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PRIVATE LAW AND THE FUTURE OF PATENTS

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I. INTRODUCTION.....	33
II. PRIVATE LAW: DEFINING DUTIES THAT WE CAN AND DO	
OBEY.....	36
A. <i>Can We Obey</i>	37
B. <i>Do We Obey</i>	38
III. PATENT LAW IS NOT PRIVATE LAW.....	41
A. <i>Subsidy Reward Theory</i>	41
B. <i>Inability to Understand Our Duties</i>	42
C. <i>No Reason to Feel Obligated to Obey Duties</i>	45
D. <i>Judges and an Internal View of the Patent System</i>	47
IV. EX ANTE TRANSACTIONS: A PRIVATE LAW ALTERNATIVE.....	48
A. <i>Ex Ante Technology Transfer</i>	48
B. <i>Private Law & Ex Ante Licensing of Inventions</i>	50
V. CONCLUSION.....	52

I. INTRODUCTION

It is hard to find a silver lining in the recent press clippings about the patent system. Descriptors such as “failure,” “broken,” and “crisis” abound.¹ One line of criticism led by economists James Bessen and Michael Meurer has focused on the overall cost of the patent system for patent holders — the one group that should surely benefit from the system.² They found that, even for that group, patents as a whole cost more to acquire, litigate, and defend against than the benefits they generate for the patent holders.³ In theory, the system is envisaged as a kind of subsidy for inventors, yet in operation, the patent system as a whole is a losing proposition even for the intended recipi-

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1. See Oskar Liivak, *Establishing an Island of Patent Sanity*, 78 BROOK. L. REV. 1335, 1336 (2013) (listing recent pessimistic patent headlines and titles).

2. JAMES BESSEN & MICHAEL MEURER, PATENT FAILURE 12 (2008) (“We can determine, with reasonable accuracy, whether or not patents provide net positive incentives for a given group of inventors. . . . [I]f patent incentives are negative, then . . . patents do not do what they are supposed to do, and it is not likely that they will spur innovation and increase social welfare.”).

3. See *id.* at 16 (Outside the confines of the pharmaceutical sector, “the United States patent system could not be providing overall positive incentives for these United States public firms by the end of the 1990s. The risk of patent litigation that firms faced in their capacity as technology adopters simply outstripped the profits that they made by virtue of owning patents. . . .”).

ents.⁴ The costs are so high, Bessen and Meurer argue, because patent boundaries are imprecisely drawn — forcing patentees into expensive, drawn-out litigation.⁵ Patents fail to function as traditional property.⁶ These costs are a fatal drag on the system that, on average, burn through any of the revenues it generates.⁷ Bessen and Meurer propose improving the precision of patent claims in the hope that this will reduce these costs.⁸ Surely this will be an important incremental improvement.⁹ But there remains a nagging worry. Will it be enough? I doubt it. Any legal institution that depends heavily upon litigation and its direct coercion is doomed to incur excessive administrative costs.¹⁰ There is a more fundamental problem.

Where alarm over excessive enforcement costs arises, as it currently does in patent law,¹¹ serious consideration and study should be given to private law. Private law shows that not all legal institutions have to bankrupt themselves with enforcement costs.¹² Property, tort, and contract law all entail intricate webs of interpersonal coordination and interaction that thrive and endure while needing only a relatively light judicial touch.¹³ For the most part, these institutions are self-enforcing. The stakeholders participating in these institutions know their rights and their duties, and they largely abide by them.¹⁴ Constituents abide not from fear of punishment; rather, they feel an obligation to abide because compliance in some sense is just the right thing to do. With that acceptance, the enforcement costs can be much lower.¹⁵

4. *See id.*

5. *Id.* at 8.

6. *See id.*

7. “Burn” is perhaps the wrong term. “Diverts” is more accurate as the revenue from patents is diverted to patent litigators. In any event, the important point is that the revenue does not reach the patent holders. *See also* Michael Meurer & James Bessen, *The Direct Costs from NPE Disputes*, 99 CORNELL L. REV. 387, 392 (2014) (“The survey results we describe below provide strong additional support for our view that much of the cost imposed on defendants is a social loss.”).

8. *See id.*

9. I too have been arguing for improving clarity in claims. *See* Oskar Liivak, *The Unresolved Ambiguity of Patent Claims*, 49 U.C. DAVIS L. REV. 1851 (2016).

10. *See* Robert Cooter, *The Intrinsic Value of Obeying a Law: Economic Analysis of the Internal Viewpoint*, 75 FORDHAM L. REV. 1275, 1285 (2006) (concluding that widespread disobedience leads to “crippling agency problems”).

11. *See* BESSEN & MEURER, *supra* note 2, at 8.

12. *See* Cooter, *supra* note 10, at 1275 (“When laws are reasonably just and many citizens intrinsically prefer to obey them, government is easier, and life is better than when most citizens are indifferent towards obeying the law.”).

13. *See* Carol Rose, *Property as Storytelling: Perspectives from Game Theory, Narrative Theory, Feminist Theory*, 2 YALE J.L. & HUMANITIES 37, 51 (1990) (arguing that “a continuous system of policing and/or retaliation for cheating” is “impossible”).

14. *See id.* (noting that “a property system depends on people not stealing, cheating and so forth, even when they have the chance”).

15. *See* Cooter, *supra* note 10, at 1285.

Unfortunately, patent law faces a serious obstacle blocking access to these efficiencies. Recent patent scholarship by Professor Ted Sichelman has highlighted that the dominant theory of patents isn't readily compatible with private law.¹⁶ The dominant theory envisions patents as a subsidy for encouraging inventing by giving patentees a government reward funded by a tax on anyone who infringes the exclusive rights granted by the patent. The theoretical focus is not a private law-like purpose of preventing or compensating harms. Rather, the theoretical focus is a "public regulatory" aim of optimizing inventive activity.¹⁷ Sichelman's work joins and expands on a long-running debate within patent law: should patents be considered, labeled, or understood as property?¹⁸ Many believe that they should.¹⁹ Others disagree, seeing patents more as a form of government intervention that should be divorced from notions of property.²⁰ Sichelman argues that there is "nearly universal" agreement that the dominant subsidy view of patents is correct and that the theory is not structured as a private law institution.²¹ He argues that this requires "purging" any residual private law elements from the patent system.²² As argued below, I wholly agree that the dominant patent theory is incompatible with private law. Indeed one must yield. Yet our agreement on incompatibility does not compel the prescription to rid patents of private law. There is an alternative; agreement about the correctness of the dominant theory is not universal. We should instead jettison the dominant theory, and we should adopt a private-law compatible theory for patents.²³

There is an alternative theory that could fill this role. Scholars have been developing a transaction-based theory focusing on the commercialization and transfer of technology.²⁴ That theory has the potential to pave the way for a patent system that can become private law. The aim is not to ensure a reward or to induce people to invent.

16. See Ted Sichelman, *Purging Patent Law of "Private Law" Remedies*, 92 TEX. L. REV. 517 (2014).

17. *Id.*

18. See Adam Mossoff, *INTELLECTUAL PROPERTY AND PROPERTY RIGHTS* ix–xxii (Mossoff ed. 2013).

19. See *id.*

20. See, e.g., Mark A. Lemley, *Property, Intellectual Property, and Free Riding*, 83 TEX. L. REV. 1031, 1032 (2005).

21. See Sichelman, *supra* note 16, at 528.

22. *Id.*

23. A similar move has taken hold in tort law in the past decade for similar reasons. 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 (2006) (though "Holmesian duty skepticism . . . has long been discredited within analytic jurisprudence. . . . [Because it] holds no more water as a claim about tort law than it does as a jurisprudential claim, we argue that it is time to abandon some of the central features of modern tort theory.").

24. See *infra* note 110 and accompanying text.

Rather, the system simply defines the behavioral expectations among participants in the innovation sphere. In particular, it defines the duties owed by technology producers and users to other producers and users. The purpose of the system is the efficient and coordinated transfer of technology. Importantly, that role is not limited to the courthouse or its shadow. This narrative is not just about imposing a tax on infringers. Instead, the theory defines expectations of beneficial innovative behavior out in the business world. Such a theory has many advantages. It could provide for a system that optimally allocates resources to innovative activity.²⁵ In addition, and critically for this Article, the theory has another great advantage over today's reward subsidy theory. It has the hallmarks of private law and as such it could provide the foundation for maturing the patent system into an accepted and stable institution where participants largely govern themselves.

This argument proceeds in three sections. The first reviews some of the central features of private law that enable institutions like property and tort to operate without extensive, chronic judicial coercion. The next section proceeds to the dominant patent theory and shows that its incentive-centric framework is incompatible with private law. The final section points to the emerging transaction-based understanding of the patent system that focuses on ex ante transfer of technology and shows how it is built around fundamental features of private law.

II. PRIVATE LAW: DEFINING DUTIES THAT WE CAN AND DO OBEY

Private law achieves its low system cost via widespread self-enforcement.²⁶ Institutions like property, contract and tort have significant efficiencies because, for the most part, people comply with the duties imposed by these legal regimes.²⁷ This high level of self-compliance is a hallmark of private law and central to its smooth functioning.²⁸ Two conditions are paramount to achieving this. Constituents must be able to understand their duties.²⁹ And, just as im-

25. See Liivak, *supra* note 1 at 1357–65.

26. See Robert C. Ellickson, *Property in Land*, 102 YALE L.J. 1315, 1327–28 (1993); *id.* at 1327 n.38 (self-enforcement is “the cheapest method of social control.”); Dale Nance, *Rules, Standards, and the Internal Point of View*, 75 FORDHAM L. REV. 1287 (2006) (directly linking low enforcement costs with legal actors that have embraced Hart’s internal view of the law).

27. See Rose, *supra* note 13, at 51 (“[A]ll the participants, or at least a substantial number of them, have to cooperate to make a property regime work.”).

28. Carol M. Rose, *The Moral Subject of Property*, 48 WM. & MARY L. REV. 1897, 1925 (2007) (“People have to accept property for it to work in any meaningful way. And, very often, they do, relieving owners of the onerous necessity to guard their things all the time.”).

29. Thomas W. Merrill & Henry E. Smith, *The Morality of Property*, 48 WM. & MARY L. REV. 1849, 1853 (2007) (“Because property rights need to coordinate the behavior of large

portantly, they must actually comply with their duties.³⁰ The first feature is a matter of deliberate, careful system design while the latter is ultimately an empirical observation of the system in operation. If we are interested in designing an efficient, smoothly operating legal system, then both conditions should be primary concerns.

A. Can We Obey

The first condition, whether people can comprehend their duties, has been a focus of work by Professor Henry Smith.³¹ Smith argues that information costs play a significant role in defining the contours of legal institutions, especially property. More recently, Smith has been extending that line of research by focusing on the efficiencies of using modular system design.³²

Any real human institution entails a vast set of context-dependent interactions between actors. In theory, we might structure the rules of these institutions by giving each person a full list of their duties owed toward every other person that accounts for the myriad ways we might interact with others.³³ But we do not structure most legal institutions in this way because it would be “impossibly complex and costly” to provide such a listing.³⁴ There are too many choices and too many details to possibly be within our cognitive capacities.³⁵ Instead, Smith argues that we can achieve the impossible by intelligently developing rules that are much simpler to deploy but which largely reach the same results (even if indirectly) as those attained by the more complete case-by-case analysis.³⁶ Through this modular design, actors have a simpler set of rules that are within their cognitive capacities.³⁷ For example, property simplifies its content and thereby makes its rules comprehensible by centering them around the *res*, the thing of property, and by generally having rules that prevent others from interfering with the property owner’s wishes as to the disposition of the *res*.³⁸

numbers of unconnected people, they must be easily comprehended and must resist possible misinterpretation.”).

30. See Cooter, *supra* note 10, at 1281 (“Internalization of respect for the law makes governing so much easier.”).

31. See, e.g., Henry E. Smith, *Property as Platform: Coordinating Standards for Technological Innovation*, 9 J. COMPETITION L. & ECON. 1057 (2013).

32. See, e.g., Henry Smith, *Property as the Law of Things*, 125 HARV. L. REV. 1691, 1700 (2012).

33. See Smith, *supra* note 31, at 1059.

34. *Id.*

35. See *id.*

36. See *id.*

37. See *id.*

38. See Smith, *supra* note 32, at 1713.

B. Do We Obey

That we are capable of understanding and complying with rules is an important and necessary condition of self-enforcement, yet it is largely meaningless unless we actually obey. Private law institutions have an advantage here because these areas of law have managed to be imbued with an aura that their rules and duties ought to be obeyed by the general public.

These areas of private law achieve compliance in part because their duties are infused with a type of morality.³⁹ And, buoyed by these general feelings that we have an obligation to obey them, such institutions will be cheaper to run compared to an institution where every interaction requires reliance on costly litigation. These obligations are not necessarily attached to any preexisting moral code, though such piggybacking can make rule comprehension easier.⁴⁰ Instead, successful private law institutions define their own codes.⁴¹

These successful private law institutions have constituents who have adopted what Professor H. L. A. Hart described as the internal point of view of the institution and its rules.⁴² In Hart's view, for someone who takes the internal view of a legal institution, "the violation of a rule is not merely a basis for the prediction that a hostile reaction will follow but a *reason* for hostility."⁴³ In other words, for some areas of law, there is just something deeper backing our compliance that goes beyond simple avoidance of punishment. To illustrate this, Professors John Goldberg and Ben Zipursky note that "[w]hen 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.'"⁴⁴ Some bodies of law are understood as constituting more than a just a schedule of liability rules that we can ignore if we are willing to pay the punishment. Where

39. Note that this alignment with morals also contributes to lowering comprehension cost and therefore lowers enforcement costs. See Merrill & Smith, *supra* note 29, at 1850 (arguing that the "enormous information cost" created by property can be mitigated by referencing property rules with commonly held morals). By piggybacking onto an existing set of morals, the rules of an institution are easier and cheaper to understand.

40. See John C.P. Goldberg & Benjamin C. Zipursky, *Tort Law and Responsibility*, in PHILOSOPHICAL FOUNDATIONS OF THE LAW OF TORTS 17, 28 (John Oberdiek ed., 2014) ("Though the wrongs of tort tend to track the wrongs of ordinary morality, conduct's being a moral wrong is neither necessary nor sufficient for it to be a tort.").

41. See John C.P. Goldberg, *Pragmatism and Private Law*, 125 HARV. L. REV. 1640, 1656 (2012) ("Part of what it means to say that law tracks social norms is that private law is itself a set of norms or guidance rules, not merely a system of tolls.").

42. See H.L.A. HART, *THE CONCEPT OF LAW* 193 (1961).

43. *Id.*

44. See Goldberg & Zipursky, *supra* note 23, at 1590.

Hart's internal view has taken hold, the rules of those institutions have been elevated to defining the conduct of a "good citizen."⁴⁵

The existence of an internal view in some bodies of law does not necessarily tell us how to get there for other areas. How do we convince the public to accept and embrace an internal viewpoint? Once established, feeling an obligation to obey the rules of private law can be explained as a stable equilibrium in a cooperative game.⁴⁶ Yet the initial jump-starting of such virtuous cooperation is much harder, and property scholars since Blackstone have been rather coy on the subject.⁴⁷ Professor Carol Rose has argued for the central importance of compelling story-telling as the device that bridges that gap and gets a private law system up and running.⁴⁸ It is hard to overstate the importance of the narrative in enabling an internal point of view.⁴⁹

We can draw upon some common features found in private law as a guide to the types of systems and associated narratives that are likely to produce an internal view. In particular, private law frames its rules as duties owed to others. A "master feature" of private law is that it is defining a "direct connection between the particular plaintiff and the particular defendant."⁵⁰ These connections are generally duties of conduct whose breaches are "wrongs" that harm the specific rights-holder.⁵¹ Importantly, private law characteristically describes the "duties [] when breached [as] wrongs to those others, as opposed to wrongs to the world."⁵² And private law gives aggrieved rights-holders recourse to the judicial system.⁵³ By appealing to the generally-held conviction that we do not want to harm others, this structuring of the narrative as a duty to avoid harming certainly provides an important basis for engendering an internal view.

There is something more to private law, though, than simply labeling breaches of duties as wrongs that harm others. Morality-infused labels slapped onto arbitrary rules are not enough. For exam-

45. Rose, *supra* note 13, at 50 (describing the good citizen as essential for a functioning property system); *see also* Golberg & Zipursky, *supra* note 23, at 1577.

46. *See* Rose, *supra* note 13, at 51 (describing game theoretic research relating to cooperation).

47. *See id.* at 52.

48. *See id.*

49. *See* Kristen Underhill, *When Extrinsic Incentives Displace Intrinsic Motivation*, YALE J. REG. 213, 219–20 (forthcoming Winter 2016) (listing dedication to organization mission as an intrinsic motivation). Antoine de Saint-Exupery is paraphrased for his advice: "If you want to build a ship, don't drum up people to collect wood and don't assign them tasks and work, but rather teach them to long for the endless immensity of the sea."

50. ERNEST J. WEINRIB, *THE IDEA OF PRIVATE LAW* 10 (1995).

51. In the sense that the prohibited act directly harms another, the clearly public law realm of criminal law (especially laws preventing bodily harm to others) is closely related to the private law institutions of tort, property, and contract.

52. John C.P. Goldberg & Benjamin Zipursky, *Torts as Wrongs*, 88 TEX. L. REV. 917, 918 (2010).

53. *See* Goldberg & Zipursky, *supra* note 23, at 1590.

ple, simply labeling patents as “property” is not enough. The narrative must ring true in a deeper way. It is here where weighty concepts like justice provide important guidance for system design. An internal viewpoint can more easily take hold where an institution is tasked with some worthy higher social purpose (like providing a steady stream of much needed technological advances) and where the institution's coercive reach is framed as preventing harms to those that are working toward that higher purpose. Finding fault and punishing infringers in such a system is inherently more acceptable as there is a direct connection between the defendant's action and harm to someone who is trying to undertake something good for society.

And, where this internal view is achieved by a sizable majority of the players, the institution achieves efficiency and, perhaps just as importantly, stability and permanence.⁵⁴ In fact, the obligation to comply can be so strong that it conflicts with our (at least short term) self-interest.⁵⁵ There is something important going on that seems to defy rational behavior by *homo economicus*.⁵⁶ Private law has produced widespread acceptance by creating compelling narratives about achieving worthy and believable societal goals and by structuring that system as one of duties to avoid harming others productively engaged in achieving that worthy goal.

Another benefit of the internal view should be mentioned. In addition to increasing self-enforcement (and therefore reducing litigation), a widespread internal viewpoint also makes any needed litigation cheaper and more predictable. Where the narrative and the rules are easy to follow for the layman, judges can follow them too. And, in particular, the equitable eye of the judiciary can support that narrative by specifically quashing harmful chiseling and the like.⁵⁷ In other words, litigation is not the focus of the institution. The wide-

54. See Dale Nance, *Rules, Standards, and the Internal Point of View*, 75 *FORDHAM L. REV.* 1287, 1292 (2006) (“[O]ne thing is plain: Widespread internalization of law's substantive norms reduces the state's enforcement costs necessary to attain any given level of compliance, and substantially so, if only because it multiplies dramatically the number of agents whose efforts maintain and reinforce the law's substantive norms of conduct.”); see also *id.* at 1351 (“[S]trengthening the internal point of view not only contributes to enforcement efficiency, but also cultivates a healthy sense of self-governance.”).

55. See Cooter, *supra* note 10, at 1281 (quantifying a difference between the decisional calculus of a person with an external versus internal point of view).

56. It is clear that in many private law interactions we can benefit at least in the short term by deviating from the expected behavior of the law, and yet many people will not take that advantage even when the risks of being discovered are low. Someone could benefit by using a short cut to walk home by trespassing through someone's backyard, yet many will just take the long way around even if the chances of being seen or discovered are low. See Rose, *supra* note 13, at 45 (arguing that consistent and regular compliance with the duties of property cannot be explained strictly by short term utility maximization).

57. See Goldberg, *supra* note 41, at 1657 (“Finally, because law aims to avoid ambushing citizens and to prevent opportunistic manipulation of its rules, judges can and do interpret ambiguities in line with ordinary notions of reasonable conduct and fair play.”).

spread coordinated, productive behavior is the main show even when it hums along without too much fuss. Litigation aims to simply reinforce and support as an adjunct to that productive behavior. For private law, both the coordinated, productive behavior out in the world and judicial decisions regarding that behavior mutually reinforce each other.

III. PATENT LAW IS NOT PRIVATE LAW

As suggested above, private law — particularly given its low enforcement costs — offers the possibility of a patent system with low operating costs. Today’s patent system has not reached that stage of maturation, and, without fundamental changes, I doubt it ever will. The problem is that the dominant view of patent theory generally precludes developing an internal viewpoint. As explained more fully below, rather than defining a set of interpersonal duties with a compelling narrative to avoid harming others, the patent system is seen instead as a subsidizing reward funded by a selective tax imposed on those that infringe the patent. This framing of the patent system effectively prevents the patent system from achieving the benefits offered by private law. It produces a system where we cannot readily understand our duties to patent holders, and, even if we could, we do not have any deep reasons to feel an obligation to obey them. Compliance in this system does not extend beyond the shadow of litigation.⁵⁸

A. Subsidy Reward Theory

Today, most see patents as “government interventions in the marketplace designed to achieve social policy ends.”⁵⁹ In particular, patents are seen as making inventing a more profitable business by granting valuable exclusive rights to inventors.⁶⁰ The exclusionary rights set up a toll around the patented technology, and patent holders can charge for admission.⁶¹ In this sense, the patent system is effectively interchangeable with a prize system.⁶² Through the patent reward, we aim to incentivize people to leave other activities and to instead have them invent and receive patents. And, macroeconomically, if we calibrate the reward properly, we will incentivize

58. See Mark A. Lemley, *Ignoring Patents*, 2008 MICH. ST. L. REV. 19.

59. Mark A. Lemley, *Taking the Regulatory Nature of IP Seriously*, 92 TEX. L. REV. 107 (2014). See also *id.* at 110.

60. See DAN L. BURK & MARK A. LEMLEY, *THE PATENT CRISIS AND HOW COURTS CAN SOLVE IT* 8 (2009).

61. See SUZANNE SCOTCHMER, *INNOVATION AND INCENTIVES* 34 (2004).

62. See Brian D. Wright, *The Economics of Invention Incentives: Patents, Prizes, and Research Contracts*, 71 AM. ECON. REV. 691, 696 (1983).

the optimal amount of innovation.⁶³ The more valuable the technology enclosed, the larger the prize awarded.⁶⁴ Moreover, by adjusting the boundaries of these rights, Congress, the USPTO, and the courts can tailor the patent reward to optimize it as they see fit.⁶⁵ Patents are viewed as a selective tax whose revenue goes to subsidize inventors and whose burden falls on infringers.⁶⁶ The patent holder is thus “akin to a private attorney general” who, aided by the courts, goes forth and scours the countryside collecting from infringers the tax that is owed to him.⁶⁷

Elsewhere I have argued that this basic story is deeply problematic and a root cause of today’s patent paralysis.⁶⁸ This Article echoes those criticisms but frames them under the unifying banner of private law. Understood as a subsidy funded by taxing infringers, the patent system has none of the hallmarks of private law and is unlikely to ever benefit from private law’s efficiencies. Potential infringers generally cannot easily know what their duties are with respect to patents.⁶⁹ And, even if they did, the system gives them little reason to feel compelled to obey those duties. Importantly, as understood today the patent system is not a system of interpersonal interactions. The theory itself sees the patent system as an impersonal tax that has little moral valence for patent holders or infringers. The system exists only so far as the shadow cast by litigation. The system and its narrative are not built to permeate more deeply into the fabric of innovative activity. As explained below, this just isn’t the kind of story that leads to broad acceptance.

B. Inability to Understand Our Duties

In assessing a system for its private law characteristics, it is instructive to view the system from the perspective of duties rather than that of rights.⁷⁰ In its current form, the patent system fails to provide a

63. *See id.*

64. *See* Benjamin Roin, *Intellectual Property Versus Prizes: Reframing the Debate*, 81 U. CHI. L. REV. 999, 1020 (2014).

65. *See* Dan L. Burk & Mark A. Lemley, *Policy Levers in Patent Law*, 89 VA. L. REV. 1575, 1581 (2003).

66. *See* Oskar Liivak, *When Nominal Is Reasonable: Damages for the Unpracticed Patent*, 56 B.C. L. REV. 1031, 1042 (2015).

67. Sichelman, *supra* note 16, at 532–33. It should be noted that a similar fight is ongoing throughout private law. For example, proponents of the private law lens for tort criticize “the now familiar view that a tort plaintiff acts as a private attorney general who sues on behalf of and vindicates the public’s interest in safety or loss-spreading.” *See* Goldberg, *supra* note 41, at 1659.

68. *See* Oskar Liivak, *Maturing Patent Theory from Industrial Policy to Intellectual Property*, 86 TUL. L. REV. 1163, 1180–81 (2012); *see also* Liivak, *supra* note 1, at 1343.

69. *See infra* notes 70–89 and accompanying text.

70. *See* Shyamkrishna Balganesh, *The Obligatory Structure of Copyright Law: Unbundling the Wrong of Copying*, 125 HARV. L. REV. 1664 (2012).

set of duties we can possibly understand. It is very hard to determine what our duties are in regards to issued patents.⁷¹

The rights of exclusion granted by a patent are defined by its claims, which are often described as the metes and bounds of the patent deed.⁷² Patent infringement is a strict liability offense.⁷³ As a result, to keep apprised of our duties to patent holders, we would need to consider each and every claim of every patent issued (even if the vast majority can be ignored as unrelated to our activities in relatively short order). Considering the patents that might arguably create relevant duties, both the large number of such patents as well as the difficulty in determining the boundaries of any particular one of those relevant patents can cause serious problems.⁷⁴

It is quite hard to be certain of a patent's exact boundaries. Patent claims are notoriously hard to delineate with precision — a problem that derives in large part from understanding patent claims as rewards. This complicates both claim interpretation and construction.⁷⁵ When interpreting claims, we ask what the claim drafter intended to convey with this language.⁷⁶ If claims are seen as direct grants of the patent reward, then we can surmise that claims drafters intended to claim as much real estate as they could get away with.⁷⁷ This sets up a confusing circular dynamic as claim validity and infringement then turn on claim interpretation. And, as to claim construction, it often takes not only a district court's final judgment but also appellate review at the Federal Circuit before parties have reliable guidance regarding what does and what does not infringe a patent.⁷⁸ This is a very expensive mode of informing the public of its duties.⁷⁹

As I have argued elsewhere, this boundary confusion has emerged because patent law has refused to limit claim scope to the disclosed

71. See BESSEN & MEURER, *supra* note 2, at 10 (“Not only are the words that lawyers use sometimes vague, but the rules for interpreting the words are also sometimes unpredictable. All though innovators can obtain expensive legal opinions about the boundaries of patents, these opinions are unreliable. There is thus no reliable way of determining patent boundaries short of litigation.”).

72. See Robert Patrick Merges & John Fitzgerald Duffy, *PATENT LAW AND POLICY* 26 (4th ed. 2007).

73. See Oskar Liivak, *Rethinking the Concept of Exclusion in Patent Law*, 98 *GEO. L.J.* 1643 (2010) (discussing the law's lack of an independent invention defense in patent law).

74. This point is one where reasonable minds differ. See Ted Sichelman, *Are There Too Many Patents to Search? A Response*, *NEW PRIVATE LAW* (Jul. 3, 2015), <https://blogs.harvard.edu/nplblog/2015/07/02/are-there-too-many-patents-to-search-a-response-ted-sichelman/> [<https://perma.cc/KA8E-BLEF>].

75. Tun-Jen Chiang & Lawrence B. Solum, *The Interpretation-Construction Distinction in Patent Law*, 123 *YALE L. J.* 534 (2013) (providing the helpful distinction between claim interpretation and claim construction).

76. See Liivak, *supra* note 9, at 1853–54.

77. See *id.*

78. See Jonas Anderson & Peter Mennell, *Informal Deference: A Historical, Empirical, and Normative Analysis of Patent Claim Construction*, 108 *NW. U.L. REV.* 1 (2014).

79. See BESSEN & MEURER, *supra* note 2, at 16.

invention or to interpret claim language such as the statement “I claim to have invented the following things.”⁸⁰ Such restrictions on claims would provide improved boundary notice for patents. In an important sense, it would leverage the benefits of modularity in instructing others of their duties to patent holders.⁸¹ This is particularly important for intellectual property, where physically remote acts can impact the author or inventor’s asset.⁸² If all patents were limited to the disclosed invention,⁸³ then the rest of us could better learn the duties we owe others. We would know that we are supposed to avoid the unauthorized “making, using, selling, offering for sale, or importing the patented invention.”⁸⁴ In addition to the claims themselves, we could rely on the details in the rest of the patent to better understand the exact contours of the disclosed invention.

For many in patent law, the problem with this solution is that it runs counter to the dominant patent theory. To optimize patent rewards, the system must be given the flexibility to tailor such rewards. This prohibits any easy modular rule limiting exclusion to the disclosed invention.⁸⁵ Modularity and uniformity of patent claims, though improving our ability to comprehend our duties, are thus incompatible with the mission of patents.

In short, it is very hard to determine what our duties are in regards to issued patents.⁸⁶ And it may be prohibitively expensive to actually try to determine one’s duties to patent holders.⁸⁷ Outside of expensive and lengthy litigation, it is not possible to understand our duties.⁸⁸ Lastly, the specter of treble damages from willful infringement com-

80. Liivak, *supra* note 9, at 1854.

81. *See* Smith, *supra* note 31, at 1060 (“For reasons of information cost, the in rem aspects of property are the most standardized: property needs to be simple when its audience is a large and impersonal group of people who may be socially distant.”).

82. *See* White-Smith Music Publ’g Co. v. Apollo Co., 209 U.S. 1 (1908) (Holmes, J.) (“But in copyright property has reached a more abstract expression. The right to exclude is not directed to an object in possession or owned, but is in vacuo, so to speak. . . . It may be infringed a thousand miles from the owner and without his ever becoming aware of the wrong.”).

83. More precisely, patent claims should be limited to the patentable portions of the invention disclosed.

84. 35 U.S.C. § 271 (2012).

85. *See* Tun-Jen Chiang, *The Levels of Abstraction Problem in Patent Law*, 105 NW. L. REV. 1097 (2011).

86. *See* BESSEN & MEURER, *supra* note 2, at 10.

87. *See* Christina Mulligan & Timothy Lee, *Scaling the Patent System*, 68 N.Y.U. ANN. SURV. AM. L. 289 (2012).

88. Prior to litigation (and often litigation going through to the appellate level), we will not be sure of the boundaries of our duties with respect to that patent and we will not even be sure that the patent is valid. Today, prior to extensive litigation patents are seen as malleable and probabilistic. *See* Jason Rantanen, *The Malleability of Patent Rights*, MICH. ST. L. REV. 895, 899 (2015); *see also* Mark A. Lemley & Carl Shapiro, *Probabilistic Patents*, 19 J. ECON. PERSP. 75, 95 (2005) (concluding that a patent gives the holder “a right to try to exclude”).

pounds the problem and discourages companies from ever learning about their duties with respect to patent holders.⁸⁹

C. No Reason to Feel Obligated to Obey Duties

As argued above, the public is not readily able to understand its duties with respect to patents. But, even if we could efficiently get that information, today's patent system gives us little reason to feel an obligation to obey those duties. In the first place, it has been argued that it may be best if the USPTO remains "rationally ignorant" of the validity of the patents it is issuing.⁹⁰ It may be far too expensive to properly examine each and every patent application and therefore it may be cost effective to leave the real determination of validity to litigation. And indeed, courts invalidate a substantial fraction of litigated patents.⁹¹ Patent scholars routinely incorporate this uncertainty into their discourse by describing patents as probabilistic.⁹² As a result, outside the context of litigation, patent rights are being framed in ways that preclude any sense that they represent a duty that ought to be respected. How can one feel an obligation to respect a patent duty when the patent just as often as not will be invalidated in court? If one must wait to be in litigation before one knows whether a duty exists and what the exact contours of that duty are, then the system is at best bound to remain one where everyone holds an external view of the institution.

Just as importantly, there is no robust theory of harm stemming from the dominant patent theory.⁹³ Any harm is couched in vague terms of lowering incentives.⁹⁴ And that appears to only be directed at future inventors rather than at the plaintiff in the patent lawsuit.⁹⁵ Conceived as a subsidy for inventors, the wrong of infringement hardly seems to be a harm that is caused by the infringer and felt by the patent holder. This hardly feels like the direct harm that one might cause by a car accident or property conversion.

On first blush, there is an aspect of the current theory that appears quite consistent with private property and its developed obligations to

89. 35 U.S.C. § 284 (2012).

90. Mark A. Lemley, *Rational Ignorance at the Patent Office*, 95 NW. U. L. REV. 1495 (2001).

91. See John R. Allison et. al., *Understanding the Realities of Patent Litigation*, 92 TEX. L. REV. 1769, 1801 (2014) (determining an invalidation rate of 43%).

92. See, e.g., Lemley & Shapiro, *supra* note 88, at 95 (concluding that a patent gives the holder "a right to try to exclude").

93. See HERBERT HOVENKAMP & CHRISTINA BOHANNAN, CREATION WITHOUT RESTRAINT 61 (2012) ("[T]he patent system lacks a serious harm requirement . . .").

94. See Sichelman, *supra* note 16, at 571 (arguing that the role of patent damages should be viewed from the lens of incentives rather than some personal harm to the patentee activity alone).

95. See *id.* at 517.

obey. Today's patent system has a significant volume of licensing deals that look (at least initially) like the transactions of private property. But that initial similarity is illusory. Though there are transactions and licensing in the dominant view of patents, they are of a peculiar variety. Licensing is understood (as part of the theory) as money in exchange for a right not to be sued.⁹⁶ Hence, if a license is entered, it is only to avoid a lawsuit. This, again, is fundamentally guided only by an external point of view. Making an ex post licensing payment is not something we deeply feel we ought to do. It is just about avoiding the worse pain of suffering through litigation.

The current theory provides a narrative that lacks a powerful justice component. In particular, though encouragement of innovation is often touted as the ultimate goal of the patent system, the current narrative enables the taxing (rather than subsidizing) of actual innovators.⁹⁷ In particular, 90% of patent lawsuits are aimed at independent inventors who are making, using, or selling the patented invention.⁹⁸ Especially where the defendant is selling the invention and the patent holder is not, there is a non-innovator taxing an actual innovator. This hardly seems like a narrative likely to produce converts to the inherent justness of patents. However, it can be even worse. If the patent claims extend beyond the disclosed invention (as some reward adherents argue they should), then an even more egregious example emerges. In such an example, a true (but possibly not first) inventor and innovator is sued by a non-inventor and non-innovator. The current theory argues that this is sometimes required to provide the optimum incentive.⁹⁹ But, it is hard to see how these two examples lead to a deep, internal point of view. The current theory is just not designed to produce any feelings of obligation to obey. The theory leads to unjust results and it provides no feeling of harm or correlative oughtness.

In important ways this dominant narrative may, from a behavioral psychological point of view, be doomed to its heavy reliance on litigation. Independent inventors as infringers are notable because, for them, interaction with the patent system is a pure loss. In contrast, for ex ante transactions, technology users get the technology. In the ex post context, technology users don't get anything they didn't already

96. As described by the FTC, this is ex post licensing as opposed to ex ante that involves transfer of technology as well as legal permissions.

97. See Oskar Liivak & Eduardo Penalver, *The Right Not To Use in Property and Patent Law*, 98 CORNELL L. REV. 1437, 1444–45 (2012) (explaining and criticizing the fact that patent owners need not practice their invention at all while they can tax those that have invented and innovated even when the invention and innovation are done independently of the patentee). See also Liivak, *supra* note 1.

98. Christopher Anthony Cotropia & Mark A. Lemley, *Copying in Patent Law*, 87 N.C. L. REV. 1421, 1424 (2009).

99. See Tun-Jen Chiang, *The Paradox of IP*, 30 HARV. J.L. & TECH. (SPECIAL SYMPOSIUM) 9, 16 (arguing that limiting patent scope to the disclosed invention, namely the embodiments disclosed by the patentee, would “eviscerate patent incentives”).

have other than the loss from having to pay the patentee. There is a long and deep psychological literature on the framing of gains and losses.¹⁰⁰ A particularly robust result is the increasing risk preference when people face sure losses.¹⁰¹ In other words, when faced with the decision to take either an ex post license (and thereby incur a sure loss) or to lie low and hope to avoid detection (and to fight to the last if detected), there is a tendency to irrationally hope that one can avoid the sure loss.¹⁰² That dynamic is hard wired into the current patent narrative and may be an important driver of excessive enforcement costs. The narrative forces much of patent activity to look like a pure loss, and as a result, many will take huge risks to avoid dealing with the patent system. For institutions like private property, both property sellers and property buyers can mutually benefit from active, earnest engagement with the institution. The patent narrative gives no such reason for the targets of patent infringement. That is no way to develop a strong internal viewpoint on the patent system.

D. Judges and an Internal View of the Patent System

As described above in Section II.B., the conditions for self-enforcement and acceptance of the internal point of view have important benefits for adjudication as well. If the narrative for a legal system is adopted as defining duties that ought to be followed, then judges can use the same narrative to guide both their decisions and (just as importantly) the content and tenor of their opinions. As described in this Part, the current patent narrative is just not structured in a way that can lead to this virtuous internal view. This leads to undue reliance on litigation and coercion as the main tools for coordination.¹⁰³ But this failing of the narrative also impacts the certainty of adjudication. It leads to far more litigation and to litigation that feels arbitrary.

Judge Learned Hand, testifying before the Senate, was asked, based on his long years of judging patent cases, whether patents “on the whole promote the arts and sciences?”¹⁰⁴ Hand gave a very telling answer: “That is just what a judge never gets . . . , how essential [the

100. See generally Daniel Kahneman & Amos Tversky, *Choices, Values, and Frames*, 39 AM. PSYCHOLOGIST 391 (1984); Daniel Kahnemann & Amos Tversky, *Prospect Theory: An Analysis of Decision Under Risk*, 47 ECONOMETRICA 263 (1979).

101. See Jeffrey Rachlinski, *Gains, Losses, and the Psychology of Litigation*, 70 S. CAL. L. REV. 113 (1996) (showing the increasing risk preference when people face choices labeled as losses).

102. See *id.*

103. Outside the context of litigation, too many simply ignore patents. See Lemley, *supra* note 58, at 19.

104. *American Patent System: Hearing on S. 92 Before the Subcomm. on Patents, Trademarks, and Copyrights of the S. Comm. on the Judiciary*, 84th Cong. 116 (1959) (statement of Judge Learned Hand).

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 invention.”¹⁰⁵ I have always thought that this admission was quite worrisome,¹⁰⁶ and the lens of private law adjudication puts these worries into focus.

Within the current view of patents, judges are given the job of simply collecting the subsidy reward from patent defendants. With that role there can't be much judging going on. This is not a knock against the quality of the judiciary. Rather, it is a knock against a patent theory that has failed to provide a narrative that utilizes the unique institutional competence of the judiciary — judging. Where a legal institution develops a widely accepted internal viewpoint, judges, using that viewpoint as a guide, can confront disputes and protect against chiseling and other inequitable practices that run against the spirit of the institution.¹⁰⁷ But how can a judge evaluate hard cases and make determinations about “opportunism” without an internal viewpoint? Without an internal compass, a judge has no way to give nuanced direction to evaluate the behavior of the litigating parties.¹⁰⁸ As lamented by Hand, the result is litigation that often feels arbitrary and removed from any promotion of innovation or any underlying equity.¹⁰⁹

IV. EX ANTE TRANSACTIONS: A PRIVATE LAW ALTERNATIVE

The above discussion argued that, as it is still guided by the dominant patent theory, the patent system cannot claim to be private law and is unlikely to ever earn that distinction. This Part outlines an alternative theory for patents that has the potential to mature patents into a branch of private law.

A. Ex Ante Technology Transfer

A major failing of the dominant patent theory is its failure to develop any sense of obligatory duty among patent constituents. Alternatives do exist. In particular, a number of scholars have been pushing

105. *Id.*

106. See Liivak, *supra* note 1, at 1343.

107. See Smith, *supra* note 31, at 1078 (2013) (equity serves “one of its most general functions: counteracting opportunism.”); see also Rose, *supra* note 13, at 47 (“The law also polices cooperative arrangements and disfavors those in which one person seems to take advantage of another, even though the advantage-taking may fall within the formal terms of a given agreement.”).

108. See Liivak, *supra* note 1, at 1350 (“Conceptualized as a toll that produces incentives, excusing any infringer threatens to upset Congress’s balance of incentives. The result is a patent narrative that inherently portrays enforcement and infringement in an absolute and non-contextual light.”).

109. See *supra* note 104 and accompanying text.

transactional theories focusing on commercialization.¹¹⁰ The core of this narrative is interaction between a technology producer and technology users.¹¹¹ The primary function of the patent system (as a species of private law) is to provide the backdrop rules that enable and undergird those transactions.¹¹² Its secondary role is to provide civil recourse for aggrieved patent holders when the duties entailed by these rules are violated.

As transactions are central to this narrative, clear licensing will be seen as a positive. But care must be taken to distinguish two very distinct types of licensing. The focus of a private law transactional model should be the licensing of technology (and usually a concomitant implied license to use the technology), not just a transfer of legal rights.¹¹³ The key distinction is whether technology is being disseminated (that is, innovation) or whether the transaction delivers only a promise not to sue. This difference defines the critical distinction between *ex ante* and *ex post* licensing.¹¹⁴ The transactions central here are *ex ante* transactions for technology. This distinction is worth highlighting because patent assertion entities often defend themselves on the grounds that they don't always sue; they license as well. But, that licensing is always *ex post* licensing and has little, if any, claim of societal benefit.

As to coordination, this view puts *ex ante* technology transfer at its core. An issued patent signifies that the patent holder has relevant technology to be transferred to users, and the patent puts its owner in

110. See, e.g., Paul J. Heald, *Optimal Remedies for Patent Infringement: A Transactional Model*, 45 HOUS. L. REV. 1165, 1174 (2008) (arguing that a transactional model “permit[s] the exposition of a model that need not rely on *ex ante* assumptions about optimal R&D expenditures”); Paul J. Heald, *A Transaction Costs Theory of Patent Law*, 66 OHIO ST. L.J. 473, 489 (2005) (arguing from a transaction cost perspective that “[t]he patent form enables the potential transferor to share an information asset without fear of misappropriation while assembling the complex team necessary to commercialize a new product”); Liivak, *supra* note 1, at 1343; Liivak, *supra* note 68, at 1180–81; Robert P. Merges, *A Transactional View of Property Rights*, 20 BERKELEY TECH. L. J. 1477, 1499 (2005); Smith, *supra* note 31, at 1076 (“As I will show, the modular theory of property points to a strong role for commercialization concerns to shape intellectual property.”); Steven Yelderman, *Coordination-Based Patent Policy*, B.U. L. REV. (forthcoming); Ted Sichelman, *Commercializing Patents*, 62 STAN. L. REV. 341 (2010).

111. See Liivak, *supra* note 1, at 1365.

112. Rather than being an incentive narrative, this transaction and market narrative joins the rest of private law and even looks more like trademark rather than our current view of patents or copyright. See MERGES ET AL., *INTELLECTUAL PROPERTY IN THE NEW TECHNOLOGICAL AGE* 21 (6th ed. 2012) (“Quite unlike patent and copyright, trademark law does not protect innovation or creativity directly. Rather, it aims to protect the integrity of the marketplace. . . .”).

113. See Liivak, *supra* note 1, at 1343 (focusing on *ex ante* licensing of inventions rather than licensing of patent rights).

114. See U.S. DEP’T OF JUSTICE & FED. TRADE COMM’N, *ANTITRUST ENFORCEMENT AND INTELLECTUAL PROPERTY RIGHTS: PROMOTING INNOVATION AND COMPETITION* (2007) [hereinafter “2007 Report”], available at <http://www.ftc.gov/reports/innovation/P040101PromotingInnovationandCompetitionrpt0704.pdf> [<https://perma.cc/3SV5-WJUG>].

the position to be the exclusive supplier of that technology to users. The duties of users and other inventors are all measured by the harm that their actions could cause to that overall beneficial technological exchange between patent holder and users.¹¹⁵

B. Private Law & Ex Ante Licensing of Inventions

As opposed to the current reward theory, this ex ante licensing focus has a number of features that allow it generally to develop into a stable, private law institution. First, with its focus on transactions that are mutually beneficial to participants, this theory is inherently about interactions and coordination between technology creators and technology users. The core purpose of the patent system then is to provide the background legal rules that provide a platform for technology creators to sell their technology to users. Importantly, these transactions exist and take place out in the commercial world and, so to speak, away from the shadow of litigation. And the rights of patent holders and the correlative duties for the rest of us should focus on enabling those beneficial technological transactions.

Such a theory inherently also incorporates modularity and information cost efficiencies.¹¹⁶ As the focus is providing the patent holders with the exclusive position to provide the invention to users, patent rights can and should remain tied to the disclosed invention. There is no need to tailor claim scope. The system is not about tailoring a reward.¹¹⁷ Nor is there any need for exclusion extending beyond the invention. We simply need to protect the technology that an innovator is selling, and that protection should not extend beyond what was initially conceived. After all, if some technology is beyond what the inventor conceived, then it cannot be a technology that the inventor can then transfer to others. This narrow focus for patent claims should help with the informational load required by the system. By focusing only on the disclosed invention, patent law can avoid some of the troubles currently bedeviling patent claims and their high levels of abstraction.¹¹⁸ There is simply no need for claims to cover anything but the definite and permanent idea conceived by the inventor. Furthermore, as to notice to others, the focus is on active commercialization of the invention, and this activity itself helps provide much of the notice. Rather than reading patent office publications, technology us-

115. See Liivak, *supra* note 1, at 1376.

116. See *id.* at 1370. See also Smith, *supra* note 32, at 1692.

117. Cf. Tun-Jen Chiang, *The IP Paradox*, 30 HARV. J.L. & TECH. (SPECIAL SYMPOSIUM) 9.

118. See Chiang, *supra* note 85, at 1097 (arguing that a reward-based system must engage in difficult line drawing to determine the appropriate level of claim scope).

ers need to keep abreast of the technologies that are being offered for sale by technology producers.

In addition to making it easier to assess what duties are required by the patent system, this new narrative gives stronger reasons for actually feeling obligated to obey. The current dominant theory gives no reason why a patent's claims need be limited to the invention conceived by the inventor. But, as mentioned above, this broad exclusion can lead to strong feelings of injustice. After all, such broad claims will then allow a patent holder to sue and possibly enjoin a later inventor who actually *did invent* the covered technology. That problem is eliminated in a transaction-based theory. Where claims remain tethered to subject matter original to the inventor, such claims and their exclusion are tied to what the inventor created. Such narrowed exclusion avoids the scenario of a non-inventor suing a true inventor.¹¹⁹ In this way the transaction-based theory avoids the injustices that surely dampen any plausible acceptance and compliance.

Furthermore, this theory gives a basis for a theory of identifiable "wrongs." Under this framework, we could begin to see the types of actions that will harm the rights holder.¹²⁰ By delegating to the patent holder the responsibility to be the exclusive supplier of the patented invention, the theory itself outlines the expected role of the patent holder. The costs of inventing, commercializing, and marketing the invention are all aspects of the patent holder's business. When seen by others as a business that inherently provides societal benefits (i.e. creating new, nonobvious technology and providing it to those who can utilize it), those others will inherently feel that they owe duties to the patent holder. By engaging in real tech transfer, the patent holder is innovating and serving a real socially beneficial purpose. Others, including competitors, should be obligated to avoid actions that unacceptably harm those activities.

For example, where someone deliberately copies from the patent holder and then uses, or worse yet, starts to sell the invention, it is relatively easy for one to see the direct harm caused to the patent holder's position as the invention's exclusive supplier. Such actions cause harm, and the patent community, and accordingly judges, would aim to remedy damages by looking backwards and with injunctive relief to avoid further harm.

However, just as this narrative provides relatively easy support for some aspects of current patent doctrine, other areas do not fare so

119. As a side note, this basic outline of this transaction theory does not yet deal with the harder issue of a first, true inventor (who obtains a patent) suing a later yet still independent true inventor. This is a sticking point that requires analysis beyond the scope of this Article.

120. See Liivak, *supra* note 1, at 1376–86.

well. Most prominently, there is little room for patent suppression.¹²¹ But that is a feature, not a bug. In fact, the theory could be seen as supporting an obligation on patentees to commercialize the patented invention. But specific performance, forcing commercialization by a threat to commercialize, is unwise. Instead, commercialization should become a critical aspect of remedies. Absent some attempt to commercialize, the fact of harm to the patent holder has just not been established. Such a non-practiced patent may well be infringed, but absent some attempt or investments towards commercialization, nominal damages are a reasonable measure of the harm.¹²²

V. CONCLUSION

The future of the patent system lies with private law. If for no other reason, patent theory's current litigation-heavy mode of regulation needs to be jettisoned because it is just too costly. Furthermore, the current theory is generally incompatible with the development of an internal view of the system. There is no basis for us to feel we ought to respect patent rights. That failing leads directly to high operational costs.

But it need not be that way. Once envisaged as a system for undergirding socially beneficial transactions between inventors and users, the duties in this system can focus on avoiding harms to those productively engaging this system. Such a narrative could allow an internal viewpoint to form. If such a viewpoint forms, such a system should be cheaper to operate than our current litigation-centric reward/subsidy model. Such a transaction-based view is essentially about coordinating behavior out in the world away from the courthouse. That vision has the features that enable it to be accepted and woven into the stable, enduring fabric of innovative activity.

121. See Liivak & Penalver, *supra* note 97 (criticizing the reasoning of the Supreme Court's 1905 Continental Paper Bag case that is seen as justifying patent suppression using property rhetoric).

122. See Liivak, *supra* note 66, at 1031.