benefit all competitors equally. Indeed, the arrival of a competitor into the market will force the first mover to incur added costs of *brand* advertising, on top of the costs of more general *product* advertising already incurred.”); see also Rich, *supra* note 8, at 179 (“[I]f it succeeded, competitors would spring up and rob him of most or all of his profits, while, on the other hand, it *might* fail.”).

38. ADRIAN JOHNS, *PIRACY: THE INTELLECTUAL PROPERTY WARS FROM GUTENBERG TO GATES* 429 (2009).

problem, then indeed, it might seem that nothing is needed for information to move of its own accord,<sup>39</sup> but that misses the work needed to get consumers ready for the technology.

If and when these marketing efforts begin to bear fruit, then finally, both society and the inventor start to benefit from all the investments made so far. This is the final stage of successful innovation where the industry starts to adopt the technology. As this innovation process accelerates, more and more of the industry adopts the technology, and the innovator can collect more and more *ex ante* licensing revenue.<sup>40</sup> This licensing revenue will be capped by the value that the invention brings the implementer above what is available from the next best technology. This royalty stream continues until the innovator's technology is displaced by the next new technology,<sup>41</sup> and it is, in any case, ultimately limited by the duration of the patent.

The above is a rough outline of the steps from a problem needing a solution, finding a solution, perfecting the solution, marketing the solution, and finally implementing the mature technology. The patent system is about protecting and enabling all of those steps. It protects those technological entrepreneurs willing to make the upfront private investments to see through that long process. Another way to summarize the above discussion is to say that the patent holders can be understood as the exclusive suppliers of the patented invention to the implementing public. This can certainly be seen as a right, but it does have aspects of an obligation. And the patent system should aim to protect those rights and to channel innovator behaviors to meet that obligation.

## II. COMMERCIALIZATION THEORIES YET NO COMMERCIALIZATION

Taking as an assumption that innovation is the most important, and likely only, defensible goal of the patent system, it is not surprising that the so-called commercialization theories would be of great interest. As described in more detail below, the existing commercialization theories have carefully examined much of what is needed to move an invention from its conception through to

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39. See Jefferson's Works to Isaac McPherson (Aug. 13, 1813), in 13 THE WRITINGS OF THOMAS JEFFERSON 326, 334 (Andrew A. Lipscomb ed., 1905) ("That ideas should freely spread from one to another over the globe, for the moral and mutual instruction of man, and improvement of his condition, seems to have been peculiarly and benevolently designed by nature, when she made them, like fire, expansible over all space, without lessening their density in any point.").

40. See FED. TRADE COMM'N, THE EVOLVING IP MARKETPLACE: ALIGNING PATENT NOTICE AND REMEDIES WITH COMPETITION, 7-8, 31-72 (2011) (emphasizing the difference between *ex ante* licensing that transfers technology along with a license to *ex post* licensing that only transfers a license).

41. This duration can be seen as the *effective* lifetime of the patented technology. Once a cost-effective alternative emerges and it is widely implemented then, though still patented, the revenue stream dries up.

commercialization and finally to utilization by users. To support innovation, the commercialization theories argue that the patent system must supply broad patent rights that attach early in the process, and those rights must be vigorously defended by the patent system. The early attachment is thought to be necessary to allow the patentee to transact with others without fear of piracy.

When compared to the details of patent doctrine today, the commercialization theories are quite successful. The U.S. patent system provides early attachment of patent rights with a broad scope of protection and awards robust remedies.<sup>42</sup> Yet among scholarly commentary, these theories have been much less successful. Critics have worried that the triumvirate of early, broad, and strong rights has significant costs, especially for follow-on inventions appearing after the initial patent.<sup>43</sup> In other words, the broad rights of an initial patent become an obstacle to later innovators. And once the costs of these obstacles are accounted for, the critics instead argue for tempering broad, early patent rights. In general, these critics push for narrower rights attaching later in the development process. To date, this debate remains unresolved. And it might remain so as the policy space appears to be a zero-sum game. Any particular choices for timing, breadth, and strength will inherently favor one camp over the other.

This Section will conclude with an alternative. It will argue that the commercialization theorists were absolutely right in their focus on innovation, and they were even right about some of their recommendations. They argued for strong and early protection for all *patent holders*. Early protection allows patentees to begin to contract and to collaborate with backing of powerful rights of exclusion. Yet as noted by critics, such strong protection brings risks. If the rights are strong enough, and if they do not require actual commercialization, then patentees will have incentives to simply assert their patents rather than to innovate themselves. And that is the patent system we have today. Under the guise of commercialization theory, we have a system that enables non-innovators to tax innovators.

But it need not be that way. With some small yet critical changes, commercialization theory can actually start to support innovators without also providing cover for patent assertion. It is correct that *innovators* are taking big risks and are quite vulnerable. It is correct

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42. *But see generally* EBay, Inc. v. MercExchange, L.L.C., 547 U.S. 388 (2006) (reiterating the equitable considerations at play in the grant of a permanent injunction while also signaling, via a four Justice concurring opinion, a warning shot that property-like protection via permanent injunctions should not be presumptively awarded to all victorious patent plaintiffs).

43. Robert P. Merges & Richard R. Nelson, *On the Complex Economics of Patent Scope*, 90 COLUM. L. REV. 839, 843-44 (1990).

that *innovators* should be given unapologetically strong protection by the patent system.

Patent law's big misstep is extending that robust protection unquestioningly to non-innovators. The Section concludes by outlining a number of insights that suggest that a tort-based patent system can provide strong protection for innovators without providing cover for non-innovators bent on patent assertion against those that have innovated. As described below, what patent law needs is a commercialization theory that actually caters to patentees who commercialize.

#### A. Commercialization Theories

In 1942, then patent attorney Giles Rich published his article, *The Relation Between Patent Practices and the Anti-Monopoly Laws*. In it, Giles Rich lays out a view of the patent system that pays attention to the whole life of an invention from its conception all the way to its commercialization.<sup>44</sup> Rich argues that the patent system supports and induces the innovative process in different stages.<sup>45</sup> A patent provides first an "inducement to invent."<sup>46</sup> Inventing is hard work, and it takes time and resources. And the inventor should be "repaid" for undertaking that investment.<sup>47</sup> Rich goes on to argue that patents do more than inducing inventing alone; patents induce—actually mandates by statute—the inventor to "disclose[]" the invention to the public.<sup>48</sup> In fact, though the inventor is often considered the central character, Rich "think[s] this is a great mistake. [The inventor] may be an essential party but the emphasis should be placed elsewhere."<sup>49</sup> And that there is another "third aspect of inducement [that] is by far the greatest in practical importance."<sup>50</sup> Rich argues that this last and most critical purpose for patents is "the inducement to risk an attempt to commercialize the invention."<sup>51</sup>

He correctly argues that such commercialization is a particularly risky "enterprise", and the necessary "speculative capital" will not commit to these ventures "without the patent protection."<sup>52</sup> He adds

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44. See Rich, *supra* note 8, at 177.

45. *Id.*

46. *Id.*

47. *Id.* at 176.

48. *Id.* at 177.

49. See Rich, *supra* note 8, at 175.

50. *Id.* at 177.

51. *Id.*

52. *Id.* 179-80.

that this investment only materializes when there is a "prospect of profit."<sup>53</sup>

Other than arguing that the patent system provides some assurance of "profit" for the enterprising patent holder, Rich provides little guidance on how that profit should be ensured. Rather, his main aim in the article was to highlight the importance of patents and to warn of the perils of overly aggressive antitrust restraints of patent holders.

There is much to recommend in Judge Rich's article. Notably, he emphasizes that the main societal benefit of technology arrives only when "the invention passes into commercial channels."<sup>54</sup> And he rightfully notes that commercialization requires significant investment. In short, the article can be seen as providing strong support for the positive role the patent system plays in supporting commercialization.

Some thirty-five years later, another article would provide more vivid detail to describe this emerging commercialization focus for patents. In his 1977 seminal article, *The Nature and Function of the Patent System*, Edmund Kitch placed commercialization firmly into patent theory. In the article, Kitch aimed to place a commercialization-focused theory on firmer ground by "reintegrate[ing] the patent institution with the general theory of property rights."<sup>55</sup> He did this by taking commercialization centric policy features of patent law and comparing them to features of mining law. In particular, he saw a strong connection between the laws regulating mineral prospects to patent laws regulating technological prospects. With that comparison, Kitch launched what he called a prospect theory of patents.<sup>56</sup>

He argued that three features of the system facilitated this prospect function.<sup>57</sup> He also argued that the patent system leads to patents that are filed "early in the development process,"<sup>58</sup> typically filed long before "commercial exploitation [is] possible,"<sup>59</sup> and they often grant quite broad protection.<sup>60</sup> In general, Kitch sees the patent system as allowing both broad and early grant of the patent. These features, as Kitch argued, provide significant benefits. First and perhaps foremost,

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53. *Id.* at 180 ("For a decade we have been looking about for means to put to use idle money, idle men, idle plant facilities and unused stocks of raw materials. We have been asking for more enterprise. What brings out enterprise is the prospect of profit.").

54. Rich, *supra* note 8, at 179.

55. Kitch, *supra* note 33, at 265.

56. *Id.* at 266 ("The patent system so viewed is closely analogous to the American mineral claim system for public lands. For expositional convenience, this view of the patent system will be called the prospect theory.").

57. *Id.* at 267.

58. *Id.* at 269.

59. *Id.* at 267.

60. Kitch, *supra* note 33, at 267.



these features promote efficient mining of the technological prospect. With broad, robust, and early protection, the patentee is put into a central role to coordinate efforts to develop the prospect.<sup>61</sup> The patent enables transactions with others who possess “complementary information and resources,”<sup>62</sup> while the patent signals to other prospectors, “thus reducing the amount of duplicative investment in innovation.”<sup>63</sup> Though pushing in the same general direction as Rich, Kitch provided a vivid and lasting analogy for patents. And perhaps more importantly, Kitch introduced broader efficiency concerns based on coordination of these commercialization investments.<sup>64</sup>

Following on these earlier contributions, F. Scott Kieff added to commercialization theory in a series of articles in 2001 and 2006.<sup>65</sup> Kieff focused on the activities that take place after the patent has issued, and he is primarily concerned with the *underdevelopment* of patents.<sup>66</sup> He moved the discussion further by examining the commercialization process in greater detail. He argues that an “[i]nvention must be developed into some commercial embodiment. Capital may have to be raised. Production facilities and labor must be made available. Distribution channels must be created. Consumers must be educated about the existence and benefits of this new good or service.”<sup>67</sup> All of these are necessary facets of commercialization, and all are risky, costly endeavors. Absent strong protections, others can benefit from all these labors making it harder for the patentee to capture a return on those necessary investments.<sup>68</sup>

As with the previous commercialization works, Kieff concludes that “property rights and property rules [are] essential elements for

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61. Kitch, *supra* note 33, at 276 (“This puts the patent owner in a position to coordinate the search for technological and market enhancement of the patent’s value so that duplicative investments are not made and so that information is exchanged among the searchers.”).

62. *Id.* at 277.

63. *Id.* at 278.

64. *Id.* at 266 (“Each prospect can be pursued by any number of firms. Not only can any level of resources be used to develop the prospect, but the activities of any one firm need not be disclosed to the others. This process can be undertaken efficiently only if there is a system that tends to assure efficient allocation of the resources among the prospects at an efficient rate and in an efficient amount; if management of each prospect is in the hands of the entity best equipped to manage it; and if information found by one entity is communicated to other firms at an efficient rate. The patent system achieves these ends by awarding exclusive and publicly recorded ownership of a prospect shortly after its discovery.”).

65. See generally Kieff, *supra* note 27; F. Scott Kieff, *Coordination, Property, and Intellectual Property: An Unconventional Approach to Anticompetitive Effects and Downstream Access*, 56 EMORY L.J. 327 (2006) [hereinafter Kieff 2006].

66. See Kieff, *supra* note 27, at 707 (“Any system focused on rewarding inventive effort, when an actual good or service is brought to the market, runs the risk of failing to address the activities that take place *after* an invention is made but before it can be profitably exploited.”).

67. *Id.* at 707-08.

68. *Id.* at 709 (“[A] second mover’s mere knowledge of a first mover’s success eliminates

achieving core goals of the patent system.”<sup>69</sup> In particular, Kieff concludes that strong patent rights (and the ability to “restrict use”) granted early in the development process are “paradoxically essential to *avoiding underuse*.”<sup>70</sup> Kieff argues that these strong, property-like patent rights enable patentees to capture the fruits of their labors, but it also allows for beneficial “coordination” between the actors necessary for commercialization like “entrepreneurs, inventors, and venture capitalists.”<sup>71</sup>

About the same time as Kieff was providing detailed and vocal support for commercialization theory—and for the support of strong patent rights—John Duffy provided an important addition that added a novel facet to the commercialization story.<sup>72</sup> From its inception, Kitch’s prospect theory had been criticized for failing to provide one of the key things that it promised: efficient coordination. Kitch argued that patent rights provide a way to coordinate by preventing others from redundantly attempting to commercialize the patentee’s invention. Yet, soon after the paper emerged,<sup>73</sup> a response by Donald McFetridge and Douglas Smith argued that early patent rights may well reduce redundancy during the patent term, but Kitch had failed to account for the increased redundancy and waste that would result from the race to win the patent.<sup>74</sup> In his contribution, Duffy agrees that McFetridge and Smith had made a significant critique that the lure of the patent will induce rent seeking, but Duffy put a new spin on that analysis. Duffy’s insight was that by racing to be the first to patent, inventors will also be racing to put the invention into the public domain sooner.<sup>75</sup> Though that insight itself was important, Duffy

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a great deal of risk from the second mover’s decision whether to embark on the same enterprise. The mere knowledge that a problem has been solved may provide psychological motivation to attempt a solution. In addition, successfully developed products and distribution channels are by their nature difficult to keep secret and can serve as working models for competitors to follow, thereby saving them the cost of weeding out worse alternatives. Furthermore, the costs of capital will decline throughout the industry because investors will become educated about its specific risks and potential for profit. Similarly, the education of consumers and arousal of consumer demand will benefit all competitors equally. Indeed, the arrival of a competitor into the market will force the first mover to incur added costs of *brand* advertising, on top of the costs of more general *product* advertising already incurred”).

69. *Id.* at 703.

70. *Id.*

71. Kieff 2006, *supra* note 65, at 328.

72. John F. Duffy, *Rethinking the Prospect Theory of Patents*, 71 U. CHI. L. REV. 439, 443-44 (2004).

73. See generally Donald G. McFetridge & Douglas A. Smith, *Patents, Prospects, and Economic Surplus: A Comment*, 23 J. OF L. & ECON. 197 (1980).

74. See *id.* at 197-98.

75. See Duffy, *supra* note 72, at 444 (“As rivalry pushes the time of patenting earlier, the time of patent expiration moves earlier too. If rivalry induces inventors to push patenting to a time before commercialization of the invention can occur (and a basic assumption of the prospect theory is that the legal system does allow patenting to occur well before

nically analogizes the patent system, and the race to get the patent, as being akin to bidding in a public utility auction.<sup>76</sup> For Duffy, someone willing to file a patent earlier is the same as someone making a lower bid to provide some public utility function. An earlier filing date means earlier patent expiration dates<sup>77</sup> and an effectively shorter exclusivity window for generating revenue from commercialization.<sup>78</sup> In essence, early filing patentees are making a lower bid to build the public utility. This public auction analogy is quite helpful and instructive. In the case of a patent, the public utility that is being auctioned is the development, marketing, and commercial dissemination of the particular patented technology.

These commercialization theories put their focus on technological development *after* the patent has been granted. Ensuring that innovation is the focus of such endeavors is commendable as is their general desire for a system that can efficiently coordinate such costly, risky commercialization efforts. All of these concerns are valid and, in fact, generally align with the patent accident model developed here. Yet their work, and the resulting theory, advocates for early, broad, and robust rights. They generally worried about too weak, rather than too strong, patent rights.

To the extent that a corrective is needed for these theories, there was far too little concern for misuse of these strong rights. In particular, though such strong rights could be used to protect innovation, nothing in the theory or doctrine required it. The theories did not fully consider that the rights could be so strong that actual innovation was not necessary or even appealing; simply asserting patents could be an easier, cheaper possibility.<sup>79</sup> Why commercialize yourself when you can sit back and let others take the risk and you can emerge to tax them if and when they succeed? And it is on that point, that this Article aims to depart from previous commercialization theories. As shown in later sections, this Article advocates for a system that does provide these same strong patent rights to *actual innovators*,

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commercialization), then the earlier grant of the patent will give the patentee less time for commercial exploitation of the invention under the protection of the patent. Thus, the race to claim patent rights becomes a race to diminish the patentee's rents by dedicating the invention to the public sooner.").

76. *Id.*

77. *Id.* ("As rivalry pushes the time of patenting earlier, the time of patent expiration moves earlier too.").

78. *Id.*

79. Oskar Liivak, *Establishing an Island of Patent Sanity*, 78 BROOK. L. REV. 1335, 1351-53 (2013) (lamenting the current view that allows *ex post* markets in naked exclusion as opposed to *ex ante* markets for actual technology).

but it aims to prevent non-innovators from subverting those rights to tax and to impede other innovators.

To illustrate the oversight in these previous theories, consider Duffy's otherwise clever and deeply insightful auction analogy.<sup>80</sup> The key to his work is the game theoretic choices by bidders that ultimately enables efficient public utility delivery by private individuals. But in any discussion of public utility auctions, it is clear that the winning bidder who ultimately gets paid to supply the utility would also be contractually bound to actually build the utility. Yet, in an important sense, that glaring omission is what commercialization theories have failed to provide thus far.

### B. Criticism of Commercialization Theories

From the start, these commercialization theories were controversial—not so much for their focus on innovation per se, but for their adamant demands for early, broad, and robust patent protection. In 1990, Robert Merges and Richard Nelson developed one of the most well-known critiques of commercialization theory's requirement of broad patent rights.<sup>81</sup> They also focus on actions that occur after the moment of invention, namely focusing on “the development of a technology.”<sup>82</sup> Yet Nelson and Merges certainly “do not *presume* that granting broad scope to an initial inventor induces more effective development and future invention.”<sup>83</sup> For them, broad claims do not necessarily mean more technological development. Rather than presuming that we have too few patent rights, Nelson and Merges started to worry about the costs and harms of having too many rights.

Though some protection was needed, Merges and Nelson worry that too much protection allows the innovator to become lazy and out of touch with the pressures of rivalrous competition. They “have little faith in the imagination and willingness of a ‘prospect’ holder to develop that prospect as energetically or creatively as she would when engaged in competition.”<sup>84</sup> In their telling, patentees still will

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80. See Duffy, *supra* note 72, at 443-45.

81. Robert P. Merges & Richard R. Nelson, *On the Complex Economics of Patent Scope*, 90 COLUM. L. REV. 839, 843 (1990). Others have also attacked these commercialization theories. See Mark A. Lemley, *Ex Ante versus Ex Post Justifications for Intellectual Property*, 71 U. CHI. L. REV. 129, 130 (2004) (“The ex post justifications seem to provide economic support for the legions of new intellectual property owners who claim a moral entitlement to capture all possible value from ‘their’ information—a view that scholars have derided as ‘if value, then right.’”).

82. Merges & Nelson, *supra* note 81, at 843.

83. *Id.*

84. See Merges & Nelson, *supra* note 81, at 877.

commercialize, but they may not do so as quickly and as vigorously if their patent protections were narrower.<sup>85</sup>

Similarly, others have criticized other aspects of the commercialization theories. Chris Cotropia has taken on the issue of patent timing.<sup>86</sup> Cotropia clearly agrees with the overall focus on commercialization and emphasizes that “[t]he basic goal of the patent system is the production of socially beneficial technology. That is, technology that society can actually use.”<sup>87</sup> But Cotropia criticizes both the breadth and timing recommendations of commercialization theories.<sup>88</sup> Cotropia contends that early patent filing leads to numerous costly problems. He points to “too many patents, underdevelopment of patented technology, increased assertion of patent rights, and fuzzy patent boundaries” as problematic outgrowths of early patent filing.<sup>89</sup> Ultimately, he argues for forcing inventors to wait to patent later in the process until they have actually reduced their inventions to practice. Later in the process, rights could be better designed to protect only that which was going to be commercialized, and their boundaries could be defined with more precision. For all of these reasons, Cotropia advocates for later, narrower patents.

### C. Unresolved Debate

The above outlined the basics of commercialization theories along with their critiques. There has been no satisfactory resolution of this debate. The impasse remains, in large part, because the problem seems unresolvable. As to timing for example, Cotropia admits that it appears to be a “a zero sum” game.<sup>90</sup> Some choice has to be made, and

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85. *Id.* at 873-74 (“If a property right on a basic invention covers a host of potential improvements, the property right holder can be expected to develop the basic invention and some of the improvements. But we would expect a single rightholder to *underdevelop*—or even ignore totally—many of the potential improvements encompassed by their broad property right.”).

86. Christopher A. Cotropia, *The Folly of Early Filing in Patent Law*, 61 HASTINGS L.J. 65, 87 (2009) (“While there has been discussion about the merits of an early-filing patent system, the discussion has been mostly one-sided, with no one fully exploring the costs of an early-filing system.”). Others have noted other underdevelopment problems with early patenting. See Michael Abramowicz, *The Danger of Underdeveloped Patent Prospects*, 92 CORNELL L. REV. 1065, 1066-69 (2007) (arguing that early patent granting can lead to underdevelopment when there is uncertainty as to the expense and timeline to reach commercialization). The worry is that inventors may patent too early and by the time the inventor finally is ready to start selling the invention, either the patent has expired, or its remaining life is too short to recoup the costs of inventing and commercializing. *Id.*

87. Cotropia, *supra* note 86, at 128.

88. *Id.* at 65, 69.

89. *Id.* at 55.

90. *Id.* at 128 (“There is a zero sum here. While alleviated partially by deferred examination, a shift away from the early-filing doctrine is still a shift away and some of the doctrine’s benefits are lost. But these negatives have an upside—they minimize the many costs to early filing already articulated. And many of these costs, created by the lack of invention information and uncertainty [sic] at the time of early filing, directly frustrate many of the articulated benefits of early filing.”).

that choice seemingly cannot achieve both protection for nascent commercializers while avoiding the costs of that early protection. Assessing this debate, Ted Sichelman similarly agrees that there is no good way to directly solve the impasse.<sup>91</sup> The discourse is simply stuck in an “infinite regress” where policy choices that favor patentees will always harm later arriving improvers.<sup>92</sup>

For Sichelman, this impasse is bad enough that he ultimately abandons trying to bend the existing utility patent system to the purpose of commercialization. Acknowledging the “Sisyphean task” of squeezing “commercialization incentives” from a system he sees as better focused on spurring invention alone, Sichelman argues that we should just stop trying.<sup>93</sup> The problem is intractable enough that he advocates for leaving the existing utility patent system to be optimized for invention alone, and he then proposes “a new and separate form of intellectual property right that provides direct incentives for commercialization.”<sup>94</sup> That proposal frees Sichelman from trying to resolve the deadlock, and it enables him relatively unfettered space to propose a new supplemental patent that focuses squarely on incentivizing commercialization. And though many of Sichelman’s policy concerns align closely with those advanced here, his proposed solution still does little to solve problems with misuse of muscular utility patents. His proposal, though providing extra incentives to those that do innovate, does not stop non-innovators from leveraging their utility patents to tax actual innovators.

#### *D. A Commercialization Theory Requiring Commercialization*

By considering the details of the innovation process, the existing commercialization theories have rightly put emphasis on the multiple risky investments that must be made to successfully move a technology from conception all the way to implementation. And the commercialization theories point to the importance of early and strong patent rights. These rights are necessary for patent holders to negotiate and to coordinate with the many parties that might become partners in their commercialization ventures. As described below, this

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91. Ted Sichelman, *Commercializing Patents*, 62 STAN. L. REV. 341, 345 (2010).

92. *Id.* at 395.

93. *Id.*

94. *Id.* Michael Abramowicz and John Duffy have argued for a similar solution in their calls for sui generis protection for market information. See Michael Abramowicz & John F. Duffy, *Intellectual Property for Market Experimentation*, 83 N.Y.U. L. REV. 337, 344 (2008) (“Existing intellectual property systems, however, do not provide well-tailored incentives for market experimentation. The problem is that the granting of intellectual property protection—specifically, patents—is not dependent upon the extent to which an innovation will promote market experimentation. . . . A more reasonable system would be open to granting exclusive rights based on market. . . .”).

Article agrees with much of that assessment. Innovators should be protected in no uncertain terms.

Yet the existing commercialization theories have faltered because they do not actually require or force commercialization. If we want innovation, we need strong patent rights, but if they are too strong or poorly designed, then the incentives to commercialize will be subsumed by the incentives to simply assert patents against later innovators rather than to innovate themselves. Rather than promoting innovation, we now too readily tax it. Even Sichelman's proposal for a new scheme of commercialization patents does little to combat non-use of the technology covered by the new commercialization patent.<sup>95</sup> Largely, the issue of patent assertion displacing actual innovation did not seem to register as a worry for the commercialization theorists.<sup>96</sup>

As described above, the most useful modern incarnation of commercialization theory is John Duffy's public utility auction model. Yet despite its well-earned praise, the theory (as well as the commercialization theories that preceded it) suffers from a glaring blind spot. In an auction for a traditional public utility, suitors place bids for constructing and delivering the utility to the public, and in general, the lowest bid wins. Now imagine that we never provide an enforcement mechanism that forces the winner to actually build the utility. This would never happen as the very purpose of the whole

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95. See Sichelman, *supra* note 91, at 402 n.355 (arguing only in a footnote that "[i]n the event the commercialization patent holder did not commercialize within the three-year period, it should arguably not only lose its patent but also incur a fine for holding up the commercialization process").

96. Perhaps it is not surprising that Giles Rich never addressed this issue. As is clear from the article he was writing in 1942, after a decade of economic depression, the country was intent on finding "means to put to use idle money, idle men, idle plant facilities and unused stocks of raw materials. We have been asking for more enterprise." Rich, *supra* note 8, at 180. He clearly thought that patents played an important role in fostering innovative enterprise. As suggested by the title of his article, his main aim was to urge caution in the newly energized antitrust enforcement and hoped to avoid its overly zealous application against patents. He concluded, "Let us fully enforce the anti-monopoly laws. And let us at the same time stimulate new enterprise . . . through patents." *Id.* at 181. Likewise, Kitch worried little about non-innovators, despite the fact that mining laws that provided the key analogy for his prospect theory did in fact include use requirements. See Merges & Nelson, *supra* note 81, at 875 (noting Kitch's lack of a working requirement despite the fact that they existed in mining law and prevented "hoarding and speculation"); see also 2 CURTIS H. LINDLEY, A TREATISE ON THE AMERICAN LAW RELATING TO MINES AND MINERAL LANDS WITHIN THE PUBLIC LAND STATES AND TERRITORIES 1527 (3d ed. 1914) ("From the earliest period of mining in the west, the locator of mining claims of all classes was required to perform a certain amount of labor, or expend a certain amount of money in betterments and improvements upon, or for the benefit of, his located claim, as a condition upon which he might continue in the possession and enjoyment of the mining ground appropriated by him to the exclusion of others."). Kitch does mention a related notion and dismisses it. See Kitch, *supra* note 33, at 274 ("The mineral claim system has rules designed to eliminate claims that prove unpromising and return them to the public domain. In order to keep a mineral claim in force, the owner must each year perform a certain amount of work on the claim. If his evaluation of the value of the claim is less than the expense of this work, he will abandon it. This function is performed in the American patent system by the limited term and in other systems by additional requirements for maintenance payments.").

auction is to get the utility built and operational. A government that agreed to such a contract would be voted out of office for incompetence, if not malpractice. Yet that is how patent law, as a public auction, works today. We can and should think about the patent system as a public auction where the public utility at issue is the exclusive supply of the patented technology to the public. The missing part is some enforcement mechanism.<sup>97</sup>

The critics though have worried about non-use. Chris Cotropia has explicitly considered naked patent assertion.<sup>98</sup> And as suggested above, Cotropia accordingly argues for later filing.<sup>99</sup> Yet that late filing prevents an inventor from enjoying patent protection early in the process when they are young and vulnerable and just getting started commercializing. And early protection may be critically important to protect against opportunistic copyists and pirates.

What is needed is a theory that can provide unapologetically strong protection for innovators while not providing cover for patent assertion. Such a system should grant early patent rights to enable the negotiations and transactions necessary to commercialize, but it must also require or force commercialization rather than naked assertion. Patent theory needs a commercialization theory that actually requires commercialization. The public auction model works well enough as long as the winning bidder (the patentee) is compelled to actually deliver on the promise of commercialization of the technology. The next Section shows that tort law can provide many of the attributes that an innovation focused patent law requires.

### III. TORT LAW AND PATENT INFRINGEMENT

The previous section identified a number of difficulties with the current state of commercialization theory and with patent doctrine. Commercialization theory adherents advocate for early, broad, and robust patent rights. Without strong protection early on, young innovators can all too easily fall prey to unscrupulous copyists and pirates during the fraught but critical early period when the patentee is trying to coordinate with partners. Yet as mentioned earlier, though copying and piracy are undoubtedly harmful, they are rather rare in patent law. The vast majority of cases are cases of inadvertent infringement—they are patent accidents. To move patent theory

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97. In a newer work, John Duffy has worried about non-use. In an article with Michael Abramowicz, they considered the problem of non-use and assertion. See Abramowicz & Duffy, *supra* note 94, at 401-03. They ultimately argue for strengthening of the judge-made paper patent doctrine. *Id.* This doctrine made it easier to invalidate patents that had never been commercialized. *Id.* In a later article, Duffy focuses entirely on the paper patent doctrine. See generally John F. Duffy, *Reviving the Paper Patent Doctrine*, 98 CORNELL L. REV. 1359 (2013).

98. See Cotropia, *supra* note 86, at 113-15.

99. *Id.* at 116-19.



forward, patent law needs a commercialization theory that strongly supports actual innovators against intentional copying while also fairly dealing with the vast majority of cases of unintentional infringement. As described below, tort law, with its applicability to accidents, is the obvious choice for helping patent law.

### A. *The Rise of Industry and the Rise of Negligence*

The robust patent system advocated by the commercialization theorists and indeed the patent system we have today feature strict liability for infringers. Driven in large part by its connection to private property,<sup>100</sup> patent infringement has been and is governed by “strict liability.”<sup>101</sup> In the conventional view, the contours of the offense are defined by the exclusive boundaries of the patent claims. The general thinking goes: if you cross the patent boundary, you infringe, you are liable, and you should pay a substantial amount. Unlike copyright and its robust fair use defense, there are no such defenses in patent law.<sup>102</sup> Patents are seen in absolutist terms as private property where the strict rules of trespass and its bright boundary lines govern.

This subsection considers a historical case where strict liability gives way to negligence. That historical example was in fact what originally led to the development of negligence as a distinct legal concept. Negligence in tort law grew out of a worry that strict liability for any and all accidental harms was too absolutist. By way of analogy to today, patent law and its dysfunction stands ready for exactly the same evolution.

In the early nineteenth century, tort law had an absolutist character not unlike patent law today. As relayed by legal historian Morton Horowitz, “[i]n 1800 . . . virtually all injuries were still conceived of as nuisances, thereby invoking a standard of strict liability which tended to ignore the specific character of the defendant’s act.”<sup>103</sup> Yet by 1900, negligence had taken hold and had come to dominate tort law. The big societal and economic change that coincided with that legal innovation was the rise of industrialization. And legal historians have argued that these legal and industrial revolutions were tightly connected. Negligence developed as part of the “effort . . . to reduce the crushing burden of damage judgments that a

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100. See Mark A. Lemley, *Property, Intellectual Property, and Free Riding*, 83 TEX. L. REV. 1031, 1031-32 (2005); Adam Mossoff, *INTELLECTUAL PROPERTY AND PROPERTY RIGHTS*, ix-xxii (2013).

101. Mark A. Lemley, *Should Patent Infringement Require Proof of Copying?*, 105 MICH. L. REV. 1525, 1525 (2007) (“Patent infringement is a strict liability offense.”).

102. See Oskar Liivak and Eduardo Peñalver, *The Right Not to Use in Property and Patent Law*, 98 CORNELL L. REV. 1437, 1444 (2013).

103. MORTON J. HOROWITZ, *THE TRANSFORMATION OF AMERICAN LAW: 1780-1860*, at 85 (1977).

system of strict liability . . . entailed."<sup>104</sup> Its aim was "to protect nascent American industry and thereby promote economic growth."<sup>105</sup> Though the change was a major upheaval at the time, today negligence is comfortably ensconced in the law and has become a well-accepted part of the legal landscape.<sup>106</sup>

In many ways patent law stands at a similar crossroads today. Technological innovation is the central driver of economic growth.<sup>107</sup> And the patent system is designed as the private property engine "to promote Progress [in the] useful Arts."<sup>108</sup> Yet there are real worries that the system is doing more harm than good in promoting innovation. Just as tort law in the late 1800s undertook a "radical transformation" that reconfigured not only "legal liability" but also "the underlying conception of property on which it was based,"<sup>109</sup> patent law can and should consider negligence as a valuable evolution that can reign in today's strict liability excesses.

### *B. Moral Hazard of Strict Liability in Patent Law*

In addition to the historical rise of negligence, modern tort theory has provided even more persuasive evidence highlighting the real dangers of patent law and its demands for strict liability. As shown by Steven Shavell, for bilateral accidents, where "victims as well as injurers affect risks," strict liability has a glaring failing.<sup>110</sup> If bilateral accidents are adjudicated by strict liability, then victims do not have an economic incentive to prevent the accidents. They will not undertake any costly measures to help avoid accidents because they will be compensated by the injurer. And from a societal perspective the outcome will not be optimal.<sup>111</sup> It is not that victims want to be injured;

104. *Id.* at 99.

105. GOLDBERG & ZIPURSKY, *supra* note 19, at 17.

106. See HOROWITZ, *supra* note 103, ("[T]he rise of the negligence principle in America overthrew basic eighteenth century private law categories and led to a radical transformation not only in the theory of legal liability but in the underlying conception of property on which it was based.").

107. See Menell & Scotchmer, *supra* note 27, at 134 ("Robert Solow . . . demonstrated that technological advancement and increased human capital of the labor force accounted for most (between 80 and 90 percent) of the annual productivity increase in the US economy between 1909 and 1949, with increases in the capital/labor ratio accounting for the remainder. . . . It is now widely recognized that technological advancement and enhanced human capital are the principal engines of economic growth in the United States and other industrialized countries.") (citation omitted).

108. U.S. CONST. art. I, § 8, cl. 8.

109. HOROWITZ, *supra* note 103, at 85.

110. See Steven Shavell, *Liability for Accidents*, in 1 HANDBOOK OF LAW AND ECONOMICS 139, 143-44 (A. Mitchell Polinsky & Steven Shavell eds., 2007).

111. See *id.* at 144.

they are just economically indifferent to injury. As a result, victims will not undertake efforts to avoid accidents.

Patent law does not yet spend much time thinking about accident law. But the above result from tort law should make us reconsider that oversight, especially if we worry about lawsuits by patent assertion entities that are directed at inadvertent infringers. To make the point perfectly clear, the above result should be rewritten with the patent system in mind and with the victim being the patent holder and the tort-feasor being the infringer. With that translation, tort law shows that, because of its strict liability, *patent holders will not undertake measures to avoid infringement*. The outcome is suboptimal. Because of our fixation on strict liability and property rules, we have too much unintentional infringement. We have too many patent accidents.

This alone should force us to look beyond strict liability and especially to accidents as a guide for patents. Yet, unfortunately, the situation is actually even more dire. The above result holds when tort damages are accurately awarded by courts to compensate for actual harms. For bilateral accidents policed by strict liability, victims will not undertake accident-avoidance precautions, because they are indifferent to accidents. Remedial damages will make them whole. But what if such a strict liability system also improperly calculates damages and in fact, over-compensates victims?<sup>112</sup> No longer would victims be indifferent to accidents. Victims would now be better off because of the accident. *Not only would they take no precautions, but they would actually have incentives to induce accidents*.

In the standard telling of the patent story, aggressive patent assertion entities are not at all problematic. They are simply collecting the bounty that the patent system guarantees to patent holders. Yet when tort law and accidents are brought to bear, an entirely different picture emerges. Even if damages were accurately tied to an actual injury to the patentee, we would have inefficiently too many patent accidents. Yet it is worse, as today, patent law presumes harm in every infringement without requiring the patent holder to prove either the fact or the amount of harm.<sup>113</sup> From this tort perspective, it is no longer surprising that lawsuits from patent assertion entities have blossomed.

Patent scholarship has already begun to draw upon tort law principles for guidance.<sup>114</sup> Of these, a notable step in that direction is

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112. See Tun-Jen Chiang, *The Reciprocity of Search*, 66 VAND. L. REV. 1, 29-31 (2013) (making this point about moral hazard and the dangers of super-compensatory damages).

113. See Oskar Liivak, *When Nominal is Reasonable: Damages for the Unpracticed Patent*, 56 B.C. L. REV. 1031, 1042 (2015) [hereinafter Liivak *Nominal*].

114. See Saurabh Vishnubhakat, *An Intentional Tort Theory of Patents*, 68 FLA L. REV. 571, 598 (2016); Dmitry Karshtedt, *Causal Responsibility and Patent Infringement*, 70 VAND. L. REV. 565, 566 (2017); Jason A. Rantanen, *An Objective View of Fault in Patent Infringement*, 60 AM. U. L. REV. 1575, 1579-80 (2011). In the related field of copyright, more

Tun-Jen Chiang's *Reciprocity of Search*.<sup>115</sup> Like this Article, Chiang explores the interaction of patent law's strict liability with the unintentional infringement that is prevalent in patent law. By using the law and economics of tort law as an analogy, Chiang provides a useful insight to push back against the conventional theoretical and doctrinal assumption that manufacturers have the duty to seek out patent holders. Noting the reciprocity of duties in the famous analysis of Coase<sup>116</sup> and Calabresi,<sup>117</sup> Chiang challenges the presumption of producer search and examines instead which party, the patentee or the infringer, should have the duty to search.<sup>118</sup> Concluding that the patentee sometimes will be the least-cost avoider, he argues that patent law should impose a "contributory search" defense so that patentees will be incentivized to help with search duties where they are the least-cost searcher.<sup>119</sup> To provide that reform in patent law, Chiang argues for a reinvigorated marking requirement as reasonable substitute for the contributory search defense.<sup>120</sup>

There is a lot to praise about the article. It highlights the problems with the dominant strict liability rule in patent law, especially strict liability's connections to today's patent troll problems.<sup>121</sup> Chiang's article also starts to explore insights from torts as a way to fix some of these issues. Though the article is an important start, there is still more that can be done along these lines.

Furthermore, there is simply more tort-derived analysis to be done. Importantly, the law and economics of accident law has expanded beyond the paradigm of the least-cost avoider, and this Article argues that this broader framework is applicable to patent accidents. In his work on accidents, Steven Shavell has pointed out that the least-cost avoider model does not apply in all cases. It applies only in cases where either party to an accident could have taken actions that

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far-reaching applications of tort have been described. See Patrick R. Goold, *Is Copyright Infringement a Strict Liability Tort?*, 30 BERKELEY TECH. L.J. 305, 309-10 (2015); see Oren Bracha & Patrick R. Goold, *Copyright Accidents*, 96 B.U. L. REV. 1025, 1028-29 (2016).

115. See Chiang, *supra* note 112, at 29.

116. R.H. Coase, *The Problem of Social Cost*, 3 J.L. & ECON. 1 (1960).

117. GUIDO CALABRESI, *THE COSTS OF ACCIDENTS: A LEGAL AND ECONOMIC ANALYSIS* 135-40 (1970).

118. Chiang, *supra* note 112, at 2-5.

119. See *id.* at 36-37 ("Under my proposal, the law would impose a *duty* on patentees to search when they are the lower-cost avoiders. A producer would then bear the burden of proving that a particular patentee *breached* this duty by showing that the patentee failed to perform a cost-justified search, and that the failure *caused* the resulting inadvertent infringement in the sense that a search would have successfully found the producer. And, like the contributory negligence defense in tort law, establishment of the contributory search defense would provide a full defense to liability—the forfeiture of remedies providing a sanction to enforce the duty of patentee search.") (footnote omitted).

120. *Id.* at 50-58.

121. *Id.* at 29-31.

single-handedly avoided the accident.<sup>122</sup> For Chiang, this indeed is a central assumption.<sup>123</sup> In Chiang's analysis, either party could have undertaken the search and could have found the other party. Yet not all accidents fall into this category. Many real-world situations involve bilateral accidents where the injurer and victim both need to take precautions to effectively reduce risk. Shavell shows that, for such accidents, "the effect of liability rules is therefore different from that in the least-cost avoider model."<sup>124</sup>

Other scholars have started to push the tort view of patents in exactly that direction. Recently, Patrick Goold moved beyond the least-cost avoider and started examining patents from the perspective of a bilateral accident.<sup>125</sup> These are accidents where both patentee and infringer need to take necessary steps to ultimately avoid the accident. Goold correctly takes the significant existing tort literature on optimum negligence rules for bilateral accidents and begins applying it to patent law.

Both Chiang's and Goold's work are important advances, but there is still more to be done. Importantly, the tort reframing is more powerful and fundamental than Chiang or Goold suggest. For both Goold and Chiang, the basic contours of the patent system and its underlying purpose are taken for granted. Goold and Chiang take conventional patent law as a given and presume that every infringement should be compensated.<sup>126</sup> For Goold, the purpose of patents is to reward the patentee with a time-limited monopoly,<sup>127</sup> and an accident occurs whenever the "patentee's invention [is] being used without the patentee receiving compensation. This lost revenue represents a private cost to the patentee."<sup>128</sup> For Goold and Chiang, the wisdom, logic, and conclusions of the law and economics of tort law and especially accidents are not used to question or to structure the underlying purpose of patent law; rather tort law teaches us how to

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122. STEVEN SHAVELL, NAT'L BUREAU OF ECON. RESEARCH, WORKING PAPER NO. 9694, ECONOMIC ANALYSIS OF ACCIDENT LAW 10 (2003) ("The notion of the least-cost avoider applies in situations in which the risk of accidents will be eliminated if either injurers or victims take care.").

123. See Chiang, *supra* note 112, at 4-6.

124. Shavell, *supra* note 122.

125. See generally Patrick R. Goold, *Patent Accidents: Questioning Strict Liability in Patent Law*, 95 IND. L. J. 1075, 1077-79 (2020).

126. *Id.* at 1097 (Citing Posner and Landes's ideas on patent law, Goold argues that "[i]nventions are almost universally beneficial for society but, due to a public-goods market failure, are likely to be underproduced in a competitive market. Patent rights redress this issue by providing a time-limited monopoly right. During the patent term, anyone who wishes to use the invention must negotiate a license with the patent holder and pay the inventor a supracompetitive price. The ability to charge a supracompetitive price enables the inventor to recover the fixed research and development costs of the invention, and thus encourages inventors to supply inventions at a more socially optimal rate.").

127. *Id.*

128. *Id.*

efficiently administer the patent system. Yet torts can have a bigger, more important role. It can help reshape our understanding of purpose of the patents system.

The connection between patent law and tort law should not be seen as just a helpful analogy. Instead, patent law should be understood as *a real tort that remedies actual harm*. Inadvertent patent infringement is like an actual car crash where real private assets have been damaged and lost. By focusing on patent accidents as a real tort where real economic harm has been caused, we can begin to see more precisely the exact actions that patentees can take and the actions potential unintentional infringers could take to hopefully avoid harming others in patent accidents.

### C. Actual Injury is the Foundation of Torts

Perhaps the most fundamental reform that torts can bring to patent law is a renewed focus on actual injury. A tort is a civil wrong for which a “court will provide a remedy in the form of an action for damages.”<sup>129</sup> “Torts” comes from the “French word for injury or wrong.”<sup>130</sup> This is so general a concept than it seems banal, but even this most basic statement provides fundamental, needed guidance for patent law.

First and foremost, the injury in torts is essential. It exists apart from the law built to redress the injury. The very purpose of torts “is to compensate . . . for the damage . . . suffered, at the expense of the wrongdoer.”<sup>131</sup> Without loss or injury there is just no tort.<sup>132</sup> Unfortunately, modern patent law no longer worries at all if patent infringement has caused any actual injury. Patentees are not required to prove injury in fact anymore. For cases where patentees can prove the amount damage via lost profits, the patentee proves simultaneously the fact of harm and the amount of harm.<sup>133</sup> Yet in the bulk of cases, patentees seek reasonable royalties instead. For these awards, the patentee does not generally establish the fact of harm, and inexplicably, courts do not mandate it.<sup>134</sup> I argue that this is the single most important factor that has enabled patent assertion. It has led to

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129. WILLIAM L. PROSSER, *HANDBOOK OF THE LAW OF TORTS* 2 (2d ed. 1955).

130. *Id.*

131. *Id.* at 7.

132. John C.P. Goldberg & Benjamin C. Zipursky, *Unrealized Torts*, 88 VA. L. REV. 1625, 1645 (2002) (describing the “principle found throughout the law of torts, that only a plaintiff who was injured by the defendant has a tort action against the defendant”).

133. See Liivak *Nominal*, *supra* note 113, at 1033-34 (2015).

134. The only real exception to this is the small fraction of cases where a reasonable royalty is computed by looking to an established *ex ante* royalty scheme. Because of its precision, proving a lost *ex ante*, established royalty is more akin to lost profits than a reasonable royalty.

deep confusion with its circular<sup>135</sup> patent damages.<sup>136</sup> And it is a fundamentally un-tort-like feature of modern patent law that should be fixed.

Relatedly, another prominent tort feature is missing from modern patent law. Torts do not contend with every possible way that someone might harm another. Rather, torts focus on relational harms that are *wrongs*. As put by Prosser, torts prohibit conduct that “is regarded as socially unreasonable.”<sup>137</sup> Torts police acts that are understood as being twisted or crooked.<sup>138</sup> This aspect of torts is particularly non-existent in patent law. Patent infringers, outside of overt copyists and pirates, are not viewed as twisted, crooked, or unreasonable in any way. Morality infused culpability just does not seem part of patent law at all. This is a significant missed opportunity.

A patent narrative that can holistically weave in these concepts has the potential to be far more effective.<sup>139</sup> With such a basis for patents, we could understand why we *ought* to obey patents above and beyond a fear of being forced to pay after losing a lawsuit. Such a narrative also helps judges understand what the patent system aims to accomplish and how a defendant’s actions may or may not have harmed those goals.<sup>140</sup>

#### IV. PATENT ACCIDENTS & NEGLIGENT INNOVATION

Patent law needs a way to provide robust protection for actual innovators while preventing those strong rights from becoming bludgeons for non-innovating patentees. As outlined in Section I, this remains a challenge as these two goals stand in considerable tension. From the very start, innovators need strong patent protection so that they can confidently approach business partners to work towards the ultimate goal of commercializing their patented technology.<sup>141</sup> Not every patentee though continues down the commercialization path

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135. William F. Lee & A. Douglas Melamed, *Breaking the Vicious Cycle of Patent Damages*, 101 CORNELL L. REV. 385, 438-39 (2016) (describing the circular feedback loop created when *ex post* licensing agreements are used to compute a reasonable royalty).

136. Oskar Liivak, *Beyond Circularity: Licensing for Innovation*, 26 TEX. INTELL. PROP. L.J. 113, 116 (2018).

137. PROSSER, *supra* note 129, at 1.

138. GOLDBERG & ZIPURSKY, *supra* note 19, at 2-3.

139. Oskar Liivak, *Private Law and the Future of Patents*, 30 HARV. J. L. & TECH. 33, 36 (2017) [hereinafter Liivak Private Law].

140. *Id.* at 47-48; see also *The American Patent System: Hearings Before the Subcomm. on Patents, Trademarks, and Copyrights of the S. Comm. on the Judiciary*, 84th Cong. 116 (1956) (commenting on the aid that the patent system provides for promoting the technological development, Judge Learned Hand argued, “That is just what a judge never gets, . . . how essential [the patent] was for the progress of the arts. . . . [Judges] have no idea . . . whatever . . . as to how the system itself is in fact influencing the production of inventions”).

141. This includes the possibility that the initial patentees may often outright sell the patent to someone better positioned to undertake the commercialization efforts.

towards innovation. Yet, under the current patent system—and in accord with the existing commercialization theories—their un-utilized patent fortresses still linger on, littering the technological landscape ready to ensnare the unwary. A tort-focused patent law has the sophistication to navigate these conflicting goals.

This Section begins by following an idealized patentee working toward commercialization. With that archetype in hand, the Article turns to catalog the ways that others could harm this innovation process. In particular, this Article will take advantage of an important divide in tort law. Tort law differentiates between intentional and unintentional torts. In the tort view of patents, the former prevents intentional copying and piracy, and it is available from the moment the patent issues. The latter is the unintentional patent tort that aims to avoid patent accidents. In particular, there are cases where an innocent infringer should reasonably have avoided harming the patentee, and there are other cases where the patentee has failed to do their part to help avoid the infringement. By splitting the analysis in this way, patent law can provide strong protection against copying while also avoiding the downsides of naked patent assertion against actual innovators. In short, protection against copyists always exists for all patentees. Yet strong protection against innocent infringement will be contingent on the patentee's commercialization efforts because these efforts fortuitously help *both* commercialization while also alerting others to avoid the waste and redundancy of a patent accident.

#### A. *Intentional Patent Torts: Copying*

This Section considers the intentional tort of copying and its harm to entrepreneurial innovation. When someone intentionally infringes by copying a patented invention, the pirate can certainly harm the innovative business model. If the pirate copies and then *uses* the invention without paying, then the pirate is stealing one user revenue stream from the innovator. Even worse, if the pirate copies and then *sells* the invention to others, then the pirate displaces a user revenue stream with every sale. This can obviously be far more harmful depending on the number of illicit sales.

In either case, the harm is apparent where the pirate misappropriates the hard work of the innovator, and patent law steps in to castigate the infringer. Injunctive relief is generally appropriate to protect active innovators from this type of injury.<sup>142</sup> Not only will patent damages remedy any harm but also courts are able to treble

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142. See *EBay, Inc. v. MercExchange, L.L.C.*, 547 U.S. 388, 394 (2006).



those damages as well.<sup>143</sup> In short, against the pirate, the full panoply of patent remedies can be employed to restore the patentee.

Importantly, copying is a danger that can occur at every stage of innovation, from earliest thoughts through to final commercialization. To foreshadow the discussion of patent timing below, preventing copying and piracy must be available to inventors early on in the process so that they can safely transact and negotiate with all business partners.

### B. *Unintentional Patent Torts: Negligent Innovation*

Assume for the moment that the laws of patent infringement have prevented any copying and piracy. Is that all that the entrepreneurial innovator needs? No, more is needed from the patent system. The innovative process is long and requires significant investments. Just as with highways and car accidents, patent accidents become salient as the activity gets more crowded and congested. Most car crashes result from a driver failing to heed the rules of the road that aim to enforce efficient coordination. So too with patent law. The patent laws, as the rules of the road for innovation, should be seen as coordinating and channeling the congested world of innovation in an attempt to avoid accidents and to optimize efficiency of innovative investments.

First, before turning to accidents themselves, consider an idealized world without accidents. In that idealized world, an inventor conceives of some great new technological solution. She obtains a patent protecting that invention, she develops a commercial product embodying it, and she markets and educates the public about the product. Ultimately, the consuming public buys and uses the technology. As described in Section I, this innovative activity is the goal of the patent system.

In this idealized example, society (via the single innovator) has spent resources only one time to conceive, patent, and commercialize the invention. In return, the consuming public has access to the technology.<sup>144</sup> This example fully takes advantage of the non-rivalrous nature of ideas. From the initial investments, the idea is replicated so that everyone who wants the technology can buy it and use it. Others have not made redundant, wasteful investments. Society then gets the biggest bang for its buck. As described in more detail below, patent infringement in this accident framing can be best understood as trying to channel behavior toward this idealized example.

As the innovative space gets more crowded, this idealized example is harder to realize *even when copying and piracy do not happen*. If we want to “promote progress in the useful arts,” we want a vibrant, deep

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143. See 35 U.S.C. § 284 (2018).

144. There will be full access to the technology if perfect price discrimination is available and therefore no dead weight loss.

field of innovators. Yet as more and more people enter the field, chances increase that one innovator's work inadvertently interferes with another's. As with our busy highways, when we fail to coordinate our driving, accidents occur, and valuable resources are wasted. This failure to coordinate innovative activities are patent accidents.

A patent accident occurs whenever we deviate from the above ideal and there is unintentional patent infringement.<sup>145</sup> A real accident has occurred even if we do not see a crumpled car. Resources have been lost and patent commentators have done a disservice to innovators by not focusing on that real injury. Unintentional patent infringement indicates that societal resources have been wasted because of uncoordinated innovative activities. Somewhere, we have departed from the ideal innovative scenario described above.

Unintentional infringement almost always indicates two things have happened. First, the infringer has independently invented. Furthermore, and more importantly, *the infringer* has typically innovated as well. Patent infringement is the "mak[ing], us[ing], offer[ing] to sell, or sell[ing] . . . or import[ing]" of the patented invention.<sup>146</sup> If the infringer is selling or offering to sell the technology then they are innovating—the infringer's customers are getting the technology and putting it to use. If the infringer is using the technology, the infringer himself is utilizing the technology.<sup>147</sup> When people unintentionally infringe, they have independently invented the patent technology and, in most cases, they have independently innovated as well. Invention and innovation do not happen for free; scarce societal resources are consumed. If we could have coordinated better, the redundant expenditure need not have happened. Those scarce resources (like laboratory space, highly trained labor, etc.) have real opportunity costs for society that are lost forever. Such losses are the societal harms of the patent accident.

The mechanics of these patent accidents make it clear that they typically are bilateral accidents.<sup>148</sup> Both the patentee *and* the infringer together could have taken differing actions to prevent the accident. The patentee can publicize the existence of their new solution via marketing and actual sales. And the infringer can take notice of these marketing messages and can alter course accordingly to avoid the accident. To determine optimum behavior, we typically need to

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145. The vast majority of patent cases do not involve copying. See Cotropia & Lemley, *supra* note 2, at 1424.

146. 35 U.S.C. § 271(a) (2018).

147. Infringers that are just "making" the patented invention or "importing" the patented invention are not yet utilizing the technology, but presumptively, they are gearing up to sell or use the technology (or their customers will use the technology).

148. See Goold, *supra* note 125, at 1095 & n.145; SHAVELL, *supra* note 122, at 5 (defining bilateral accidents as "where victims as well as injurers can take care and thereby lower accident risks").

know the costs of precautions for the injurer and victim, the effectiveness of the precautions, and the costs to remedy the harm if an accident occurs.<sup>149</sup>

Scholarly literature examining avoidance costs has generally focused on search costs.<sup>150</sup> Search costs are the costs (to the patentee or putative infringer) incurred in searching for the other party.<sup>151</sup> In addition to various costs of the patent system, these search costs are seen as separate and additional costs.<sup>152</sup> There are ongoing debates questioning the magnitude of search costs, and to make matters worse, it is thought to ultimately be a difficult empirical question to resolve.<sup>153</sup> As a result, other than arguing that search costs should be part of the theoretical calculus of patent law, it seems little progress can be made without a clearer picture of the actual search costs.

A contribution of this Article is to show that in significant ways accident-avoidance costs are not necessarily separate and additional costs. In particular, an innovating patentee is already investing in commercializing their invention. A significant part of that cost is reaching out to potential users and educating them about the existence and benefits of this new, available technology. This broadcasting is meant to reach all users that might want to use the technology. Yet, as a public broadcast, it is also receivable by other innovators. And by receiving these broadcasts, other innovators are able to—and should now have the duty to—coordinate their activities accordingly to avoid the areas already patented and commercialized by the patentee.

Accident avoidance does not impose additional costs on patentees—they should be moving forward with commercialization activities anyway. This double duty can be analogized to a requirement that headlights be used at night. The headlights certainly help drivers themselves see the roadway and we would use them even if the roadway was empty and accident avoidance was not a primary concern. But headlights also serve a critical secondary purpose. Headlights also make each car more visible to other cars, thus enhancing the ability to avoid accidents.

Commercialization of technology should be seen in the same light. It is a necessary part of the innovative process to make the consuming public aware of technology. The innovator needs to educate, persuade, and disseminate the technology. All of these efforts are like headlights. They are necessary for the primary goal of innovation, but they also enhance coordination. With these publicly available marketing efforts,

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149. SHAVELL, *supra* note 122, at 10.

150. See Chiang, *supra* note 112, at 2.

151. An underlying assumption here is that the notice provided by issued, published patents does not effectively provide notice to third parties.

152. See Chiang, *supra* note 112, at 3-4.

153. *Id.* at 20-21.

other innovators can avoid patent accidents. But for the coordination to be successful, not only should the patentees broadcast the availability of their product, but other innovators need to tune in to receive this information and need to act on it. For successful coordination, the patent system should be seen as a tort system that saddles other innovators with the duty to stay abreast of the innovative activities of others. If they fail in these duties and they infringe, then they are liable for the ensuing accident. These two complimentary activities (one by the commercializing patentee and one by other innovators) form the core of the bilateral accident avoidance.

### 1. *Easy Case: The Negligent Innovators*

Having given a rough outline of the accident avoidance in general, particular examples can be examined in more detail. First, consider an example where the patentee is actively commercializing their invention. As described above, the patentee has invested in inventing, patenting, and commercializing the technology. The patentee has educated the public and users have bought and are utilizing the technology. Here, the patentee has undertaken all that we can ask of the patentee. He is an innovator. Connecting to modern patent doctrine, this patentee is one who can make a strong case for lost profits or lost established (*ex ante*) royalties. Left unfettered by intentional copying and unintentional accidents, this scenario would be the idealized, optimal example.

Now imagine an infringer enters the picture after the patentee begins to commercialize the technology. The infringer *independently* invents the technology, commercializes it, and begins to sell it to others.<sup>154</sup> As described above, this is a patent accident. By displacing the patentee's sales, the infringer is certainly harming the patentee. Furthermore, this accident is a societal loss as well. All of the infringer's work is redundant, wasteful, and harmful, and most importantly, the accident could have been avoided. As the infringer is getting technology into the hands of users, they could label themselves as innovating. This may be true, but this Article goes further and labels them as a negligent innovator. After independently inventing, the infringer plunged forward to commercialize without checking to see if another (the patentee in this case) had already invented the same thing, had already patented it, and had in fact, already commercialized it. The harm caused by this failure to coordinate, and its subsequent societal waste, are the core of the liability for negligent innovators *despite* being independent inventors and innocent infringers. In particular, the patentee was broadcasting to the public

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154. Here the option to patent is no longer available as the patentee has already obtained the patent for the technology.

that a solution to some problem existed. The infringer failed in their duty to receive that broadcast and failed to coordinate accordingly.

In an important sense this scenario is worse than just a redundant expenditure of resources. Free riding has occurred even though the infringer has *invented* independently. An important insight is that, though independent invention certainly can exist, independent innovation *does not exist*. Here, the patentee has taken the risk and has educated and convinced users to adopt the technology. When the infringer later enters the picture and also spends on marketing efforts, not only is it redundant and not needed, but it is a type of free riding because the patentee has already done the hard work and has paved the way. The infringer's marketing efforts produce easy results because in fact, users have already been primed to want the technology. In other words, though there can be independent inventors who are not the first to invent something, there is no such thing as an independent, yet second-arriving innovator.

In sum, in this example, the patentee has complied with all their duties—the infringer has not. Instead, the infringer has both redundantly invented, has redundantly commercialized, and in fact, has free ridden on the commercializing coattails of the patentee (even though the infringer did so without intentional copying or piracy). And most importantly, for the tort framing, this all could have been avoided. If only the infringer, prior to launching this particular project, had looked to see what technology was already being offered to the public, the infringer could have coordinated their efforts and could have avoided the redundant expenditures, the waste, and the harm to the patentee. At a high level, this case makes sense as an innovator is suing a non-innovator for the harm inflicted. In this case, it is clear that the infringer should compensate the patentee for the harm to the patentee (i.e., the lost profits). Indeed, current patent doctrine would treat this example in this way.

Though there has been ongoing debate in patent law regarding the justification for independent inventor liability,<sup>155</sup> this patent accident discussion makes clear that where the patentee is actively commercializing, then independent inventor liability makes perfect sense as the infringer, though independently inventing, could have avoided the accident by simply staying abreast of commercialization efforts of the patentee. The infringer did not, and they are therefore

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155. See Oskar Liivak, *Rethinking the Concept of Exclusion in Patent Law*, 98 GEO. L.J. 1643, 1647-48 (2010); Samson Vermont, *Independent Invention as a Defense to Patent Infringement*, 105 MICH. L. REV. 475, 479 (2006); Stephen M. Maurer & Suzanne Scotchmer, *The Independent Invention Defence in Intellectual Property*, 69 ECONOMICA 535, 535 (2002); John S. Liebovitz, Note, *Inventing a Nonexclusive Patent System*, 111 YALE L.J. 2251, 2273-75 (2002).

liable for the accident. Put in a slightly different way, the independent inventor is liable because they negligently innovated.

## 2. *Easy Case: Non-innovating Patentees*

On the opposite end of the spectrum, consider a patentee who obtains a patent but then never proceeds with any work toward commercializing the invention. Now imagine that another independent innovator invents the same technology, develops it, and begins selling it to users. If the patentee sues the innovator, this presents the paradigmatic case of a patent assertion entity enforcing its patent against an innocent, independent infringer.<sup>156</sup> Under today's understanding of patent doctrine, the patentee would be able to collect substantial reasonable royalties from this infringer.<sup>157</sup>

Yet with the tort framing of patent accidents, this patentee presents a far less sympathetic character than the innovator/patentee presented above. First, the patentee in this example is not an innovator. They have done nothing to advance their invention to a utilized technology. Rather, it is the infringer who has innovated, as well as having independently invented. The infringer took the risky steps of developing a commercially viable product, educating and persuading consumers, and finally, putting the technology into the hands of users.<sup>158</sup> All the accolades lauded on the innovating patentee in the previous example apply equally to the *infringer* in this case. And the actual innovator in this case went forward with all these risks without trying to get a patent.

Second, it is not clear whether the patentee has been in fact harmed by the infringer. As to harm, the Supreme Court has defined compensation for the harm of infringement as "the difference between [the patentee's] pecuniary condition after the infringement, and what his condition would have been if the infringement had not occurred."<sup>159</sup> For a patentee that has done nothing to commercialize the patent, there really is no difference between the patentee's position with or without the infringement. There is just not any real harm to the patentee. And though this conclusion is in tension with the current understanding of U.S. patent law and is likely to face critics, all should at least agree that any harm caused in this case is different in kind and degree from the harm caused above where infringement causes

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156. Patent assertion entities are also known more colloquially as 'patent trolls.'

157. See Liivak *Nominal*, *supra* note 113, at 1042.

158. Note also that the infringer in this example is taking all these risks without the exclusivity and protection of a patent.

159. *Yale Lock Mfg. Co. v. Sargent*, 117 U.S. 536, 552 (1886).

lost profits. Yet current doctrine and theory does not see the cases as differing at all.

If there is any actual harm in this case, it is less serious than the lost profits/lost established royalty example. As far as society is concerned, there has been only one redundant expenditure. Both parties invented. Ideally, only one party needed to invent. Here though, only one party (the infringer) commercialized. To the extent an accident occurred, it is a societal accident but not one that has caused any private harm to the patentee.

Furthermore, as to who could have avoided the accident, the patentee was not innovating in any sense. By not undertaking any commercialization efforts, the patentee was not broadcasting to the public that they had technology that they were hoping to sell. And without the broadcast, the infringer was left at a disadvantage for coordination purposes.

In sum, here the infringer has undertaken the socially beneficial and risky business of innovating, there is little if no actual harm to the patentee, and even from a societal perspective, relatively few redundant, wasteful expenditures have been made. As opposed to the patentee who is actively commercializing, this patentee did not publicize the existence of the technology at all.<sup>160</sup> The patentee failed in their duties to provide information that others could use to coordinate their activities. As to this bilateral accident, a tort-based view of this accident would find a defense of contributory negligence for the defendant.

Furthermore, in this scenario, the patentee might acknowledge that they have not *yet* commercialized the patent but that they intend to do so in the future. There may well be explanations for the delay that might hold water and might elicit sympathy. But empirical evidence weakens this argument. Note that the defendant did already innovate. They undertook the risks and succeeded in innovating *all without* the safety and protection offered by the patent. Presumptively, the patentee was the first to develop the invention.<sup>161</sup> And yet the infringer, without copying and without the benefits of a patent, managed to both invent and innovate before the patentee managed to do so. These facts should prompt the courts to question patentees about their delays and their failures to innovate. Simply arguing that they needed more time is hard to credit when others managed to do so.<sup>162</sup> And the actual answer may well be that the patentee was never

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160. The only public notice of the technology is via the issued patent.

161. See 35 U.S.C. § 102 (2018) (detailing patent law's novelty requirement).

162. This is predicated on the assumption that the infringer in the case is truly an independent inventor. One could easily imagine that this line of reasoning could be subverted when a pirate secretly copies some technology and then rapidly commercializes. If claims of independent invention are not examined carefully then such pirates could use

interested in commercialization at all. If that is the conclusion, the tort framing certainly suggests that the patentee has not been harmed by the infringement. In this scenario, the patentee has not suffered any real private harm from the infringement. Furthermore, especially where there are no legitimate future plans for innovation that could have been harmed, a tort-based patent system should not be intervening to protect the non-innovating patentee at the expense of an actual innovator.

Current patent doctrine does not treat this case in this way. Today, the non-innovating patentee can and does regularly receive substantial reasonable royalties.<sup>163</sup> This is the one case that would change as a result of adopting this tort-based framing of patents.

### 3. *Hard Case: Nascent Innovator*

With the patent accident framing, the above two scenarios are relatively easy. Other plausible scenarios are much harder. Consider the patent holder that is a nascent innovator. They acquire the patent and are starting the difficult work of commercialization. In patent-speak, they have not commercialized to such an extent that they could prove lost profits stemming from infringement. They have yet to use or sell the technology themselves though real investments have been made and some progress toward commercialization exists. Now imagine that an independent inventor appears who begins to use or sell the technology.

Here, the nascent innovator won the race to the patent, but despite some research and development efforts, an infringer won the race to innovate. This case is hard because it is difficult to determine which party is most responsible for the accident, and yet, a reasonable number of resources have been invested redundantly. Both invented and both invested in some commercialization efforts. In other words, a real accident has taken place. Yet the nascent innovator's efforts are not the type of efforts of which the infringer could have easily been aware. To suggest that the patentee can police the patent against inadvertent infringement only once the patentee has become a mature innovator is too harsh. It produces too daunting a valley of death that the patentee would have to cross before arriving at mature commercialization, and that would put too much risk on the patentee. If the diligent patentee cannot count on the law to help keep the patentee as the exclusive supplier of the patented technology, then the primary economics of patent decision-making fails and the overall justification for the system is fatally weakened. This case should be treated the way it is today, and this young innovator should receive

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their rapid commercialization as a bludgeon to attack and to discredit the original patentee from whom they copied.

163. See Liivak *Nominal*, *supra* note 113, at 1041-42.



reasonable royalties (and the protection of an injunction) for the harm. From the tort framework, using strict liability with a defense of contributory negligence, the patentee in this case has not failed in their duty to help avoid the accidents. They were doing what we expected from them. They were working diligently toward commercialization.

## V. IMPLEMENTING NEGLIGENT INNOVATION VIA REMEDIES

A call to implement a defense of contributory negligence in patent law surely appears to be a stark departure from the strict liability that controls patent law today. Such a fundamental change would appear to require significant reform and revision by Congress,<sup>164</sup> but that presumption is wrong. Courts can implement with today's patent statute.

To do so, courts need not adjust the infringement doctrine. As is the case today, infringement can be defined by any crossing of the patent boundary.<sup>165</sup> Rather, the defense can be implemented via damages, not infringement. And to implement it, courts just need to take seriously the mandate that "the court shall award the claimant damages adequate to compensate for the infringement. . . ."<sup>166</sup> To fulfill this mandate, courts need to ask the patentee: "Have you been harmed by the infringement? And if so, how have you been harmed? And how much have you been harmed?" The answers to these questions are critical to both injunctive relief and to damages. The former prevents future harms and the latter remedies past harms.

Today, patent law pays no heed to the first question and just presumes that infringement of a valid patent claim leads to compensable harm.<sup>167</sup> Patentees are never required to prove the fact of harm.<sup>168</sup> This one oversight is likely the biggest driver of patent assertion activity, and it represents a significant departure from tort norms. To implement this tort-based vision of negligent innovation, this is the one aspect of patent doctrine that would need to change. In forcing patentees to prove that they had in fact been damaged by the infringement, courts would be given the flexibility to distinguish between patentees who are actually innovating and non-innovating patentees who are simply asserting their patents. In the latter cases, unable to prove the fact of harm, the courts should award no more than nominal damages.<sup>169</sup> In the tort framing, this is just the recognition

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164. Lemley, *supra* note 101, at 1525 ("Patent infringement is a strict liability offense.").

165. See Oskar Liivak, *Rescuing the Invention from the Cult of the Claim*, 42 Seton Hall L. Rev. 1, 7-9 (2012).

166. 35 U.S.C. § 284 (2018).

167. See Liivak *Nominal*, *supra* note 113, at 1031.

168. *Id.* at 1033-34.

169. See *id.*; Daniel Harris Brean, *Ending Unreasonable Royalties: Why Nominal*

that the patentees have not been privately harmed by the innovative activities of others. And to the extent there was a societal harm (i.e., redundant expenditures on invention), the patentees have failed in their duties to help avoid this accident and therefore cannot recover a substantial sum.

## VI. STRENGTHS AND WEAKNESSES OF NEGLIGENT INNOVATION

There are many strengths—and a few weaknesses—to adopting this tort-based framing of the patent system. Some of these have been alluded to in the discussion above. This Section summarizes them.

### A. *Negligent Innovation Requires Innovation*

As described in Section II, the existing commercialization theories do provide protections for patentees who go on to commercialize their inventions. Yet these theories' failing is that they do not require commercialization. The tort framing provides a mechanism to channel patentees toward innovation and away from naked patent assertion. It does so by simply requiring patentees to prove the fact of harm in order to receive substantial patent damages. That simple requirement essentially defuses much of the patent thickets problems. Today, every infringed patent is worth litigating as a substantial, reasonable royalty is available—even if injunctive relief is unlikely for non-practicing entities.<sup>170</sup> In the negligent innovation framing, the fact of harm can be shown only where the patentee has been trying to commercialize. A patentee who merely sits on their rights or is only engaged in ex-post licensing will not be able to make that showing.

In addition, tort framing can provide guidance to users of the system and to the judges who have to adjudicate patent system cases. Such framing gives us all a reason to abide by patents by explaining the harm that inadvertent infringement causes. By grounding the story of inadvertent infringement in accident law we can better understand what our respective duties are. Furthermore, the understanding that some independent inventors might still be negligent innovators helps to convince us that, even outside of copying, we *ought* to reasonably try to avoid infringement.<sup>171</sup>

### B. *Resolving Patent Timing: Early Attachment, Later Accrual*

The tort framing also provides a solution to the patent timing problem. As described in Section II, the existing commercialization

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*Damages Are Adequate to Compensate Patent Assertion Entities for Infringement*, 39 VT. L. REV. 867, 868 (2015).

170. See generally Christopher B. Seaman, *Permanent Injunctions in Patent Litigation After Ebay: An Empirical Study*, 101 IOWA L. REV. 1949 (2016).

171. See generally Liivak, *supra* note 139, at 39-42.

theories have advocated for the early grants of patents.<sup>172</sup> The rights need to attach early so that valuable information generated by commercialization activities cannot be appropriated by competitors. Yet on this important point, significant debate has arisen. Scholars such as Chris Cotropia have also focused on the need for commercialization but have disagreed vehemently with the early attachment of patent rights. They have argued that early patents can hinder rather than promote actual commercialization via aggressive assertion entities. For Cotropia, patents should attach later in the development process when the inventor/innovator is much closer to an actual commercial product. This policy choice appears to be a “zero-sum” game where early patenting helps initial patentees at the expense of actual innovators, who are later taxed by those asserting those early patents, and while later patenting hurts initial patentees but may reduce the threat of widespread patent assertion.<sup>173</sup>

The tort framing of negligent innovation solves the timing problem. The tort framing argues for patents to be filed early, right after invention. At this early stage, the patent still provides strong protection against piracy and copying. With this shield in hand, patentees can begin to work toward commercialization by involving complimentary parties without fear of copying and piracy. Meanwhile damages for inadvertent infringement only accrue as these investments toward commercialization are made. As these commercialization investments are made, patentees provide constructive notice to potential infringers. Those infringers that do not coordinate their actions with that notice are negligent innovators and will need to compensate the patentee for the resulting harm. In this way, the patent accident model provides early attachment of patents (against copying), while damages for inadvertent infringement only accrue with actual investments in commercialization.

### C. *Negligent Innovation (Not Independent Invention)*

A defendant who has independently conceived the patented subject matter is an infringer just as is a willful pirate. This has been at the heart of patent law for a long time.<sup>174</sup> Yet this defining<sup>175</sup> feature has never been given a satisfying justification, and it continues to endure

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172. See *supra* note 58 and accompanying text.

173. Sichelman, *supra* note 91, at 395.

174. 1 WILLIAM C. ROBINSON, *THE LAW OF PATENTS FOR USEFUL INVENTIONS* § 28 at 45-46 (1890) (“To one who has conceived and practically applied a new idea [patent law] gives the power, not only to prohibit other men from copying after him, but from inventing and applying the same idea for themselves. It recognizes no difference between the piracy of an invention by the willful injurer and its entirely independent generation by a true inventor.”).

175. In contrast to patents, both copyright and trade secrecy are premised on actual copying. Independent invention is an absolute defense in both. See *The Uniform Trade Secrets Act (UTSA)* (1979) § 1 (defining “improper means”); see also 17 U.S.C. § 106(1) (2018) (defining “copying” in copyright).

skepticism from the judiciary<sup>176</sup> and the academy.<sup>177</sup> In response, others scholars have attacked these reform proposals as striking at the core of the patent system.<sup>178</sup> Mark Lemley worried that “there is a danger that such a defense will interfere with incentives to commercialize or market patent rights.”<sup>179</sup> And this is not just an esoteric, theoretical debate. Approximately ninety percent of all of today’s patent cases would vanish if such a defense existed.<sup>180</sup> It is one of the features that enables naked patent assertion to flourish.<sup>181</sup>

The patent accident model goes to the heart of this issue and provides an explanation for independent inventor liability in some, but not all, cases. The patent accident model of negligent innovation provides only a partial explanation, and that partial explanation is most certainly a feature and not a bug. In so doing, the Article also aims to re-frame the debate. The existing scholarship has focused on the independent inventor. But as highlighted, the real question is not independent invention but rather independent innovation. And in contrast to independent invention, where it is possible to be both first and yet still independent, first innovators are the only truly

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176. See *The American Patent System: Hearings Before the Subcomm. on Patents, Trademarks, and Copyrights of the S. Comm. on the Judiciary*, 84th Cong. 117 (1956) (testimony of Judge Learned Hand) (testifying before the Senate that he would “make patents like copyrights. [He felt] that a man is entitled to what he contributed . . . and unless [others] used what he did, he could not stop it.”).

177. See generally Maurer & Scotchmer, *supra* note 155, at 535 (discussing “industrial environments in which the best rule is to allow a defence of independent invention”); Samson Vermont, *Independent Invention as a Defense to Patent Infringement*, 105 Mich. L. Rev. 475, 479 (2006) (proposing to “bestow a defense to patent infringement on the independent inventor(s)”). On use rights, see Carl Shapiro, *Prior User Rights*, 96 AM. ECON. REV. 92, 95 (2006) (describing the “attractive properties” of granting independent inventors use rights). On their own patent rights, see Manfredi La Manna, Ross Macleod & David de Meza, *The Case for Permissive Patents*, 33 EUR. ECON. REV. 1427, 1437 (1989) (advocating a “permissive” patent regime where the PTO would “accept[] all applications up to the date of the award of a patent to the earliest inventor of a given class of new products/processes”). Or even with co-ownership of the initial inventor’s patent, see John S. Leibovitz, Note, *Inventing a Nonexclusive Patent System*, 111 YALE L.J. 2251, 2286 (2002); Oskar Liivak, *Rethinking the Concept of Exclusion in Patent Law*, 98 GEO. L.J. 1643, 1647 (2010).

178. See Roger D. Blair & Thomas F. Cotter, *Strict Liability and Its Alternatives in Patent Law*, 17 BERKELEY TECH. L.J. 799, 812-13 (2002) (finding that “[t]he limitations imposed by [the assumptions made in Maurer and Scotchmer’s model demonstrating the effects of an independent discovery defense] suggest extreme caution in deriving any practical policy recommendations from it”); Lemley, *supra* note 101, at 1526-28 (2007); Clarisa Long, *Information Costs in Patent and Copyright*, 90 VA. L. REV. 465, 528 (2004) (arguing that “an independent creation privilege in patent law would too drastically reduce incentives to create”); see also John F. Duffy, *Inventing Invention: A Case Study of Legal Innovation*, 86 TEX. L. REV. 1, 9 (2007) (“A narrow right that allows for independent creation and protects only the precise details of a particular embodiment of the invention is unlikely to give sufficient protection, as a practical matter, to encourage the type of investments and work that society wants to encourage.”).

179. Lemley, *supra* note 101, at 1535.

180. See Cotropia & Lemley, *supra* note 2, at 1424.

181. See Oskar Liivak & Eduardo M. Peñalver, *The Right Not to Use in Property and Patent Law*, 98 CORNELL L. REV. 1437, 1442 (2013).

independent innovators. Second-arriving innovators, even if they independently invented, free ride off of the early efforts of the first innovator. Consequently, consumers have already been primed by the efforts of the first innovator. In short, the patent accident model can rephrase patent liability with the rule “independent inventors are still liable when they are not the first innovator.”

### CONCLUSION

The early commercialization theorists were right that innovators need and deserve strong patent rights. But these theorists too easily concluded that this process requires unilaterally strong patent rights protected by substantial damages and injunctive relief for all patentees. They failed to appreciate how easily those strong patent rights, in the hands of non-innovators, could be subverted to tax rather than promote actual innovation. By coupling prohibitions on copying with a tort-based vision of inadvertent patent infringement, patent law can provide a better commercialization theory where strong rights are granted for innovation but where those strong rights cannot be abused by non-innovators.