

# FROM NON-PRACTICING ENTITIES (NPEs) TO NON-PRACTICED PATENTS (NPPs):

## *A Proposal for a Patent Working Requirement*

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### ABSTRACT

*Injecting fresh oxygen into the strangled patent troll problem, professors Mark Lemley and Douglas Melamed advised us recently to change our focus from targeting specific entities that unduly burden technology users to addressing the underlying features of the patent system that account for “trollish” profits. Taking Lemley and Melamed’s advice seriously, this proposal focuses on one specific feature of the patent system that it believes to constitute the heart and bones of the troll problem – the legitimacy of non-practiced patents (NPPs). Particularly, it suggests changing the paradigmatic understanding of the troll problem, into one that understands that the patents that are being exploited to impose litigation threats and extract settlements are the real problem, not those who assert them. Because such patents are not developed into actual products or services, their holders are immune to a counterclaim of patent infringement. For the same reason, the likelihood of entering into low-cost, cross-licensing agreements over such patents is almost impossible. NPPs – patents that are not developed promptly into sufficiently commercialized goods – are the essence of the patent troll problem.*

*Pursuant to this refined conception of the troll problem, and borrowing from trademark law, this proposal contends that a patent working requirement, which requires all patent owners to promptly submit a proof of sufficient patent commercialization to the*

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*United States Patent and Trademark Office, excluding those having an acceptable excuse, may solve the patent troll problem. Under this model, the two fundamental features of NPPs that facilitate patent trolling could be no longer sustained. First, all patents will become suspected to a counterclaim of patent infringement. Second, low-cost, cross-licensing agreements will become essential to all patent exploitations. By substantially reducing the amount of NPPs, the proposed model is expected to thwart the assertion of useless patents against operating companies, consequently encouraging innovation and progress. At the same time, because it does not search for “bad actors,” the proposed model will allow different types of entities to operate in the market and support small inventors; so long they promote commercially beneficial inventions.*

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# FROM NON-PRACTICING ENTITIES (NPEs) TO NON-PRACTICED PATENTS (NPPs):

## *Introducing a Patent Working Requirement to Address the Patent Troll Problem*

*Maayan Perel*

### INTRODUCTION

Perhaps the hottest topic in patent law and reform today is that of “Non-Practicing-Entities” (NPEs), “Patent-Assertion-Entities” (PAEs) or simply “patent trolls.”<sup>1</sup> These terms are commonly used interchangeably to refer to *patent holders* that exploit their exclusive rights to extract settlements rather than to manufacture technology.<sup>2</sup> It has been argued that these patent holders cause heavy economic damage<sup>3</sup> and hinder innovation.<sup>4</sup> Therefore, many inside and outside the patent community call to fight them,<sup>5</sup> including even the President.<sup>6</sup>

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<sup>1</sup> Mark A. Lemley & A. Douglas Melamed, *MISSING THE FOREST FOR THE TROLLS*, 113 Col. L. Rev. 2117, 2118 (2013) (noting that, the Federal Trade Commission has issued reports recommending action against trolls, that Congress passed patent reform legislation that was designed in part to deal with the problem of trolls, that companies, engineers, lawyers, and scholars have spend enormous amounts of time complaining about trolls and that there are even publicly traded companies devoted to figuring out what patents particular trolls own).

<sup>2</sup> *Id.* at 2118.

<sup>3</sup> Empirical evidence proves that the annual wealth-lost from NPE lawsuits is around \$80 billion for publicly traded U.S. firms and that much of this cost is a social loss and not a mere transfer to NPEs. Further evidence proves that trolls had a cost total of \$500 billion over the past twenty years

See James Bessen et al., *The Private and Social Costs of Patent Trolls* (Bos. Univ. Sch. of Law Working Paper No. 11-45, 2011), available at <http://ssrn.com/abstract=1930272> (on file with the Columbia Law Review) [hereinafter, Bessen at el., Private and Social Costs].

<sup>4</sup> See, e.g., Catherine Tucker, *Patent Trolls and Technology Diffusion* (Mar. 26, 2013) (unpublished manuscript), available at <http://ssrn.com/abstract=1976593> (on file with the Columbia Law Review) (concluding that the decrease of innovation in healthcare IT could be attributed to fear of patent litigation).

<sup>5</sup> To take just one example, last July, Google, Dropbox and few other high-tech firms have joined together in their fight against patent trolls to launch the License on Transfer Network (“LOT Network”), advancing a more open source approach with a royalty-free cross-license agreement. (<http://www.lotnet.com>).

<sup>6</sup> Press Release, The White House, Office of the Press Secretary, White House Task Force on High-Tech Patent Issues (June 4, 2013), available at <http://www.whitehouse.gov/the-press-office/2013/06/04/fact-sheet-white-house-task-force-high-tech-patent-issues> (quoting a statement made by the President in February 2013 and describing the President’s statement as referring to “patent trolls”).

When scholars write about patent trolling, they usually associate the problem with some sort of “bad actors” (whether they use the designation NPEs, PAEs or patent trolls) who diverge investment from research and development to unwarranted licensing fees and litigation.<sup>7</sup> Nevertheless, not all scholars accept this common conception of the patent troll problem. Injecting fresh oxygen into the strangled patent troll problem, Mark Lemley and Douglas Melamed advised policy makers recently to “pay more attention to the underlying features of the patent system that unduly burden technology users and make patent trolls profitable, and focus less on identifying and weeding out particular companies that take advantage of those underlying features.”<sup>8</sup>

Taking Lemley and Melamed’s advice seriously, this proposal focuses on one specific feature of the patent system that constitutes the core of the patent troll problem –

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<sup>7</sup> See, e.g., James Bessen and Michael J. Meurer, *The Direct Costs from NPE Disputes*, 99 CORNELL L. REV. (forthcoming 2014) (stating that “the American patent system has experienced an explosion of patent litigation over the past decade *initiated by parties called Non-Practicing Entities*”) [hereinafter, Bessen and Muerer, *Direct Costs*]; Colleen V. Chien, *Startups and Patent Trolls* (Legal Studies Research Papers Series Accepted Paper No. 09-12) (Sep. 2012) (“The America Invents Act requires the study of the positive and negative effects of *patent assertion entities* (“PAEs” or “trolls”) on the economy”) [hereinafter, Chien, *Startups*]; Ronald J. Mann, *Do Patents Facilitate Financing in the Software Industry?*, 83 Tex. L. Rev. 961 (2005) (considering, among other things, “the possibility of special limits on the rights of “trolls,” *small nonoperating firms formed solely to litigate patents*”) [hereinafter, Mann, *Financing in the Software Industry*]; Sara Jeruss, Robin Feldman and Joshua H. Walker, *The America Invents Act 500: Effects of Patent Monetization Entities on US Litigation*, 11 Duke L. & Tech. Rev. 357 (2012) (“Any discussion of flaws in the United States patent system inevitably turns to the system’s modern villain: *non-practicing entities, known more colorfully as patent trolls*”); John M. Golden, *Patent Trolls’ and Patent Remedies*, 85 Tex. L. Rev. 2111 (2007) (“Recently, there has been much concern about the activities of *patent trolls, patent holders* who, at least roughly speaking, seek profit through licensing, rather than providing products or services themselves”); Gwendolyn G. Ball and Jay P. Kesan, *Transaction Costs and Trolls: Strategic Behavior by Individual Inventors, Small Firms and Entrepreneurs in Patent Litigation*, (U Illinois Law & Economics Research Paper No. LE09-005) (February 1, 2009) (“However, there is also a fear that some *small inventors and licensing firms may be operating as trolls*, using the courts as a mechanism to extract economic rents from large companies”); Catherine Tucker, *Patent Trolls and Technology Diffusion: The Case of Medical Imaging* (April 14, 2014) (available at SSRN: <http://ssrn.com/abstract=1976593> or <http://dx.doi.org/10.2139/ssrn.1976593>) (“*Patent-assertion entities*, sometimes known as ‘patent trolls,’ do not manufacture goods themselves but profit from licensing agreements that they often enforce via the threat of litigation.”); Brian J. Love, *An Empirical Study of Patent Litigation Timing: Could a Patent Term Reduction Decimate Trolls Without Harming Innovators?*, 161 U. Penn. L. Rev. 1309 (2013) (finding that “NPEs are the dominant source of patent enforcement in the final few years of the patent term”); Mark A. Lemley, *Should Patent Infringement Require Proof of Copying?*, 105 Mich. L. Rev. 1525 (2007) (The most significant problem facing the patent system today is the rise of so-called “patent trolls” - entities who do not manufacture products or transfer technology, but wait and assert patents against successful companies who independently developed and manufactured the technology without knowledge of the patent.).

<sup>8</sup> Lemley and Melamed, *supra* note 1, at 2121; See, also, Mark A. Lemley, *Are Universities Patent Trolls?* 18 Fordham Intell. Prop. Media & Ent. L.J. 611 (2008) [hereinafter, Lemley, *Universities*].

the legitimacy of non-practiced patents (“NPPs”). Particularly, this proposal seeks to change the paradigmatic understanding of the patent troll problem. Rather than thinking of the problem in terms of the *patent holders* who engage in the problematic behavior described, this proposal recommends thinking of it in terms of the *patents* that underline the problematic behavior. The *patents* that are being exploited to impose litigation threats and extract settlements are the real problem, not those who assert them. Because such patents are not developed into actual products or services, their holders are immune to a counterclaim of patent infringement.<sup>9</sup> For the same reason, the likelihood of entering into low-cost, cross-licensing agreements over such patents is almost impossible.<sup>10</sup> NPPs – patents that are not developed promptly into sufficiently commercialized goods<sup>11</sup> - constitute the key ingredient in patent trolling.

Advancing such a paradigmatic shift in the way scholars perceive the patent troll problem is important for two main reasons. First, because changing the way scholars think about the problem may help them find better solutions. Second, because the alternative conception of the problem, as one driven by specific “bad actors” is erroneous. It is probably impossible to reach consensus about the characteristics of those “bad actors” reform proposals should target, whether they name them NPEs<sup>12</sup> or PAEs.<sup>13</sup>

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<sup>9</sup> Michael Risch, *Patent Troll Myth*, 42 Seton Hall L. Rev. 457 (2012) (citing Daniel McCurdy, Patent Trolls Erode the Foundation of the U.S. Patent System, SCI. PROGRESS, Jan. 12, 2009, at 81, available at <http://www.scienceprogress.org/wpcontent/uploads/2009/01/issue2/mccurdy.pdf> (“NPEs do not derive any significant portion of their revenue from designing, developing, manufacturing, or selling products, they are essentially immune to counter-assertion claims by the companies from which they seek royalties.”)).

<sup>10</sup> Colleen Chien, *From Arms Race to Marketplace: The Complex Patent Ecosystem and Its Implications for the Patent System*, 62 HASTINGS L.J. 297 (2010) [hereinafter, Chien, *From Arms Race*].

<sup>11</sup> Under this proposal, NPPs are patents that fail to meet the proposed statutory working requirement. Under this requirement, patent holders must submit to the United States Patent and Trademark Office (USPTO) specimens proving that their patent has been sufficiently commercialized within the designated, technology-specific period of time, unless they have an acceptable excuse. Generally, this means actual sales of a product or service that builds on the patented technology. See, *infra*, notes 33, 333 and accompanying text.

<sup>12</sup> John R. Allison et al., *Extreme Value or Trolls on Top? The Characteristics of the Most-Litigated Patents*, 158 U. Pa. L. Rev. 1, 20–25 (2009) (identifying twelve different sorts of NPEs: Entity Class 1 (acquired patents), Entity Class 2 (university heritage or tie), Entity Class 3 (failed startup), Entity Class 4 (corporate heritage), Entity Class 5 (individual inventor started company), Entity Class 6 (university/government/NGO), Entity Class 7 (startup, pre-product), Entity Class 8 (product company), Entity Class 9 (individual), Entity Class 10 (undetermined), Entity Class 11 (industry consortium), and Entity Class 12 (IP subsidiary of product company)).

<sup>13</sup> See Chien, *supra* note 10, at 300 (defining PAEs as those companies primarily in the business of enforcing patents for licensing fees).

Indeed, after identifying different possible categories of NPEs and PAEs, Lemley and Melamed conclude that, “reasonable people can disagree over which of these categories should be regarded as trolls.”<sup>14</sup> Furthermore, distinguishing between NPEs/PAEs and practicing entities is in itself problematic because practicing entities may sometime exploit their patents in a way that causes problems that are similar to those imposed by NPEs/PAEs.<sup>15</sup>

In this regard, perhaps “patent troll” is the least inaccurate of the three as it formulates a broad “you know it when you see it” indicator.<sup>16</sup> Nonetheless, it suffers from the same ambiguity as its alternatives:<sup>17</sup> not every NPE/PAE is a troll and not every troll is an NPE/PAE.<sup>18</sup> The most straightforward example of the former is universities<sup>19</sup> that use patents to support development and transfer of technology.<sup>20</sup> A good example of the later is General Electric (“GE”), which recently begun focusing on licensing peripheral technologies *in areas in which it is not currently practicing*, like consumer electronics.<sup>21</sup> Hence, derogatorily referring to all patent holders that exploit NPPs as “patent trolls” can be somewhat misleading.<sup>22</sup>

Accordingly, to address the key ingredient of the patent troll problem, this proposal suggests turning NPPs into an unworthy asset. Borrowing from trademark

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<sup>14</sup> Lemley & Melamed, *Supra* note 1, at 2125-6, n. 41.

<sup>15</sup> *Id.* at 2117, 2121 (“while trolls exploit problems with the patent system, they are not the only ones that do so.”). Lemley & Melamed provide great examples: in the 1990’s, Microsoft, after losing a substantial verdict to a competitor, acquired many software patents, although it had no intention to sue anyone for patent infringement. Nevertheless, in recent years, Microsoft has increasingly turned to patent litigation to extract royalties from its competitors, particularly in the smartphone business. Similarly, while Yahoo originally viewed its patent portfolio as a defensive, when its fortunes in social media declined, it began suing younger companies like Facebook. Furthermore, Texas Instruments evolved in the 1990s from being a very successful hardware company to a company with a small manufacturing business and a very lucrative patent portfolio. *Id.* at 2135-6. For a more distailed discussion of troll-like practices committed by practicing entities, see *infra* Section IIB.

<sup>16</sup> *Jacobellis v. Ohio*, 378 U.S. 184 (1964).

<sup>17</sup> Lemley & Melamed, *supra* note 1, at 2125 (“the common, short-reference to ‘troll’ and ‘practicing entities’ obscures the ambiguities in those terms and the fact that both terms encompass a variety of entities that differ in the scope of their activities and in the ways they use patents.”).

<sup>18</sup> See Kelce Wilson, *The Four Phases of Patent Usage*, 40 *Cap. U. L. Rev.* 679, 680 (2012).

<sup>19</sup> Lemley, *Universities*, *Supra* note 8, at 612.

<sup>20</sup> Chen, *supra* note 10, at 327.

<sup>21</sup> *Id.* at 322-3 (citing Wayne Rainke, *Patents should Be the Starting point for a Solid Licensing Strategy*, MASS HIGH TECH (March 6, 2006)).

<sup>22</sup> See Wilson, *supra* note 18, at 680 (“Not every NPE is a patent troll, and not every patent troll is an NPE.”).

law,<sup>23</sup> under which trademark owners that fail to submit a timely Declaration of Use lose their rights,<sup>24</sup> it introduces a patent working requirement that requires all patent owners to submit a timely proof of sufficient patent commercialization to retain patent ownership, excluding patent owners having an acceptable excuse.<sup>25</sup> NPPs that remain insufficiently commercialized after the passage of the period of time designated for complying with the proposed requirement would fall into the public domain, losing their protection. Surprisingly, the possibility of imposing such a direct commercialization requirement on patent holders is largely missing from the literature concerning patent reform.<sup>26</sup>

Thus, the remainder of this article proceeds as follows: Section II initially explains why defining the problem in terms of NPEs/PAEs/patent trolls (“NPEs”) is erroneous. While it initially admits the evils often associated with the conduct of NPEs, it accepts that some positive roles may be attributed to them, even without a patent working requirement. It also acknowledges that practicing entities may sometimes engage in a negative conduct that pretty much resembles the conduct regularly reserved to NPEs. Therefore, it concludes that not all NPEs are bad much like not all practicing entities are good, or simply, that “bad is as bad does.”

Section III proves that changing our focus from targeting the *entities*, who engage in patent trolling, to addressing the *patents* that facilitate this phenomena may help us to cut the patent troll problem to the chase, without interfering with progress and innovation. Specifically, a patent working requirement can undermine the negative aspects associated with both NPEs and practicing entities, without damaging the positive aspects associated with them.

Section IV provides an overview of the existing literature. In particular, it discusses other proposals that have attempted to encourage patent holders to practice their inventions. It shows that these proposals are merely implicit on this point because they leave too much discretion - either to the various courts to decide the consequences of non-practice, or to patent holders to elect whether to commercialize their patents or not.

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<sup>23</sup> See *infra* Section V.A.

<sup>24</sup> See *infra* Section V.A.

<sup>25</sup> See *infra* Section V.B.2.

<sup>26</sup> For a detailed discussion of the existing literature, see *infra* Section IV.



Section V presents the general technicalities of the proposed patent working requirement and examines the most important considerations necessary for its effective implementation. In particular, it recommends incorporating an explicit working requirement into our patent law based on the model used in trademark law. Patentees will be required to submit a statement of use to the United States Patent and Trademark Office (“USPTO”) or file for an acceptable excuse within a specified period of time after the grant of patent protection. Otherwise they will risk forfeiting their rights. After explaining the technicalities of the proposed patent working requirement, this section turns to address the challenges that relate to its adoption and implementation. These challenges include deciding when patents become “sufficiently commercialized” to comply with the proposed requirement and addressing instances of sham commercialization, determining appropriate, technology-specific time frames for complying with the proposed requirement, deciding on specific acceptable excuses for not complying with the proposed requirement, addressing issues of enforceability and overcoming the possible criticism against the proposal.

## **II. BAD IS AS BAD DOES**

The United States Court of Appeals for the Federal Circuit (“the Federal Circuit”) states repeatedly, that a patent “grants only the right to exclude others and confers no right on its holder to make, use, or sell” an invention.<sup>27</sup> Patent law does not require proof that the patentee has actually made any product.<sup>28</sup> Therefore, it is commonly accepted that the *quid pro quo* for patent rights is the disclosure required by statute to be provided

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<sup>27</sup> Bio-Tech. Gen. Corp. v. Genentech, Inc., 80 F.3d 1553, 1559 (Fed. Cir. 1996); Phillips v. AWH Corp., 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (quoting Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc. 381 F.3d 1111, 1115 (Fed. Cir. 2004)); see also Intergraph Corp. v. Intel Corp., 195 F.3d 1346, 1355 (Fed. Cir. 1999) (noting that “the patent grant is a legal right to exclude, not a commercial product in a competitive market”); Connell v. Sears, Roebuck & Co., 722 F.2d 1542, 1548 (Fed. Cir. 1983) (recognizing that, “a patent is a form of property right, and the right to exclude recognized in a patent is but the essence of the concept of property”); Carl Schenck, A.G. v. Nortron Corp., 713 F.2d 782, 786 n.3 (Fed. Cir. 1983) (“The patent right is but the right to exclude others, the very definition of ‘property.’”); For a different view see Adam Mossoff, *EXCLUSION AND EXCLUSIVE USE IN PATENT LAW*, 22 Harv. J. of L. & Tech. 321 (2009) (arguing that the exclusion concept of patents is fundamentally incorrect).

<sup>28</sup> See, e.g., Christopher A. Cotropia, *The Folly of Early Filing in Patent Law*, 61 Hastings L.J. 65, 72–75 (2009) (describing ease of meeting “reduction to practice” requirement).

in the patent document.<sup>29</sup> Underlying this notion of documentary disclosure is the “informational theory” of patent law, according to which the patent system is justified on the ability of patents to encourage the production and disclosure of information.<sup>30</sup> Hence, inventors who adequately disclose their new and non-obvious inventions are entitled to a twenty-year government-sanctioned monopoly,<sup>31</sup> even if they never practice their invention or otherwise use it in a beneficial way.

Patent law essentially treats practiced patents and NPPs equally. Whether patent holders practice the technology covered by their patents, or merely assert it against manufactures, makes no difference in terms of patent ownership, for all patents allow their holders to enjoy the same, limited exclusive rights. This, I argue, is the core feature of the current patent system that facilitates the troll problem. An appropriate solution for the troll problem should formulate a paradigmatic distinction between practiced patents and NPPs. If patent ownership was conditioned upon patent practice, the designations NPEs, PAEs and patent trolls would become unnecessary, as NPPs would fall into the public domain.<sup>32</sup> No patent holder – either an NPE or even a practicing entity – could exploit them against manufacturers for the detriment of progress and innovation.

Some critics argue that if we stop searching for “bad actors,” then entities may continue asserting their patents in order to extract settlements. This is only partly correct. While patent holders could still theoretically assert their patents and extract settlements under the proposed model, this practice will be largely stymied. Pursuant to the proposed patent working requirement, all existing patents will be practiced ones – these are either patents that had already been sufficiently commercialized<sup>33</sup> and their owners had already submitted the proposed patent working requirement, or patents that are subject to

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<sup>29</sup> *J.E.M. Ag Supply, Inc. v. Pioneer Hi-Bred International, Inc.*, 534 U.S. 124, 142 (2001).

<sup>30</sup> John F. Duffy, *Reviving the Paper Patent Doctrine*, 98 *Cornell L. Rev.* 1359, 1371 (2013).

<sup>31</sup> 35 U.S.C. § 154

<sup>32</sup> For a detailed discussion of the technicalities of the model, see *infra* Section V.

<sup>33</sup> Patent commercialization must be sufficient to comply with the proposed patent working requirement. Generally, this means that the patent must be timely developed into a good sold in the marketplace. Since commercialization does not necessarily involve actual sales, accepting any sort of commercialization as sufficient to prove patent practice may result with patent holders engaging in sham commercialization while gaming the system. Nevertheless, there may be instances where commercialization that does not involve actual sales will actually be sufficient to prove compliance with the proposed requirement. This may happen, for instance, where the patent holder uses the patented technology in his own business to develop another product. For a detailed discussion of the requirement for “sufficient commercialization,” see *infra* Section V.A.

commercialization efforts and their owners had not yet reached the deadline for submitting the proposed patent working requirement. Firms will be able to assert patent rights against infringers, yet only under the condition that the patent they assert is a *practiced* patent.<sup>34</sup> Of course, when patent assertions protect the rights assigned to patents that actually or potentially cover real products they enunciate the classical mechanism of exclusion originally embedded in the grant of patent protection.<sup>35</sup> Thus, under the proposed regime, patent assertions will be no more than a tolerable, unavoidable practice that protects high quality inventions<sup>36</sup> and in the long term, promotes the progress of science and useful arts.<sup>37</sup>

This proposal relies on three considerations. First, it admits that many of the aspects often associated with NPEs are indeed negative. Second, it acknowledges that the negative practices of NPEs can be also pursued by practicing entities, and that NPPs are problematic even when held by practicing entities. Third, it acknowledges that some positive roles may be attributed to NPEs<sup>38</sup> even without a patent working requirement. The following discussion supports this three-part analysis. The next section will show that a patent working requirement that cuts to the core of NPPs can undermine the negative aspects associated with both NPEs and practicing entities, without damaging the positive aspects associated with them.

#### A. The Negative Aspects Associated with NPEs

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<sup>34</sup> Generally, patent holders will have a right to pursue infringement during the pre-deadline period, because during this period their patents are presumed to be under commercialization efforts. For enforceability issues during the period that precedes the deadline for submitting the proposed working requirement, see *infra* V.B.3.

<sup>35</sup> Originally, patent litigation was brought by a company that invented something and sold it in the marketplace against competitors that copy the new technology. See, e.g., Mark A. Lemley, *The Economics of Improvement in Intellectual Property Law*, 75 *Tex. L. Rev.* 989, 991–95 (1997).

<sup>36</sup> See *infra* Section III.A.1.

<sup>37</sup> U.S. CONST. art. I, § 8, cl. 8.

<sup>38</sup> See generally, Spencer Hsieh, *Patent Trolls and the New Tort Reform: A Practitioner's Perspective*, 4 *J. L. & Policy Info. Soc.* 75 (2008); Sannu K. Shrestha, *Trolls or Market-makers? An empirical analysis of nonpracticing entities*, 110 *Colum. L. Rev.* 114 (2011); James F. McDonough, III, *The Myth of the Patent Troll: An Alternative View of the Function of Patent Dealers in an Idea Economy*, 56 *Emory L. J.* 189 (2006); Marc Morgan, *Stop Looking Under the Bridge for Imaginary Creatures: A Comment Examining Who Really Deserves The Title Patent Troll*, 17 *Fed. Cir. Bar J.* 165 (2008); Nathan Myhrvold, *The Big Idea*, *Harvard Business Review*, March 2010, pp. 40-50.

It is often argued that NPEs acquire weak and obscure patents and use them to pursue frivolous litigation.<sup>39</sup> Critics argue that because the patents acquired by NPEs are of low quality,<sup>40</sup> NPEs are a nuisance that extract rents from those who would rather avoid the expenses of litigation.<sup>41</sup> Meritless infringement lawsuits filed by NPEs burden the legal system and increase costs causing manufacturers to invest time and resources defending themselves in court.<sup>42</sup> Having less productive resources,<sup>43</sup> manufacturers charge their consumers more for purchasing their goods.<sup>44</sup>

Another common argument against NPEs is that they raise the prices of goods by demanding high licensing fees from product manufacturers.<sup>45</sup> Because NPEs do not produce a product of their own or sell a service, they do not care about low-cost, cross-licensing agreements.<sup>46</sup> Therefore, it is claimed that the high licensing fees and post-trial settlements charged by NPEs impose extraordinary costs on manufacturers, who pass them on to consumers in the form of higher prices.<sup>47</sup>

NPEs opponents also contend that NPEs hinder innovation because their patents block otherwise industrious companies from delivering desired products and services to the market.<sup>48</sup> It is argued that NPEs usually arrive on the scene after the targeted

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<sup>39</sup> Shrestha, *supra* note 38, at 119.

<sup>40</sup> Gerard N. Magliocca, *Blackberries and Barnyards: Patent Trolls and the Perils of Innovation*, 82 NOTRE DAME L. REV. 1809, 1827 (2007).

<sup>41</sup> *Id.* at 1829-30.

<sup>42</sup> Ashley Chuang, Note, *Fixing the Failures of Software Patent Protection: Deterring Patent Trolling by Applying Industry-Specific Patentability Standards*, 16 S. Cal. Interdisc. L. J. 215, 234.

<sup>43</sup> Catherine Tucker, Patent Trolls and Technology Diffusion, December 24, 2011, available at: [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1976593](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1976593). Catherine Tucker examined the effect of a lawsuit by an NPE (Acacia) against several firms that make medical imaging software by comparing the impact of the lawsuit on sales of both medical imaging and text-based medical software produced by the targeted firms. She also compared the sales by the targeted firms to the sales of medical imaging software made by other firms in the industry who were not targeted with a lawsuit. Tucker found out that sales of medical imaging software declined by one-third for targeted firms. She attributed this decline to a "lack of incremental product innovation during the period of litigation," and she infers that incremental innovation was deterred by concerns it would create additional risks in the on-going litigation.

<sup>44</sup> *Id.* at 235. See, also, Shrestha, *supra* note 38, at 120.

<sup>45</sup> *Id.* at 121.

<sup>46</sup> *Id.* at 122-3.

<sup>47</sup> *Id.*

<sup>48</sup> Risch, *supra* note 9, at 463 (citing David G. Barker, *Troll or No Troll? Policing Patent Usage with an Open Post-Grant Review*, 2005 DUKE L. & TECH. REV. 9, ¶ 7 (2005), available at <http://www.law.duke.edu/journals/dltr/articles/pdf/2005dltr0009.pdf>); cf. James Bessen & Robert M. Hunt, *An Empirical Look at Software Patents*, 16 J. ECON. & MGMT. STRATEGY 157, 184 (2007) (noting that software patents may not be consistent with incentive theory of

innovator has already sunk into commercializing some new product,<sup>49</sup> to improve their ability to extort settlements. Thus, although most alleged infringers do not copy from patents but rather independently develop their own technology that happens to infringe,<sup>50</sup> they stand helpless when faced with the prospect of losing their investments because of injunction.<sup>51</sup> With no real option for cross licensing, many manufacturers agree to pay high licensing fees and pass on these costs to the consumers in the form of higher prices.<sup>52</sup>

Another important critique against NPEs is that they contribute to the problem of “patent thickets”<sup>53</sup> – these are overlapping intellectual property rights that cover interactive technologies.<sup>54</sup> Patent thickets raise the transaction costs associated with accumulating the rights for a given product and lead to “royalty stacking.”<sup>55</sup> “From the perspective of the firm making the product in question, all of the different claims for royalties must be added or ‘stacked’ together to determine the total royalty burden borne by the product if the firm is to sell that product free of patent litigation.”<sup>56</sup>

Patent thickets are most prevalent in the IT industry, where there are tens of thousands of potentially relevant patents that could be asserted at any time against a practicing entity.<sup>57</sup> For example, it has been estimated that a smartphone may potentially

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patents); Ted Sichelman, *Commercializing Patents*, 62 STAN. L. REV. 341, 343 (2010) (positing that every patent has the potential to block commercialization by others).

<sup>49</sup> Federal Trade Commission, *The Evolving IP Marketplace: Aligning patent notice and remedies with competition* 75-80 (2011).

<sup>50</sup> James Bessen & Michael J. Meurer, *Patent Failure: How judges, bureaucrats and lawyers put innovators at risk* 46-72 (2008) (claiming that in software and business methods inventions, most innovative firms are targeted in patent infringement suits through no fault of their own) [hereinafter, Bessen and Meurer, *Patent Failure*]; Christopher A. Cotropia & Mark A. Lemley, *Copying in Patent Law*, 87 N.C. L. Rev. 1421, 1451 (2009) (noting copying is established in only approximately 2% of patent infringement cases in study, and even less often in IT industry) [hereinafter, Cotropia et al., *Coping in Patent Law*].

<sup>51</sup> Shrestha, *supra* note 38, at 122.

<sup>52</sup> Risch, *supra* note 9, 463.

<sup>53</sup> Shrestha, *supra* note 38, at 124.

<sup>54</sup> Carl Shapiro, *Navigating the Patent Thicket: Cross Licenses, Patent Pools, and Standard-Setting* (March 2001), available at SSRN: <http://ssrn.com/abstract=273550> or <http://dx.doi.org/10.2139/ssrn.273550> [hereinafter, Shapiro, the Patent Thicket].

<sup>55</sup> Shrestha, *supra* note 38, at 124. Lemley & Melamed, *supra* note 1, at 2148.

<sup>56</sup> See Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEX. L. REV. 1991, 1993 (2007).

<sup>57</sup> Lemley and Melamed, *supra* note 1, at 2147.

cover technologies claimed by 250,000 different patents.<sup>58</sup> When the owners of complementary technologies license their patents at their profit-maximizing monopoly price they increase the price of the end product, consequently reducing its demand and causing a welfare loss.<sup>59</sup> Although the problem of patent thickets is not limited to the realm of NPEs,<sup>60</sup> NPEs arguably make it worse.<sup>61</sup> NPEs do not create any products based on their patents and therefore, they are under no pressure to reach a cross-licensing agreement with practicing entities.<sup>62</sup> With no risk of a retaliatory infringement lawsuit by a manufacturer, NPEs can insist on high licensing fees, which lead to higher prices for the end product.<sup>63</sup>

A final complaint against NPEs is that they aggregate large numbers of patents that overwhelm alleged infringers by giving them little choice but to license the entire bundle of patents, even if they think some individual patents are invalid or not infringed.<sup>64</sup> As explained in more detail later, NPPs are more likely to have a lower quality and therefore, they are more likely to be found invalid or not infringed.<sup>65</sup> Hence, alleged infringers, confronting patent aggregations that consist of non-practiced, low quality patents, cannot enjoy the presumed benefit of broad portfolio licenses instead of multiple licenses,<sup>66</sup> associated with patent aggregations. Although they presumably “enjoy” reduced transaction costs in avoiding separate licensing negotiations,<sup>67</sup> they are nonetheless forced to pay extra for individual patents of questionable quality. Here, NPPs act like parasites that leech on valuable patents in the portfolio. Technology users, who

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<sup>58</sup> David Drummond, When Patents Attack Android, Google Official Blog (Aug. 3, 2011), <http://googleblog.blogspot.com/2011/08/when-patents-attackandroid.html> (on file with the Columbia Law Review).

<sup>59</sup> Shrestha, *supra* note 38, at 124.

<sup>60</sup> Lemley and Melamed, *supra* note 1, at 2152 (“practicing entities are spending billions of dollars to acquire patents and are establishing entities to acquire other patents so that they do not fall into the hands of rivals, trolls, or other firms likely to assert them. And when practicing entities wind up owning patents that they cannot put to good use, they are increasingly eager to sell them to others that can.”).

<sup>61</sup> Shrestha, *supra* note 38, at 125; Lemley and Melamed, *supra* note 1, at 2146-2153 (arguing that the problem of patent thickets is actually the problem of too many patents that might read on a product and the number of different hands holding them, and that patent trolls most likely exacerbate the problem by acquiring patents from parties that were themselves unwilling or unable to assert them).

<sup>62</sup> Shrestha, *supra* note 38, at 125.

<sup>63</sup> *Id.*

<sup>64</sup> Lemley and Melamed, *supra* note 1, at 2153.

<sup>65</sup> See *infra* Section II.A.1.

<sup>66</sup> Lemley and Melamed, *supra* note 1, at 2157.

<sup>67</sup> *Id.*

ordinarily have an incentive to cooperate with each other and cross-license each other's patents at minimal or zero costs,<sup>68</sup> cannot invoke this mitigating measure against the NPPs in the portfolio. Instead, they are forced to license an entire bundle of patents, only some of which are actually pertinent to the technology users' intended use.

## B. Troll-like Practices Committed By Practicing Entities

Strategically asserting NPPs against competitors is not a practice that is reserved solely to NPEs.<sup>69</sup> In fact, many times, practicing entities engage in conduct that resembles that of NPEs<sup>70</sup> as part of their growing recognition that patents have value, in and of themselves.<sup>71</sup> “Practicing entities are spending billions of dollars to acquire patents and are establishing entities to acquire other patents so that they do not fall into the hands of rivals, trolls, or other firms likely to assert them.”<sup>72</sup> According to Kelce Wilson, asserting patents for revenue (rather than practicing them) is one of the four phases of patent usage.<sup>73</sup> Wilson explains that, during the fourth stage of patent usage, which he names as the “Depletion Phase”, many companies acknowledge that sales have declined and therefore they turn to exploit “old ideas for whatever scraps of value that the patent system permits.”<sup>74</sup> At this final stage of patent usage, companies simply want to monetize their patents.

Many examples of practicing companies who became interested in monetizing their patents exist out there: Microsoft, for instance, who originally acquired software patents for defensive reasons, has increasingly turned to patent litigation to extract royalties from its competitors, particularly in the smartphone industry.<sup>75</sup> Similarly, Yahoo initially viewed its patent portfolio as a defensive one, yet recently it began suing younger

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<sup>68</sup> Shrestha, *supra* note 38, at 125.

<sup>69</sup> Lemley and Melamed, *supra* note 1, at 2128.

<sup>70</sup> From Arms Race to Marketplace, *supra* note 10, at 320.

<sup>71</sup> See, e.g., Kevin G. Rivette & David Kline, *Rembrandts in the Attic: Unlocking the Hidden Value of Patents* 3 (2000) (“[S]ome of the world’s most successful companies . . . regard patent strategy as a new core competency of the modern enterprise and an important factor in their success.”).

<sup>72</sup> Lemley and Melamed, *supra* note 1, at 2152.

<sup>73</sup> Wilson, *supra* note 18, at 689.

<sup>74</sup> *Id.*

<sup>75</sup> Lemley and Melamed, *supra* note 1, at 2135-6.

companies like Facebook,<sup>76</sup> and Texas Instruments transformed from being a very successful hardware company to a company with a small manufacturing business and a very profitable patent portfolio.<sup>77</sup>

All the examples above relate to practicing entities that operate in the fields of telecommunications and computer software. Due to the inherent complexity of products developed in these fields, the entities developing them tend to hold large portfolios of patents covering many related features.<sup>78</sup> While some practicing entities do so “for cross-licensing in order to avoid licensing fees and to prevent competitors from blocking their products,”<sup>79</sup> others do so offensively to obtain revenues.<sup>80</sup> It is when practicing entities engage in offensive patent strategy and assert patents in areas in which they no longer operate or never did,<sup>81</sup> that they closely resemble NPEs.<sup>82</sup>

This is not to say, however, that holding NPPs for *defensive* reasons is not problematic from a different perspective. Acquiring and maintaining a patent is a costly process that can reach \$25,000, depends on the size of the patent holder.<sup>83</sup> Smartphone manufacturers alone spent over \$15 billion acquiring patents in three years to deter or offset assertions by other practicing entities.<sup>84</sup> Expending such enormous amounts of money just to deter assertions by practicing entities or to reduce the cash payments required by those assertions, without using the patents to develop actual products is wasteful. It certainly diverts the resources of practicing entities from research and development to purchase and maintenance costs. As Lemley and Melamed explain:

“To be sure, the cost to the patent holder of acquiring and maintaining a patent portfolio might be less than the benefits it receives from using the patents to deter patent assertions by practicing entities or to reduce the cash payments required by those assertions. In fact, a patent holder that acquired and maintained a patent portfolio for other purposes might incur

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<sup>76</sup> *Id.*

<sup>77</sup> *Id.*; From Arms race to Marketplace, *supra* note 10, at 322-3.

<sup>78</sup> See John M. Browning & Carla S. Mulhern, Licensing in the Presence of Technology Standards, LICENSING J., Aug. 2009, at 1.

<sup>79</sup> Chen, From Arms Race, *supra* note 10, at 321.

<sup>80</sup> *Id.*

<sup>81</sup> *Id.*

<sup>82</sup> See, e.g., Joseph N. Hosteny, Litigators Corner: Is IBM a Patent Troll?, *Intell. Prop. Today*, May 2006, at 26, 26-27.

<sup>83</sup> See Mark A. Lemley, *Rational Ignorance at the Patent Office*, 95 Nw. U. L. Rev. 1495, 1498-99 (2001) [hereinafter, Lemley, *Rational Ignorance*].

<sup>84</sup> Lemley and Melamed, *Supra* note 1, at 2130.



no additional patent acquisition and maintenance costs when it uses the patents to deter or resolve a subsequent patent assertion by a practicing entity. That does not mean, however, that using the patents to deter or resolve patent assertions by practicing entities is costless or inexpensive. To the contrary, when patents are used that way, they impose an opportunity cost on the patent holder.”<sup>85</sup>

Of course, the divergence of resources from research and development to acquisition and maintenance costs is irrelevant to NPEs, who are interested only in monetizing their patents.<sup>86</sup> In the first place, NPEs do not intend to invest in research and development and therefore, none of their resources can be subject to divergence. Nevertheless, this is another reason why NPPs are problematic, even when held by non-aggressive practicing entities. As explained in Section III below, the proposed patent working requirement will also reduce these patent acquisition and maintenance costs.

Finally, some practicing entities monetize portions of their patent portfolios by selling patents to other firms that use them to generate revenue.<sup>87</sup> Often known as “patent privateers,” these practicing entities “spin off patents or ally with trolls to target other firms with lawsuits.”<sup>88</sup> While patent privateers do not exploit NPPs directly, they sell them to trolls who target other firms with lawsuits.<sup>89</sup> In fact, it has been argued that most of the patents held by trolls originate in practicing entities that sell part of their portfolios.<sup>90</sup> Some of the examples provided in the literature to patent privateers include Nokia that spun off patents to the patent troll MOSAID, Micron that spun off many of its patents to Round Rock Ventures - a troll that asserted those patents against Micron’s competitors, and Ericsson that spun off more than 2,000 patents to Unwired Planet, a

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<sup>85</sup> *Id.* at 2131.

<sup>86</sup> *Id.* at 2129.

<sup>87</sup> *Id.* at 2137.

<sup>88</sup> *Id.*; See, also Tom Ewing, *Indirect Exploitation of Intellectual Property Rights by Corporations and Investors*, Hastings Sci. & Tech. L.J., Winter 2012, at 1, 5 (defining intellectual property privateering).

<sup>89</sup> Lemley and Melamed, *supra* note 1, at 2137-9 (explaining that patent privateers “usually sell only patents that are more valuable to others—perhaps because the others do not have the same commercial or other obstacles to asserting them—or that are redundant because the patent holder has many other patents that can be asserted against the same products or revenue streams . . . Companies rarely sell their ‘crown jewels’—patents that they need to prevent copying of technologies they consider critical to their own business—even with a license back to practice the patented technologies.”).

<sup>90</sup> Risch, *supra* note 9, at 461.

patent troll suing Ericsson’s competitors.<sup>91</sup> While these patent privateers (and many others) are not involved directly in patent trolling, they indirectly raise the costs imposed on their competitors, diverting their resources from commercialization and manufacturing to settlement and litigation.

### C. Positive Roles Attributed to NPEs

One of the largest NPEs in the United States, Acadia Research Corporation (“Acadia”), describes itself as “the industry leader in patent licensing” that “applies its deep legal and technology expertise to patent assets to unlock financial value,”<sup>92</sup> while facilitating efficiency and delivering monetary rewards to the patent owner. With this strategy, Acadia argues it has generated over \$1,000,000,000 revenue to date, and has returned more than \$630,000,000 to its patent partners.<sup>93</sup>

Several scholars think about the issue in similar ways. Some argue that NPEs provide capital and bargaining power to independent inventors.<sup>94</sup> This is crucial because obtaining a patent does not ensure automatic revenue. To gain income, independent inventors must either develop a product and commercialize it or license the patent to a third party.<sup>95</sup> Yet, to work their inventions, patent holders “will often need to undertake costly and risky scientific testing, market testing, market research, and marketing to determine how to commercialize an invention in the most profitable manner.”<sup>96</sup> Many independent inventors lack the resources to pursue these activities. Furthermore, licensing is also problematic since the patent market provides few opportunities for weaker inventors and severely undercuts their ability to operate in the licensing market.<sup>97</sup>

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<sup>91</sup> Lemley and Melamed, *supra* note 1, at 2137-8.

<sup>92</sup> See <http://acaciaresearch.com/about-us>.

<sup>93</sup> *Id.*

<sup>94</sup> Shrestha, *supra* note 38, at 126.

<sup>95</sup> *Id.*, at 126-7.

<sup>96</sup> See Sichelman, *supra* note 48, at 352, 360 (explaining that a company must frequently undertake significant market testing to determine how to build a commercially successful product and that the capital required for the market testing and product commercialization phase is tremendous).

<sup>97</sup> See Peter N. Detkin, *Leveling the Patent Playing Field*, 6 J. MARSHALL REV. INTELL. PROP. L. 636, 636 (2007) (discussing the patent market).

Even when small inventors obtain access to licensing opportunities, they face significant barriers in negotiating favorable licensing terms with potential licensees.<sup>98</sup>

NPEs can solve these problems by bringing a credible litigation threat to the bargaining table.<sup>99</sup> NPEs have the capital and other resources to litigate, thereby forcing the licensee to offer better terms, which would be reflected in the payments made to the independent inventor.<sup>100</sup> This encourages the independent inventor to engage in further inventive activity.<sup>101</sup>

Furthermore, it has been argued that NPEs assist in identifying the most valuable patents owned by independent inventors.<sup>102</sup> Patents may assist in obtaining venture funding<sup>103</sup> because they signal company value to potential investors.<sup>104</sup> Transactions with NPEs provide a type of ex post insurance<sup>105</sup> that encourages venture financing.<sup>106</sup> Indeed, “in a market without NPEs, it would be more difficult to identify the valuable and trivial patents owned by independent inventors and, as a result, technology buyers would be unwilling to pay a high price for a patent because of the fear that it will turn out to be of low value. Likewise, independent inventors who own valuable patents will be unwilling to sell their patents at such a low price.”<sup>107</sup> NPEs may solve this informational

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<sup>98</sup> See *id.*, at 637-39 (analyzing difficulties faced by inventors when negotiating licensing terms).

<sup>99</sup> Shrestha, *supra* note 38, at 127 (citing James F. McDonough III, *The Myth of the Patent Troll: An Alternative View of the Function of Patent Dealers in an Idea Economy*, 56 *EMORY L.J.* 189, 212 (2006) (“Unlike the individual inventor who poses no real litigation threat, the patent dealer has ample funds with which to litigate.”); Morgan, *supra* note 38, at 173-4 (“Inventors maximize efficiency by focusing on inventing and allowing other parties to deal with enforcement or licensing of patents.”)).

<sup>100</sup> Shrestha, *supra* note 38, at 127.

<sup>101</sup> *Id.*

<sup>102</sup> *Id.* at 128.

<sup>103</sup> Risch, *supra* note 9, at 465; Dirk Engel & Max Keilbach, *Firm-Level Implications of Early Stage Venture Capital Investment—An Empirical Investigation*, 14 *J. EMPIRICAL FIN.* 150, 166 (2007); Samuel Kortum & Josh Lerner, *Assessing the Contribution of Venture Capital to Innovation*, 31 *RAND J. ECON.* 674, 675 (2000); Mark A. Lemley, *Reconceiving Patents in the Age of Venture Capital*, 4 *SMALL & EMERGING BUS. L.* 137, 144 (2000); Ronald J. Mann & Thomas W. Sager, *Patents, Venture Capital, and Software Start-Ups*, 36 *RES. POL'Y* 193, 199-200 (2007); Mann, *Financing in the Software Industry*, *supra* note 7, at 961-62.

<sup>104</sup> Risch, *supra* note 9, at 465.

<sup>105</sup> Luigi Buzzacchi & Giuseppe Scellato, *Patent Litigation Insurance and R&D Incentives*, 28 *INT'L REV. L. & ECON.* 272, 282 (2008) (the potential ability to transact with an NPE provides an ex post insurance as most companies would not pay to obtain ex ante enforcement insurance. This ex post insurance makes the patent more valuable by providing a potential revenue stream even if the company fails).

<sup>106</sup> Risch, *supra* note 9, at 465.

<sup>107</sup> *Id.*

asymmetry by identifying and rewarding promising independent inventors, consequently encouraging them to continue innovate.<sup>108</sup>

Another argument in support of NPEs is that they create an efficient market for patents by making them more liquid and by performing a market-clearing function.<sup>109</sup> According to this argument, patentees can always sell their patent rights to NPEs in return for cash.<sup>110</sup> By advancing a secondary market of patents, where patents are treated no different than any other business asset,<sup>111</sup> NPEs potentially enhance the value of invention and incentivize innovation.<sup>112</sup> Moreover, because NPEs engage in repeating patent transactions, they become experts in the technology covered by the patent, its scope and the breadth of its claims. Much like investment analysts who research stocks in particular industries, NPEs can set a market-clearing price for patents.<sup>113</sup>

Outside of these beneficial activities some NPE's assist with, there are NPEs that are considered beneficial by definition. Research institutions, especially universities, patent the inventions developed in their facilities in order to earn licensing revenues and transfer technology.<sup>114</sup> Mostly, they license their patents ex ante, as part of their larger technology transfer mandate, rather than wait until a company has independently developed and commercialized an infringing product.<sup>115</sup> Nonetheless, because they tend to supply upstream technology to manufacturers, instead of making it themselves,<sup>116</sup> they are considered to be NPEs.<sup>117</sup> There are instances, however, in which universities act just

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<sup>108</sup> *Id.*

<sup>109</sup> Shrestha, *supra* note 38, at 130. See also McDonough, *supra* note 38, at 209–11; Morgan, *supra* note 38, at 173; Gary Odom, Patent Liquidity, PATENT PROSPECTOR (Oct. 3, 2005, 8:23 PM), [http://www.patenthawk.com/blog/2005/10/patent\\_liquidity.html](http://www.patenthawk.com/blog/2005/10/patent_liquidity.html); cf. Paul J. Heald, *A Transaction Costs Theory of Patent Law*, 66 OHIO ST. L.J. 473, 490 (2005).

<sup>110</sup> Shrestha, *supra* note 38, at 130.

<sup>111</sup> Allen W. Wang, *Rise of the Patent Intermediaries*, 25 BERKELEY TECH. L.J. 159, 159 (2010).

<sup>112</sup> See, e.g., Steven Rubin, *Defending the Patent Troll: Why These Allegedly Nefarious Companies Are Actually Beneficial to Innovation*, 10 J. PRIVATE EQUITY 60, 62–63 (2007); See also Myhrvold, *supra* note 38, at 1, 2 (claiming that the secondary patent marketplace is encouraging innovation by giving inventors a way to extract revenue from their inventions).

<sup>113</sup> Shrestha, *supra* note 38, at 130; McDonough III, *supra* note 38, at 214–15.

<sup>114</sup> Jerry G. Thursby et al., *Objective, Characteristics and Outcomes of University Licensing: A Survey of Major U.S. Universities*, 26 J. Tech. Transfer 59, 65 (2001).

<sup>115</sup> Yet, unusual cases do exist, such as that of the submarine patent strategy employed by Columbia University, see Lorelai Ritchie de Larena, *The Price of Progress: Are Universities Adding to the Cost?*, 43 Hous. L. Rev. 1373, 1417–8 (2007).

<sup>116</sup> Chen, *From Arms Race*, *supra* note 10, at 327.

<sup>117</sup> Lemley, *Universities*, *supra* note 8, at 611.

like trolls,<sup>118</sup> diverting resources from research to litigation.<sup>119</sup> When they assert NPPs against operating companies, they ultimately impede progress. Hence, just as the proposed patent working requirement will apply to other entities that exploit their rights to hold up innovation, it will also apply to troll-like universities.

### III. TAKE OUT THE GOOD AND LEAVE THE REST BEHIND

The previous section pointed out that while the negative aspects associated with NPEs are quite substantial, there are numerous ways in which they may actually promote innovation. Furthermore, it emphasized, that when practicing entities assert NPPs, they cause problems that resemble those imposed by NPEs. This analysis suggests that defining the problem in terms of “bad actors” is incorrect. This conclusion - that NPEs are not *the* problem, but just one of its “symptoms” - is not new.<sup>120</sup> Indeed, Mark Lemley, using universities as a case study, had already argued that searching for “bad actors” to solve the patent troll problem is wrong because “troll is as troll does.”<sup>121</sup> More

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<sup>118</sup> *Id.*

<sup>119</sup> Here are several examples: Cornell University sued Hewlett-Packard in 2001 (Susan Kelley, Hewlett-Packard, Cornell Reach Settlement in Patent Case, CORNELL CHRONICLE, June 9, 2010, <http://www.news.cornell.edu/stories/2010/06/hewlett-packard-cornell-reach-settlement-patent-case>); The University of Wisconsin sued Creative Technology in 2002 ( Sony and Toshiba in 2003, and six more high-tech companies over the next five years (WARF v. Intel Corp., 656 F. Supp. 2d 898 (W.D. Wis. 2009); WARF v. Adv. Micro Dev., Inc., No. 3:06-cv-00726 (W.D. Wis. filed Dec. 12, 2006); WARF v. Cypress Semiconductor Corp., No. 3:05-cv-00336 (W.D. Wis. filed June 7, 2005); WARF v. Int’l Bus. Mach. Corp., No. 3:04-cv-00867 (W.D. Wis. filed Nov. 17, 2004); WARF v. Infineon Tech. AG, No. 3:04-cv-00394 (W.D. Wis. filed June 21, 2004); WARF v. Sony Corp., No. 3:03-cv-00595 (W.D. Wis. filed Oct. 20, 2003); WARF v. Creative Tech. Ltd., No. 3:02- cv-00570 (W.D. Wis. filed Oct. 15, 2002); The University of Texas accused fifty-five high-tech companies of infringement in three cases filed in 2005 (Bd. Regents, Univ. of Tex. Sys. v. Mitsubishi Elec., No. 1:05-cv-00333 (W.D. Tex. filed May 6, 2005); Bd. Regents, Univ. of Tex. Sys. v. Alcatel, No. 1:05-cv-00198 (W.D. Tex. filed Mar. 22, 2005); Bd. Regents, Univ. of Tex. Sys. v. BenQ Am. Corp., No. 1:05-cv-00181 (W.D. Tex. filed Mar. 11, 2005); A Yale University spinoff named Mirror Worlds sued Apple in 2008, winning a \$625 million jury verdict that was later overturned (See Susan Decker, Apple Win in Mirror Worlds Case Left Intact by High Court, BLOOMBERG, June 24, 2013, <http://www.bloomberg.com/news/2013-06-24/apple-win-in-mirror-worlds-case-left-intact-by-high-court.html>; The University of Washington sued thirty high-tech companies between 2010 and 2012, including Garmin, Logitech, Sandisk, and Carnegie Mellon University won a \$1.17 billion verdict against Marvell Semiconductor in 2012. See Brian J. Love, DO UNIVERSITY PATENTS PAY OFF?: EVIDENCE FROM A SURVEY OF UNIVERSITY INVENTORS IN COMPUTER SCIENCE AND ELECTRICAL ENGINEERING, Yale Journal of Law & Technology, Vol. 16 (forthcoming), Santa Clara University School of Law Legal Studies Research Papers Series Accepted Paper No. 08-14, June 2014. <http://ssrn.com/abstract=2448521>.

<sup>120</sup> Lemley and Melamed, *supra* note 1; Lemley, Universities, *supra* note 8; Risch, *supra* note 9.

<sup>121</sup> Lemley, Universities, *supra* note 8, at 611.

recently, together with Douglas Melamed, he repeated this conclusion and called scholars to “pay more attention to the underlying features of the patent system that unduly burden technology users and make patent trolls profitable.”<sup>122</sup>

Nevertheless, the argument that the core feature that facilitates the troll problem is NPPs - which are totally legitimate under the current patent system - is novel. This is probably why existing literature pays almost no attention to the possibility of demanding mandatory patent practice, as a solution to the troll problem.<sup>123</sup> The following subsection makes the case for viewing the troll problem as the problem of NPPs, and hence requiring patent holders to practice their patents. Such a shift in the way scholars perceive the patent troll problem, this section demonstrates, can successfully undermine the negative aspects of patent trolling, regardless of the classification of the entity pursuing the conduct, and in the same time maintain the positive aspects associated with NPEs.

#### A. Reducing The Negative Aspects Associated With NPEs

##### ***1. Improving Patent Quality and Preventing Patent Holders from Pursuing Frivolous Litigation***

One of the main objections to patent trolling relates to the assertion of low quality patents that allegedly overwhelm the legal system with frivolous litigation.<sup>124</sup> Some empirical evidence shows that NPE suits constitute a large percentage (64.3%) of the most-litigated cases, yet their win rates are extremely low (8-9.2%) in comparison to practicing entities.<sup>125</sup> This may indicate that NPEs assert low quality patents. On the

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<sup>122</sup> Lemley and Melamed, *supra* note 1, at 2121.

<sup>123</sup> *Id.* at 2171.

<sup>124</sup> See *supra* note 39 and accompanying text.

<sup>125</sup> John R. Allison et al., *Patent Quality and Settlements Among Repeat Patent Litigants*, 99 *Geo. L. J.* 677, 708 (2011) [hereinafter, Allison et al., *Patent Quality and Settlements*]; See Also John R. Allison et al., *supra* note 12, at 32-34 (finding that the most litigated patents are far more likely to be software and telecommunications patents, not mechanical or other types of patents, and that the most litigated patents are most commonly in the hands of companies that are not building new products. Because many software and telecommunication patents are claimed to be of low quality, this study may also indicate that NPEs are likely to enforce low quality patents); See also Lerner, J., 2006: *Trolls on State Street? The Litigation of Financial Patents, 1976-2005*, Working Paper. <http://www.people.hbs.edu/jlerner/Trolls.pdf> (accessed 8/21/2014) (“individuals [i.e., trolls] are exploiting the system to obtain and litigate financial patents of questionable quality.”).

other hand, other studies imply that there is not much of a difference between the patents underlining NPEs litigation and those litigated by practicing entities in terms of patent quality.<sup>126</sup> There are two main reasons for these mixed results. First, as explained earlier,<sup>127</sup> it is challenging and perhaps even impossible to distinguish accurately between practicing entities and non-practicing ones.<sup>128</sup> Second, there is no universal consensus as to the appropriate measures of patent quality.<sup>129</sup>

Nevertheless, whether practicing entities and NPEs enforce patents that are generally similar in their quality, or not, is not so important under a model that targets non-practiced *patents*, and not non-practicing *entities*. Indeed, the proposed model cares less about which entity asserts more low quality patents. Instead, it worries about the assertion of *non-practiced, low quality patents*, in and of itself. In view of that, this proposal agrees to define high quality patents as ones that comply with the statutory requirements of patentability.<sup>130</sup> Accordingly, since some portion of the NPPs that are being litigated, either by NPEs or by practicing entities, are subsequently found invalid,<sup>131</sup> this article stresses that at least a similar portion of NPPs are of low quality. Given this conclusion, this proposal contends that a patent working requirement can improve patent quality<sup>132</sup> and minimize the first harm associated with the patent troll problem: the assertion of patents that fail to meet the statutory requirements of patentability.

First, practiced patents are more likely to meet the statutory requirement of subject matter eligibility. According to this requirement “whoever invents or discovers any new

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<sup>126</sup> Risch, *supra* note 9, at 478-481 (finding that traditional patent quality measures indicate at the very least that NPE patents look a lot like other litigated patents); Shrestha, *supra* note 38, at 121, note 35 (finding that the win rates of NPE-initiated litigation does not differ significantly from that of practicing plaintiffs in general); Timo Fischer & Joachim Henkel, *Patent Trolls on Markets for Technology — An Empirical Analysis of Trolls’ Patent Acquisitions* 1 (unpublished manuscript)(Apr. 28, 2011) (arguing that NPEs acquire high quality patents), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1523102](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1523102).

<sup>127</sup> See *supra* note 13 and accompanying text.

<sup>128</sup> *Id.*

<sup>129</sup> See R. Polk Wagner, *Understanding Patent-Quality Mechanisms*, 157 U. PA. L. REV. 2135, 2136 (2009).

<sup>130</sup> See Susan Walmsley Graf, *Improving Patent Quality Through Identification of Relevant Prior Art: Approaches to Increase Information Flow to the Patent Office*, 11 LEWIS & CLARK L. REV. 495, 499 (2007).

<sup>131</sup> Allison et al., *Patent Quality and Settlement*, *supra* note 125, at 708 (2011); See Allison et al., *supra* note 12, at 32-34.

<sup>132</sup> Defined as the patent’s compliance with the statutory requirements of patentability.

and useful process, machine, manufacture, or composition of matter . . .”<sup>133</sup> and complies with the other statutory requirements may obtain a patent. Laws of nature, physical phenomena, and abstract ideas are excluded from patent protection<sup>134</sup> for being “part of the storehouse of knowledge of all men . . . free to all men and reserved exclusively to none.”<sup>135</sup> While these exclusions worked just fine during the industrial age, they turned out to be very hard to apply in the current information age.<sup>136</sup> The problem is that there is no per se bar to patenting laws of nature, physical phenomena or abstract ideas as *applied* in a process, machine, manufacture, or composition of matter.<sup>137</sup> Yet, distinguishing between applied principles and unapplied ones is quite challenging when dealing with nowadays, intangible<sup>138</sup> process inventions.<sup>139</sup> An ex post patent working requirement,<sup>140</sup> this proposal contends, will aid in ferreting out patentable, applied principles from unpatentable process inventions that merely cover abstract ideas. Indeed, even when practiced patents cover a judicial exclusion to subject matter eligibility, they implement it to a practical end use by definition. Thus, a mandatory patent working requirement will practically diminish the ex ante fear from patents that cover unknown uses of unpatentable principles.<sup>141</sup>

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<sup>133</sup> 35 U.S.C.A. § 101.

<sup>134</sup> See, e.g., *Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980).

<sup>135</sup> *Funk Bros. Seed Co. v. Kalo Inoculant Co.*, 333 U.S. 127, 130 (1948).

<sup>136</sup> See David S. Olson, *Taking the Utilitarian Basis for Patent Law Seriously: The Case for Restricting Patentable Subject Matter*, 82 TEMP. L. REV. 181, 207, 186 (2009); Maayan Filmar-Perel, *Reviving the gatekeeping Function: Optimizing the Exclusion Potential of Subject Matter Eligibility*, 23 ALB. L.J. SCI. & TECH 237, 340 (2014).

<sup>137</sup> Mark A. Lemley et al., *Life After Bilski*, 63 Stan. L. Rev. 1315, 1328 (2011) (hereinafter, Lemley et al., *Life After Bilski*).

<sup>138</sup> Kevin E. Collins, *An Initial Comments on In re Bilski: Tangibility Gone Meta*, PATENTLY O, Nov. 1, 2008, <http://www.patentlyo.com/patent/2008/11/professor-collins.html> (claiming that even if the “machine-or-transformation” test was relevant during the industrial age, it became inappropriate in the current information age.).

<sup>139</sup> Pamela Samuelson & Jason Scultz, *Clues for Unpatentable Abstract ideas*, 15 Lewis & Clark L. Rev. 109, 117 (2011) (explaining that the Supreme Court connects the concept of abstractness as a limit on patent subject matter with the statutorily-eligible category of processes.).

<sup>140</sup> For a detailed discussion of the technicalities of this requirement, see *infra* Section V.

<sup>141</sup> *Gottschalk v. Benson*, 409 U.S. 63, 68 (1972) (explaining that the process claimed was “so abstract and sweeping as to cover both known and unknown uses of the BCD to pure binary conversion.”); *Bilski v. Kappos*, 130 S. Ct. 3218, 3231 (2010) (noting that “allowing petitioners to patent risk hedging would pre-empt use of this approach in all fields, and would effectively grant a monopoly over an abstract idea.”).



Second, practiced patents are more likely to comply with the statutory requirement of utility.<sup>142</sup> According to this requirement, an invention must be both operable and practical.<sup>143</sup> Operable usefulness requires that inventions must achieve some intended result.<sup>144</sup> Impossible inventions,<sup>145</sup> prophetic inventions<sup>146</sup> and incompletely disclosed inventions<sup>147</sup> are hence excluded from patent protection for not being operable. Practical usefulness requires that inventions must have some currently available specific and substantial use.<sup>148</sup> Commercial usefulness is not required under the statutory requirement of utility. Indeed, an invention need not “supersede all other inventions now in practice.”<sup>149</sup> Practiced patents are useful, both operably and practically. They surely achieve their intended result and they have a specific, substantial commercial use. A patent working requirement will assure that patents actually meet the statutory requirement of utility.

Third, practiced patents are more likely to meet the statutory requirement of non-obviousness.<sup>150</sup> This requirement measures technical and intellectual achievement in relation to the prior art.<sup>151</sup> An invention is nonobvious only if it advances some significant development over the prior art.<sup>152</sup> In *Graham v. John Deere*,<sup>153</sup> the Supreme Court established a three-part factual inquiry to govern modern non-obviousness analysis. First, determining the scope and content of the prior art. Second, assessing the differences between the prior art and the claimed invention. Finally, resolving the level

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<sup>142</sup> 35 U.S.C. § 101 (2006).

<sup>143</sup> Michael Risch, *Reinventing Usefulness*, B.Y.U. L. REV. 1195, 1195 (2010) [hereinafter, Risch, *Reinventing Usefulness*].

<sup>144</sup> *Id.* at 1196.

<sup>145</sup> Impossible inventions include inventions that violate the laws of nature, e.g. perpetual motion machines. *Id.*

<sup>146</sup> Prophetic inventions are inventions that could work, but that someone familiar with the subject matter would view as unworkable, i.e. untested pharmaceuticals. *Id.*

<sup>147</sup> These are inventions that cannot be implemented by following the patent’s teachings, i.e. where the inventor left details out of the patent specification or where the claimed invention could not work as described. *Id.*

<sup>148</sup> *Brenner v. Manson*, 383 U.S. 519, 534-5 (1966).

<sup>149</sup> *Bedford v. Hunt*, 3 F. Cas. 37, 37 (C.C.D. Mass. 1817).

<sup>150</sup> 35 U.S.C. § 103 (2006).

<sup>151</sup> ROBERT PATRICK MERGES & JOHN FITZGERALD DUFFY, *PATENT LAW AND POLICY: CASES AND MATERIALS* 49-53 (4th ed. 2007).

<sup>152</sup> See 35 U.S.C. § 103(a); *Graham v. John Deere Co.*, 383 U.S. 1, 14 (1966); R. Polk Wagner & Katherine J. Strandburg, *Debate: The Obviousness Requirement in Patent Law*, 155 U. PA. L. REV. 96, 97 (2006).

<sup>153</sup> *Graham* 383 U.S. at 1.

of ordinary skill in the relevant art.<sup>154</sup> If one having ordinary skill in the art would have found the differences between the prior art and the invention obvious, the patent is invalid under § 103.<sup>155</sup>

Aside from the three-step analysis, several objective considerations factor into non-obviousness analysis. These focus on factors extrinsic to the claimed invention.<sup>156</sup> These real-world factors assist in evaluating non-obviousness.<sup>157</sup> The invention's commercial success is one of the most common secondary considerations.<sup>158</sup> In fact, commercial success is often dispositive in determining non-obviousness<sup>159</sup> as it infers the existence of economic incentives to solve a problem in the market.<sup>160</sup> Evidence of commercial success includes market share, market growth, sales volume, and displacement of competing prior art.<sup>161</sup> A patent working requirement, which essentially requires patentees to submit an ex post proof of sufficient patent commercialization within a specific period of time,<sup>162</sup> will thus increase the likelihood that issued patents actually did meet the statutory requirement of non-obviousness. Instances where patentees will not be able to comply with the proposed working requirement (and their patents will not be

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<sup>154</sup> Jay Jongjitira, Note, *Leapfrog Enterprises v. Fisher-Price: Secondary Considerations in Nonobviousness Determinations*, 42 U.C. Davis L. Rev. 599, 608 (2008).

<sup>155</sup> *Id.*

<sup>156</sup> *Graham* 383 U.S. 1 at 17-18; *Rosemount, Inc. v. Beckman Instruments, Inc.*, 727 F.2d 1540, 1546 (Fed. Cir. 1984); see also *In re De Blauwe*, 736 F.2d 699, 706 (Fed. Cir. 1984) (considering evidence of unexpected results as objective evidence); *Lindemann Maschinenfabrik GmbH v. Am. Hoist & Derrick Co.*, 730 F.2d 1452, 1461 (Fed. Cir. 1984) (stating commercial success is always relevant in evaluating nonobviousness); *Jones v. Hardy*, 727 F.2d 1524, 1530-31 (Fed. Cir. 1984) (stating that courts must consider objective indicia before legal conclusion of nonobviousness); *Raytheon Co. v. Roper Corp.*, 724 F.2d 951, 961 (Fed. Cir. 1983) (finding commercial success to be highly probative objective criterion relevant to nonobviousness); *Medtronic, Inc. v. Cardiac Pacemakers, Inc.*, 721 F.2d 1563, 1575 (Fed. Cir. 1983) (stating courts must consider objective evidence when available); *In re Sernaker*, 702 F.2d 989, 996 (Fed. Cir. 1983) (stating that Patent Appeals Board must evaluate secondary considerations in connection with nonobviousness determinations).

<sup>157</sup> See *KSR International Co. v. Teleflex Inc.*, 127 S.Ct. 1727 (2007); *Graham*, 383 U.S. at 17-18; *Rosemount*, 727 F.2d at 1546.

<sup>158</sup> *Jongjitira*, *supra* 154, at 611. Other considerations include the extent of licensing, any long-felt need for the invention, copying by others, the invention's unexpected results, others' failure to solve the problem addressed by the invention and simultaneous invention. *Id.* at 611-12.

<sup>159</sup> *Id.* at 612.

<sup>160</sup> *Id.*

<sup>161</sup> See *Vandenberg v. Dairy Equip. Co.*, 740 F.2d 1560, 1567 (Fed. Cir. 1984); *Kan. Jack, Inc. v. Kuhn*, 719 F.2d 1144, 1150-51 (Fed. Cir. 1983).

<sup>162</sup> Note that this does not change anything about the current utility requirement enumerated in Section 101. This proposal does not add a requirement of commercial utility, but rather it imposes on patent owners is a condition for retained ownership, and not for patentability. For a detailed discussion of what constitutes "sufficient commercialization," see *infra* Section V.A.

otherwise excused from this requirement<sup>163</sup>) will most likely involve patents that are obvious.

Fourth, practiced patents are more likely to be adequately disclosed, and thus more likely to meet the statutory requirement of adequate written description.<sup>164</sup> § 112 requires that inventors claim no more than they have described in writing and disclose how to use their invention.<sup>165</sup> It is generally accepted that low quality patents are overly broad, meaning that they claim more than they disclose.<sup>166</sup> A patent working requirement will ensure that patents comply with § 112's "how to use" requirement<sup>167</sup> and not over-claim. When evaluating statements of patent use, examiners will be authorized to limit the scope of the claims, in cases where patents are only partly commercialized.<sup>168</sup> Therefore, patent specifications are expected to be more clear and precise about what they actually claim.

## ***2. Limiting the Ability of Patent Holders to Demand High Licensing Fees***

NPPs allow their holders to demand high licensing fees from product manufacturers.<sup>169</sup> Because they do not cover any real product or service, they significantly reduce the likelihood of a low-cost, cross-licensing settlement.<sup>170</sup> There are two intertwined reasons that a patent working requirement will effectively force all patent holders to accept lower licensing fees. First, all patent holders will turn into practicing entities. Thus, if they demand exaggerated licensing fees from competitors today, they risk being retaliated tomorrow, when they seek to license complimentary patented technologies.<sup>171</sup> Meaning, all patent holders, including today's NPEs, will have something to lose under the proposed model; they risk losing a fair and reasonable

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<sup>163</sup> For a detailed discussion of what would constitute an "accusable delay" under the proposed model, see *infra* V.B.2.

<sup>164</sup> 35 U.S.C. § 112 (2006).

<sup>165</sup> Lemley et al., *Life After Bilski*, *supra* note 137, at 1330.

<sup>166</sup> Susan Walmsley Graf, *Improving Patent Quality Through Identification of Relevant Prior Art: Approaches to Increase Information Flow to the Patent Office*, 11 LEWIS & CLARK L. REV. 495, 498 (2007) (explaining how poor quality patents containing overly broad claims are used offensively to obtain licenses or bring infringement lawsuits).

<sup>167</sup> Risch, *Reinventing Usefulness*, *supra* note 143, at 1195.

<sup>168</sup> See *infra* Section V.A.

<sup>169</sup> Shrestha, *supra* note 38, at 121.

<sup>170</sup> Risch, *Reinventing Usefulness*, *supra* note 143, at 1195.

<sup>171</sup> James Bessen and Eric Maskin, *Sequential Innovation, Patents and Imitation*, 40 *The RAND Journal of Economics* 611-635 (2009) (explaining the importance of patent cross-licensing in the semiconductor industry).

licensing agreement. Second, the proposed model generally requires patent holders to eventually sell a product or a service based on their patents.<sup>172</sup> However, most products build on a combination of at least few patents that are held by different entities. Accordingly, rather than blocking each other and going to court or ceasing production, patent holders will probably enter into cross-licenses that allow them to compete freely.<sup>173</sup>

### ***3. Reducing the Blocking Effect of NPPs***

Another important criticism of those asserting NPPs is that they block otherwise industrious companies from delivering desired products and services to the market.<sup>174</sup> The fact that the asserting entities often arrive on the scene after the targeted innovator has already commercialized an allegedly infringing technology<sup>175</sup> magnifies this blocking effect. Nonetheless, were all existing patents sufficiently commercialized, it would have been much easier to avoid infringement. Particularly, a patent working requirement could prevent manufacturers from independently developing their own technology just to find out later that it happens to infringe.<sup>176</sup> A patent working requirement would make

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<sup>172</sup> To comply with the proposed patent working requirement, patent holders must prove that their patent had been sufficiently commercialized. Indeed, as Section V.A. explains in detail, specimens eligible to prove compliance with the proposed requirement must generally include actual sales receipts (accompanied with a copy of a licensing agreement between the patent holder and the manufacturer). Yet, there may be instances where commercialization that does involve actual sales will be deemed sufficient to show compliance with the proposed requirement. For instance, patent holders that use the patented technology internally, within their own business, may be sufficiently practicing their patents. Nevertheless, not every sort of patent commercialization will be sufficient to comply with the proposed requirement. Evidence of sham commercialization, such as developing junk products, licensing patents to impersonators, or engaging in fake sales would be clearly inapplicable.

<sup>173</sup> Shapiro, *the Patent Thicket*, *supra* note 54, Page 9 of 32.

<sup>174</sup> Risch, *supra* note 9, at 463 (citing David G. Barker, *Troll or No Troll? Policing Patent Usage with an Open Post-Grant Review*, 2005 DUKE L. & TECH. REV. 9, ¶ 7 (2005), available at <http://www.law.duke.edu/journals/dltr/articles/pdf/2005dltr0009.pdf>; cf. James Bessen & Robert M. Hunt, *An Empirical Look at Software Patents*, 16 J. ECON. & MGMT. STRATEGY 157, 184 (2007) (noting that software patents may not be consistent with incentive theory of patents); Sichelman, *supra* note 48, at 343 (positing that every patent has the potential to block commercialization by others).

<sup>175</sup> Federal Trade Commission, *The Evolving IP Marketplace: Aligning patent notice and remedies with competition* 75-80 (2011).

<sup>176</sup> Sichelman, *supra* note 48, at 369.

patent ownership more transparent by clarifying who owns what.<sup>177</sup> This would promote ex ante, fair and reasonable licensing negotiations that would potentially replace current, excessive, ex post settlements. With improved certainty over patent ownership, investors would be more willing to invest their capital in patents to facilitate their commercialization.<sup>178</sup>

#### **4. Reducing Patent Thickets**

Critics occasionally accuse NPEs for enlarging the problems of patent thickets and royalty stacking associated with large patent portfolios.<sup>179</sup> The high number of different patents covering complimentary technologies, especially in the IT space, and the diversity of their respective owners makes it hard on down-stream firms, who must enter into many, separate licensing agreements to continue operate.<sup>180</sup> But these problems are not NPE-specific.<sup>181</sup> Practicing entities also engage in large-scale patenting, recognizing that “the true value of patents lies not in their individual worth, but in their aggregation into a collection of related patents, a patent portfolio.”<sup>182</sup> Parchomovsky and Wagner explain that building large-scale patent portfolios is advantageous for several reasons: it allows firms to proceed along an innovation path more confidently; it attracts external innovators and encourage them to combine their inventions with that of a portfolio holder; it reduces the involvement of the portfolio holder in patent litigation; it improves the portfolio holder’s bargaining power as well as his defensive positions; it provides

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<sup>177</sup> Note, that as part of President Obama’s anti-trolling agenda, the White House has announced its commitment, among others, to promote transparency. The USPTO, hence, has recently published a draft rule to ensure patent owners record and regularly update ownership information when they are involved in proceedings before the USPTO. More information about the draft rule can be found at: [http://www.uspto.gov/patents/init\\_events/attributable\\_ownership.jsp](http://www.uspto.gov/patents/init_events/attributable_ownership.jsp). For the problems that arise from the inability to know who own what patents due to lax recordation of assignments, see Colleen Chien, *The Who Owns What Problem in Patent Law*, draft available at: <http://ssrn.com/abstract=1995664>.

<sup>178</sup> See Craig Allen Nard, *Certainty, Fence Building, and the Useful Arts*, 74 IND. L.J. 759, 759 (1999) (“The prospect of certainty in the patentee’s property interest has several benefits, one of which is to create a sense of security which permits the patentee to secure risk capital from investors, which in turn facilitates the commercialization of the claimed invention.”).

<sup>179</sup> See supra note 53 and accompanying text.

<sup>180</sup> Lemley & Shapiro, *supra* note 56, at 1993.

<sup>181</sup> Shrestha, *supra* note 38, at 125; Shapiro, *the Patent Thicket*, *supra* note 54, at 152.

<sup>182</sup> Gideon Parchomovsky and R. Polk Wagner, *Patent Portfolios*, 154 U. Penn L. Rev. 1, 3 (2005); See also Lemley and Melamed, *supra* note 1, at 2149 [hereinafter, *Patent Portfolios*].

portfolio holders with standing during negotiations of patent law changes; and it improves the portfolio holder's ability to attract and retain capital investment.<sup>183</sup>

Accepting that large patent portfolios are a fact of life,<sup>184</sup> I do not think we can, or even should, try to eliminate them.<sup>185</sup> Nonetheless, what we can do is identify and minimize their difficulties. So long large portfolios cover *practiced* patents they appear less problematic.<sup>186</sup> Indeed, whether held by trolls or practicing entities, large portfolios of practiced patents may promote their holders' defensive strategies and increase their holders' bargaining power in cross-licensing arrangements.<sup>187</sup> To the contrary, large portfolios consisting of *non-practiced* patents are not amenable to these mitigating measures.<sup>188</sup> NPPs cannot prevent copying of valuable product features, nor can they be used in barter with other patent owners that hold patents on technologies they are using.<sup>189</sup>

Actually, the most plausible reason for acquiring and maintaining NPPs is to impose costs on practicing entities selling competing products.<sup>190</sup> These NPPs effectively create an indefinite universe<sup>191</sup> of patents that can be potentially asserted against practicing entities. Consider in this regard companies in the IT industry that face an endless stream of patent assertions from patent trolls.<sup>192</sup> When trying to explain why patent thickets are especially common in the IT industry, scholars often point to the following three: (1) the complexity of the multi-component products in this industry; (2) the fast pace in which IT technologies develop; and (3) the fact that the USPTO is generous in granting patents on

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<sup>183</sup> See, e.g., Patent Portfolios, at 31–35.

<sup>184</sup> Lemley and Melamed, *supra* note 1, at 2149; See also Chien, FROM ARMS RACE, *supra* note 10, at 333 (demonstrating that “among modern high-tech companies that practice defensive patenting, Cisco is a good example. It generates its revenue from sales of its products and uses its patents ‘to defend its freedom to innovate.’ This defensive strategy has consisted of obtaining a large portfolio of patents for cross-licensing in order to avoid licensing fees and to prevent competitors from blocking its products.”).

<sup>185</sup> See, E.g., Lemley and Melamed, *supra* note 1, at 2155-61 (explaining about the advantages of patent aggregations).

<sup>186</sup> *Id.*

<sup>187</sup> Bronwyn H. Hall & Rosemarie Ham Ziedonis, *The Patent Paradox Revisited: An Empirical Study of Patenting in the U.S. Semiconductor Industry*, 32 RAND J. Econ. 101, 108–09 (2001).

<sup>188</sup> Shrestha, *supra* note 38, at 126.

<sup>189</sup> See Stuart J.H. Graham et al., *High Technology Entrepreneurs and the Patent System: Results of the 2008 Berkeley Patent Survey*, 24 Berkeley Tech. L.J. 1255, 1296–1309 (2009) (explaining reasons technology startups acquire patents) [hereinafter, Graham, Berkeley Patent Survey].

<sup>190</sup> *Id.* at 1296–309.

<sup>191</sup> Lemley and Melamed, *supra* note 1, at 2148.

<sup>192</sup> *Id.* footnote 131.

even small advances in the industry.<sup>193</sup> Whereas trying to change the characteristics of the IT industry seems practically impossible, it may be possible to reduce the number of weak patents.<sup>194</sup>

By voiding NPPs, the proposed patent working requirement purports to do exactly that. Because all of the patents that will fail to be sufficiently commercialized within the statutory period of time will lapse into the public domain, we will be left with practiced patents that, as demonstrated earlier,<sup>195</sup> are also of better quality. Acknowledging the existing reality of large patent portfolios, the proposed mechanism will only discourage their offensive exploitations.<sup>196</sup> Meaning, the proposed patent working requirement will not reduce the benefits of large patent portfolios, so long they encompass practiced patents that are exploited by their owners as part of a productive activity.<sup>197</sup> Such patent aggregations can presumably “reduce the number of licenses a technology user needs by enabling broad portfolio licenses instead of multiple licenses with multiple patent holders,”<sup>198</sup> which consequently reduces transaction costs.<sup>199</sup> In other words, by limiting the universe of patents that can be potentially asserted against technology users<sup>200</sup> and subjecting all patent assertions to the mitigating measures of copying and cross-licenses,<sup>201</sup> the proposed mechanism will essentially help technology users to maneuver patent thickets more easily.

##### ***5. Discouraging the Acquisition and Maintenance of Weak Patents***

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<sup>193</sup> See, e.g., Adam B. Jaffe & Josh Lerner, *Innovation and Its Discontents* 34–35 (2004) (“[T]he PTO has become so overtaxed, and its incentives have become so skewed towards granting patents, that the tests . . . that are supposed to ensure that the patent monopoly is granted only to true inventors have become largely non-operative.”); Lemley, *Rational Ignorance*, *supra* note 83, at 1495–96 (collecting criticism of PTO and its approval of bad patents); see also Bessen and Meurer, *Patent Failure*, *supra* note 50, at 238–39, 248 (suggesting PTO reject vague and abstract claims aggressively, and enforce stronger nonobviousness standard); Lemley and Melamed, *supra* note 1, footnote 135.

<sup>194</sup> *Id.*, at 2152.

<sup>195</sup> See *infra* Section III.A.1.

<sup>196</sup> Lemley and Melamed, *supra* note 1, at 2155–61.

<sup>197</sup> See Graham, *Berkeley Patent Survey*, *supra* note 189, at 1296–1309 (explaining reasons technology startups acquire patents).

<sup>198</sup> Lemley and Melamed, *supra* note 1, at 2157.

<sup>199</sup> *Id.*

<sup>200</sup> *Id.* at 2147.

<sup>201</sup> Shrestha, *supra* note 38, at 126.

As explained previously, practicing entities also spend billions of dollars to acquire patents so that they do not fall into the hands of other firms likely to assert them.<sup>202</sup> The problem with holding NPPs, however, is not limited to the high transaction costs they potentially impose on competitors.<sup>203</sup> Indeed, in addition to imposing high transaction costs on competitors, NPPs also inflict high acquisition and maintenance costs on their owners.<sup>204</sup> Considering that the price of acquiring and maintaining a single patent can reach \$25,000,<sup>205</sup> these costs appear to be far from negligible. When expended as part of a firm’s innovation path, they are nonetheless inevitable, because firms must protect their intellectual property to operate successfully. However, when the sole purpose for this enormous expenditure over patenting is to deter assertions by practicing entities or to reduce the cash payments required by those assertions, these acquisition and maintenance costs become incomprehensible. Expending enormous amounts of money just to acquire and maintain “useless patents”,<sup>206</sup> without using the patents to develop actual products, is arguably a waste because it dilutes the resources of practicing entities and reduces their R&D resources.

The proposed mechanism will save these acquisition and maintenance costs as much as they are expended on NPPs.<sup>207</sup> Because all NPPs are expected to lapse into the public domain, firms will stop acquiring and maintaining patents they do not intend to commercialize. By eliminating the risk of competitors asserting NPPs against each other, the proposed patent working requirement will allow firms to spend more resources on purely innovative activity. And wasn’t this the original and “good old” purpose of our patent system: to promote the progress of science and useful arts?<sup>208</sup>

## B. Bolstering The Positive Aspects Associated With NPEs

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<sup>202</sup> Lemley and Melamed, *supra* note 1, at 2152.

<sup>203</sup> *Id.*, at 2157.

<sup>204</sup> Lemley, Rational Ignorance, *supra* note 83, at 1498–99.

<sup>205</sup> *Id.*

<sup>206</sup> “Useless” in the sense that they have no commercial potential.

<sup>207</sup> Of course, the proposed model does not eliminate these costs totally because firms and individuals will still need to patent the inventions they intend to practice.

<sup>208</sup> U.S. CONST. art. I, § 8, cl. 8.



So far it has been demonstrated that the patent troll problem should be conceived as a problem of NPPs both because many of the negative aspects often associated with NPEs are also advanced by practicing entities, and especially because these negative aspects can be drastically alleviated, if patent holders are required to practice their inventions. In the following discussion, it will be shown that conceiving the patent troll problem as the problem of NPPs (hence requiring patent holders to practice their patents) is important to sustain the positive aspects associated with NPEs.

### ***1. Directing (N)PEs'<sup>209</sup> Funding Towards Commercialization***

One of the main arguments in support of NPEs is that they provide capital and bargaining power to independent inventors.<sup>210</sup> It is argued that many independent inventors lack the resources necessary to commercialize their patents and operate in the licensing market.<sup>211</sup> NPEs, on the other hand, have the capital and other resources to litigate, thereby inducing licensees to offer better terms, which are reflected in the payments made to independent inventors.<sup>212</sup> This encourages independent inventors to engage in further inventive activity.<sup>213</sup>

Under the proposed model, the designation “NPEs” will become inappropriate because all entities will have to facilitate patent practice, either directly or indirectly. Again, according to the proposed patent working requirement, all patents will be practiced patents – these are either patents that are sufficiently commercialized or patents that will be sufficiently commercialized within a specific period of time.<sup>214</sup> NPPs, i.e. patents having no commercial potential, will be practically non-existent because no one will negotiate patents that are very likely to lose their protection for not complying with the proposed patent working requirement. Today’s NPEs will hence indirectly facilitate patent practice either by negotiating better licensing terms for small inventors, or by

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<sup>209</sup> The following paragraphs explain this designation.

<sup>210</sup> Shrestha, *supra* note 38, at 126.

<sup>211</sup> See Peter N. Detkin, *Leveling the Patent Playing Field*, 6 J. MARSHALL REV. INTELL. PROP. L. 636, 636 (2007) (discussing the patent market).

<sup>212</sup> Shrestha, *supra* note 38, at 127.

<sup>213</sup> *Id.*

<sup>214</sup> For a detailed explanation of the requirement for “sufficient commercialization,” see *infra* Section V.A.

asserting practiced patents held by small inventors against alleged infringers. Since they will not be directly involved in commercialization and manufacturing, naming them “practicing entities” is also inappropriate. Accordingly, I use the designation “(N)PEs” to refer to the entities are currently classified as NPEs, when discussing the proposed regime.

Presumably, today’s NPEs will turn into venture capitalists that sponsor the operation of innovative, independent inventors.<sup>215</sup> It is true that the essence of NPEs’ sponsorship lies primarily in their credible litigation threat, which permits them to demand better licensing terms for inventors,<sup>216</sup> and not on investment capital. Nonetheless, litigation threats that build on high quality patents,<sup>217</sup> with clear commercialization potential, vindicate the rights of inventors against infringers and, in the long term, promote innovation.<sup>218</sup>

Accordingly, the proposed model will allow (N)PEs to vindicate the rights of small patentees, yet only to the extent that their efforts are aimed at eventually assisting these patentees in bringing new products into the market. Providing capital and bargaining power to independent inventors, for commercialization purposes, advances progress and benefits human beings.<sup>219</sup> On the other hand, patent assertions that do not facilitate commercialization merely hinder progress and innovation. Therefore, they are discouraged under the proposed model, according to which NPPs fall into the public domain.<sup>220</sup>

## ***2. Improving (N)PEs’ Signaling Function and Protecting Venture Financing***

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<sup>215</sup> Robin Feldman, *Patent Demands & Startup Companies: The View from the Venture Capital Community*, 20-24. Electronic copy available at: <http://ssrn.com/abstract=2346338>.

<sup>216</sup> Shrestha, 127 (citing McDonough III, *supra* note 38, at 212 (“Unlike the individual inventor who poses no real litigation threat, the patent dealer has ample funds with which to litigate.”)).

<sup>217</sup> See *supra* Section III.A.1.

<sup>218</sup> ., Mark A. Lemley, *The Economics of Improvement in Intellectual Property Law*, 75 Tex. L. Rev. 989, 991-95 (1997).

<sup>219</sup> Morgan, *supra* note 38, at 173-4 (explaining that NPEs allow inventors to concentrate in innovation and commercialization, while they deal with enforcement and licensing of patents.).

<sup>220</sup> For a re detailed explanation of the model’s technicalities, see *infra* Section V.A.

Another argument in support of NPEs is that they assist in identifying the most valuable patents owned by independent inventors.<sup>221</sup> Some contend that transactions with NPEs provide a type of ex post insurance<sup>222</sup> that encourages venture financing.<sup>223</sup> Commercialized patents, however, are clearly valuable. A patent working requirement will provide greater certainty to potential investors; venture capitalists could assume that patents held by (N)PEs<sup>224</sup> are valuable not only because (N)PEs are presumed to better identify the valuable patents owned by independent inventors,<sup>225</sup> but also and more importantly, because (N)PEs will presumably hold patents having high commercialization potential. Indeed, the proposed model will discourage (N)PEs from acquiring useless patents that are likely to lose their power for not being diligently and sufficiently commercialized. As a result, the proposed working requirement will assure venture capitalists that patents acquired by NPEs will remain valuable in the long term.

Furthermore, a patent working requirement will also protect venture capitalists from repeated litigation threats, which curtail their ability to fund small inventors and promote innovation.<sup>226</sup> A survey conducted by Robin Feldman<sup>227</sup> found that for 59% of surveyed venture capitalists, either most or all patent demands (defined by Feldman as including licensing demands, threats of litigation and infringement lawsuits) came from NPEs.<sup>228</sup> Most important to this context is that 74% of the venture capitalists that participated in Feldman's survey reported that patent demands had either a highly

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<sup>221</sup> Shrestha, *supra* note 38, at 128.

<sup>222</sup> Luigi Buzzacchi & Giuseppe Scellato, *Patent Litigation Insurance and R&D Incentives*, 28 INT'L REV. L. & ECON. 272, 282 (2008) (the potential ability to transact with an NPE provides an ex post insurance as most companies would not pay to obtain ex ante enforcement insurance. This ex post insurance makes the patent more valuable by providing a potential revenue stream even if the company fails).

<sup>223</sup> Risch, *supra* note 9, at 465.

<sup>224</sup> See note 102 and accompanying text.

<sup>225</sup> Shrestha, *supra* note 38, at 128.

<sup>226</sup> Neeraj Arora, *Disabling Patentability for Skill-Based Inventions: Aligning Patent Law with Competition Policy*, 22 SANTA CLARA COMPUTER & HIGH TECH. L.J. 1, 12 (2005) ("Furthermore, the patent holder can use their patent rights to threaten expensive litigation, which may deter venture capital financing and allow the patent holder to maintain their societally inefficient position.").

<sup>227</sup> Feldman, *supra* note 215.

<sup>228</sup> *Id.* at 36.

significant or a moderately significant impact on the companies that received them, including distracting management, expending resources or altering business plans.<sup>229</sup>

However, because the proposed patent working requirement will discourage (N)PEs from acquiring and asserting patents with no commercialization potential,<sup>230</sup> it will also reduce the amount of overall patent demands. Again, according to Feldman's survey, the majority of patent demands to venture capitalists come from NPEs.<sup>231</sup> The proposed model will reduce this percentage, leaving venture capitalist to deal mainly with patent demands that involve sufficiently commercialized patents (or patents with high commercialization potential). Under the proposed model, venture capitalists will no longer be required to defend themselves against frivolous assertions. The proposed model will foster the core objective of venture capitalists: financing small inventors in exchange for shares in the invention's future income. Fewer resources spent on defending against patent demands would mean more resources left to invest in startups. Needless to say that greater investments in innovation will promote progress and increase social benefit.

### **3. *Ensuring (N)PEs Create an Efficient Market For High Quality Patents***

A third benefit occasionally attributed to NPEs is that they create an efficient market for patents,<sup>232</sup> by making them more liquid and by performing a market-clearing function.<sup>233</sup> It is argued that the fact that patentees can always sell their rights to NPEs, in return for cash,<sup>234</sup> increases the value of invention and incentivizes inventors.<sup>235</sup>

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<sup>229</sup> *Id.* at 39-40. See also Chien, Startups and Patent Trolls, *supra* note 7 (finding that 40% of startups in her study that had received a patent demand from a patent assertion entity reported a significant operation impact). Consider that the average costs of defending against patent demands made by NPEs range from \$168,000 to \$857,000. *Id.* at 2.

<sup>230</sup> For an explanation of what amounts to "sufficient commercialization," see *infra* Section V.A.

<sup>231</sup> Feldman, *supra* note 215, at 36.

<sup>232</sup> For a further discussion about the secondary market for patents and the way it will be affected by the proposed model, see *supra* note 112 and accompanying text.

<sup>233</sup> Shrestha, *supra* note 38, at 130; See also McDonough III, *supra* note 38, at 209-11; Morgan, *supra* note 38, at 173; Gary Odom, Patent Liquidity, PATENT PROSPECTOR (Oct. 3, 2005, 8:23 PM), [http://www.patenthawk.com/blog/2005/10/patent\\_liquidity.html](http://www.patenthawk.com/blog/2005/10/patent_liquidity.html); Heald, *supra* note 109, at 490.

<sup>234</sup> Shrestha, *supra* note 38, at 130.

<sup>235</sup> See, e.g., Steven Rubin, *Defending the Patent Troll: Why These Allegedly Nefarious Companies Are Actually Beneficial to Innovation*, 10 J. PRIVATE EQUITY 60, 62-63 (2007).

However, the counter argument is that the secondary patent marketplace imposes ex post costs on practicing entities, which deters innovation:

“Patent transactions that occur as part of a technology transfer agreement can be considered ex ante because they occur before the purchaser has obtained the technology through other means. Such ex ante patent transactions accompanied by technology transfer have great potential for advancing innovation, creating wealth and increasing competition among technologies . . . But ex post licensing to manufacturers that sell products developed or obtained independently of the patentee can distort competition in technology markets and deter innovation. The failure of the patentee and manufacturer to license ex ante with technology transfer results in duplicated R&D effort. When a manufacturer chooses technology for a product design without knowledge of a later-asserted patent, it makes that choice without important cost information, which deprives consumers of the benefits of competition in the technology market. If the manufacturer has sunk costs into using the technology, the patentee can use that investment as negotiating leverage for a higher royalty than the patented technology could have commanded ex ante, when competing with alternatives. The increased uncertainty and higher costs associated with ex post licensing can deter innovation by manufacturers.”<sup>236</sup>

The secondary market of patents arguably reduces competition and harms innovation by discouraging technology transfer.<sup>237</sup> Indeed, in this secondary market, patents are treated no different than any other business asset that companies trade, license and sell.<sup>238</sup> Their historic role in protecting a company’s inventions and products that rely upon those inventions is almost non-existent in the secondary patent marketplace.<sup>239</sup> Rather than valuing patents in accordance with their commercial potential, the secondary market of patents is mainly concerned about the potential licensing opportunities of patents: the higher the number of products that may possibly rely on a given patent, the more claims could potentially be made on its behalf, and more claims means higher licensing revenues. In this secondary patent marketplace, patent holders do not have to

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<sup>236</sup> FEDERAL TRADE COMM’N, THE EVOLVING IP MARKETPLACE: ALIGNING PATENT NOTICE AND REMEDIES WITH COMPETITION, Intro. at 9 (March 2011).

<sup>237</sup> *Id.* chp. 2, at 40, 50.

<sup>238</sup> Cynthia Lopez Beverage, *Surviving in the Secondary Patent Marketplace*, ST-Ericsson, available at <http://iplawpodcast.com/documents/beverage.pdf>.

<sup>239</sup> *Id.*

worry about their patent's commercial potential because even weak and seemingly useless patents can be found valuable.

Nonetheless, under the proposed model, whoever is involved in the process of patent commercialization, beginning with the inventor and ending with the manufacturer, must consider the underlying patent's commercial potential. Otherwise, it would risk negotiating a losing deal over a patent that would lose its protection. This is not to say, however, that the proposed model is likely to harm patent liquidity. Patent owners will retain their option to sell their patents for a cash return, yet they should expect that buyers will restrain from purchasing low quality patents that have no apparent commercial potential.

#### **4. *Supporting Research Institutions and Universities***

As explained earlier, universities and other research institutions, which tend to supply upstream technology to manufacturers, rather than make it themselves,<sup>240</sup> are considered beneficial regardless of their status as NPEs.<sup>241</sup> These research institutions patent the inventions developed in their facilities in order to earn licensing revenues and transfer technology.<sup>242</sup> Critics may be legitimately concerned that the proposed model will reduce the incentives of researchers and obstruct technology transfer. A possible argument may be that universities will stop patenting the technologies they invent for fear of losing patent protection for NPPs. By giving up on the potential revenues from licensing the un-patented technologies, universities will be arguably left with both condensed research budgets and diminished incentives to research. Furthermore, with fewer patents filed for technologies developed by research institutions, society will be deprived from knowing that such technologies at all exist. Indeed, by filing patent applications, universities effectively disseminate their inventions to the public. Yet, with no disclosure of the invented technologies, operating companies, some might argue, will not know these technologies exist and therefore, will not be able to commercialize them.

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<sup>240</sup> Chein, *From Arms Race to Marketplace*, *supra* note 10, at 327.

<sup>241</sup> See *supra* note 114 and accompanying text.

<sup>242</sup> Jerry G. Thursby et al., *Objective, Characteristics and Outcomes of University Licensing: A Survey of Major U.S. Universities*, 26 *J. Tech. Transfer* 59, 65 (2001).

Nonetheless, universities apparently innovate regardless of patent revenue,<sup>243</sup> at least in some industries. Universities have many other incentives to engage in research, such as curiosity, academic prestige, tenure and promotion.<sup>244</sup> In a recent survey of professors who teach and research in the areas of electrical engineering and computer science at major U.S. universities, 85% of professors reported that patent rights were not among the top four factors motivating their research activities.<sup>245</sup> Indeed, 57% of professors in the same survey reported that they do not know how, or if, their university shares licensing revenue with inventors.<sup>246</sup> Actually, that survey has suggested that patenting high-tech inventions made on university campuses is not profitable at all, with a negative 3.5% rate of return on high-tech patents.<sup>247</sup> Hence, the criticism that the fear from losing protection for NPPs will reduce universities' incentives to innovate should not be exaggerated.

The same applies to the complaint that the proposed model will harm the dissemination of early-stage research. First, university researchers have alternative ways to disseminate their research, including conferences, lectures and publications. Second, it is not sure that patents constitute an appropriate tool to learn about the state of the art.<sup>248</sup> The information they disclose is not up-to-date and there is far too many of them, making reading all the patents pertinent to a specific technology an impractical mission.<sup>249</sup> Third, there is evidence from the high tech industry suggesting that patents may actually hinder early-stage research. Indeed, many respondents in the survey reported earlier indicated that university patent rights actually harm their ability to bring in research funding,<sup>250</sup> to

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<sup>243</sup> Lemley, *Universities*, *supra* note 8, at 9.

<sup>244</sup> *Id.*

<sup>245</sup> Brian J. Love, *DO UNIVERSITY PATENTS PAY OFF?: EVIDENCE FROM A SURVEY OF UNIVERSITY INVENTORS IN COMPUTER SCIENCE AND ELECTRICAL ENGINEERING*, 16 *Yale J. of L. & Tech.* (forthcoming 2014), available at <http://ssrn.com/abstract=2448521>

<sup>246</sup> *Id.*

<sup>247</sup> *Id.* (finding that universities spend more obtaining and maintaining high-tech patents than they earn back in overall royalties).

<sup>248</sup> See *infra* note 380 and accompanying text.

<sup>249</sup> *Id.*

<sup>250</sup> Love, *supra* note 245, at 34 (survey respondents noted the potential of university patenting to strain relationship between professors and companies that fund academic research due to the fact that they cannot negotiate research agreements with industry partners without involving their tech transfer offices, a requirement that adds complexity and delay to the process of acquiring funds).

collaborate with professors at other institutions,<sup>251</sup> and to share their discoveries with the rest of the research community.<sup>252</sup>

Nor will the proposed model hamper technology transfer. Indeed, plenty of university technology transfer occurs in the absence of patents.<sup>253</sup> Especially in rapidly growing industries, such as the IT industry, where developing patents into marketable products is far as complicated than it is in the pharmaceuticals industry, there is no reason to believe that exclusive rights are necessary to encourage companies to engage in commercialization.<sup>254</sup> Take as an example the computer, the world-wide-web, search engines, relational databases, and any number of software programs that were all developed by universities without need of patents.<sup>255</sup> If at all, the software and telecommunications industries need freedom to operate, not blocking rights of exclusivity.<sup>256</sup> Even where university patenting is crucial for technology transfer, especially in the biotechnology and pharmaceuticals industries, where coming up with an invention is the first step in a long regulatory process,<sup>257</sup> it is important to realize that it is only the patenting of inventions that lack any commercial potential that the model potentially discourages. Such un-applied, early-stage research constitutes “building

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<sup>251</sup> *Id.* at 35 (“In today’s academic environment, cross-university collaboration requires coordination between the various institutions’ tech transfer offices. The resulting transactions costs deter, and sometime outright tank, collaboration, which . . . is troubling for the future of high-tech research.”).

<sup>252</sup> *Id.* at 36 (as one of the respondents noted “too much focus on intellectual property in general at universities runs counter to their primary mission of creating and disseminating knowledge. It changes the culture in dangerous ways and can significantly damage both progress and collaboration.”).

<sup>253</sup> Daniel W. Elfenbein, *Publications, Patents, and the Market for University Inventions* 2, 4-5 (working paper 2005) (showing that the majority of technologies developed at Harvard are licensed before the grant of patent rights, and often without a patent application); For additional objections to patents as commercialization promoters see also Rebecca S. Eisenberg, *Public Research and Private Development: Patents and Technology Transfer in Government-Sponsored Research*, 82 Va. L. Rev. 1663 (1996) (discussing ways in which patents do and do not promote commercialization of university research); Katherine J. Strandburg, *Curiosity-Driven Research and University Technology Transfer*, in 16 *Advances in the Study of Entrepreneurship, Innovation, and Economic Growth: University Entrepreneurship and Technology* 97 (2005); Fiona Murray & Scott Stern, *Do Formal Intellectual Property Rights Hinder the Free Flow of Scientific Knowledge? An Empirical Test of the Anti-Commons Hypothesis* (working paper 2005), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=755701](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=755701) (finding that patenting is associated with reduced citation to an academic publication, yet were commercialization theory true, it should be the opposite).

<sup>254</sup> Lemley, *Universities*, *supra* note 8, at 13.

<sup>255</sup> *Id.*

<sup>256</sup> *Id.* at 14.

<sup>257</sup> *Id.* at 11-12.



blocks” for downstream companies.<sup>258</sup> Subjecting it to exclusive rights generates fewer advances<sup>259</sup> and may even block any improvement of the technology if the owner fails to deliver.

On the other hand, patenting technologies that have a potential of turning into marketable products<sup>260</sup> remains advantageous under the proposed model. With such technologies, the traditional role of universities in disseminating upstream knowledge to manufacturers is maintained. The proposed model only protects patents, which contribute to technology transfer. NPPs, even if held by universities, fall into the public domain, preventing troll-like practices, even if pursued by universities.<sup>261</sup>

#### **IV. LITERATURE REVIEW: IMPLICIT PATENT WORKING REQUIREMENTS**

The previous section explained in depth why the proposed patent working requirement, which makes sufficient patent commercialization a condition for retained patent ownership,<sup>262</sup> should be considered as a solution to the troll problem. The proposal made in the previous sections contrasts with prior scholarship, which has proposed different creative ways to encourage patentees to practice their inventions. The following section will introduce prior proposals and explain why they can not solve the problems caused by NPPs.

##### **A. David Olson’s Proposal for Enhanced Maintenance Fees**

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<sup>258</sup> *Id.* at 6.

<sup>259</sup> Mark A. Lemley, *Property, Intellectual Property, and Free Riding*, 83 *Tex. L. Rev.* 1031 (2005).

<sup>260</sup> And the model provides them with sufficient time to do so. For a detailed discussion of what would constitute an “acceptable excuse,” see *infra* Section V.B.2.

<sup>261</sup> See, e.g., Daniel Engber, *In Pursuit of Knowledge and Profit: How Universities Aid and Abet Patent Trolls*, SLATE, May, 8, 2014,

[http://www.slate.com/articles/technology/history\\_of\\_innovation/2014/05/patent\\_trolls\\_universities\\_sometimes\\_look\\_a\\_lot\\_like\\_trolls.html](http://www.slate.com/articles/technology/history_of_innovation/2014/05/patent_trolls_universities_sometimes_look_a_lot_like_trolls.html); John Koetsier, *Congratulations, Boston University, You’re Now a Patent Troll*, VENTUREBEAT (July 3, 2013, 12:17pm EDT),

<http://venturebeat.com/2013/07/03/congratulations-boston-university-youre-now-a-patenttroll/>;

Timothy B. Lee, *Patent Trolls Have a Surprising Ally: Universities*, WASH. POST: THE SWITCH (Nov. 30, 2013, 11:05am EDT), <http://www.washingtonpost.com/blogs/theswitch/wp/2013/11/30/patent-trolls-have-a-surprising-ally-universities/>.

<sup>262</sup> For a detailed discussion of what would constitute “sufficient commercialization,” see *infra* Section V.A.

Olson proposes an interesting model, where maintenance fees are increased in accordance with the number of NPPs in the patentee's patent portfolio.<sup>263</sup> Acknowledging that large patent portfolios cause many problems, Olson applies a standard economic approach to dealing with undesired behavior: he suggests raising the price for owning NPPs.<sup>264</sup> Accordingly, in Olson's model, "as the size of a firm's patent portfolio increases, so too does the maintenance fee multiplier charged for all its patents, beginning with the second maintenance fee due date. All patents with common ownership interests would be aggregated in determining the fee enhancement."<sup>265</sup>

Olson suggests that this model has several benefits. First, it will encourage large patent portfolios to condense their holdings by determining which of their older patents are not worth the maintenance fees. This will reduce hold-ups, which block the progress of competitors and new inventors.<sup>266</sup> Second, his model will particularly impact NPEs who hold large patent portfolios because they will generally be charged with higher maintenance fees than other firms that have the same number of patents but commercialize many of them.<sup>267</sup> Third, this model will increase the certainty as to two important types of patent data: (1) who owns which patents, and (2) whether particular patents are being practiced.<sup>268</sup> The reason for this, according to Olson, is that patentees will be required to disclose their practiced and NPPs to allow the USPTO<sup>269</sup> to determine whether fee enhancements are necessary.<sup>270</sup>

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<sup>263</sup> David Olson, *REMOVING THE TROLL FROM THE THICKET: THE CASE FOR ENHANCING PATENT MAINTENANCE FEES IN RELATION TO THE SIZE OF A PATENT OWNER'S NON-PRACTICED PATENT PORTFOLIO*, Boston College Law School, Legal Studies Research Paper 303 (August 2013), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2318521](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2318521). Compare to James Bessen & Brian J. Love, *MAKE THE PATENT "POLLUTERS" PAY: CONGRESS, PIGOVIAN FEES CAN CURB PATENT ABUSE TOO*, 4 Cal. L. Rev. 84 (2013) (propose setting Pigovian patent fees under which patentees would pay an amount representing the deadweight lose resulting from their patent rights.).

<sup>264</sup> *Id.*

<sup>265</sup> Olson, *supra* note 263, at 3.

<sup>266</sup> *Id.*

<sup>267</sup> *Id.*

<sup>268</sup> *Id.*

<sup>269</sup> Recall, that the 2011 America Invents Act gives the PTO the power to set patent examination and maintenance fees. See Leahy-Smith America Invents Act, Pub. L. No. 112-29, sec. 10, 125 Stat. 284, 316 (2011). Prior to the AIA, fees were set directly by Congress in the patent statute at 35 U.S.C. §41. Section 41 allowed the Director of the PTO to adjust the fees each year after 1992 to account for inflation. 35 U.S.C. §41(f).

<sup>270</sup> Olson, *supra* note 263, at 3.

It appears that Olson is mainly concerned about the problem of patent thickets.<sup>271</sup>

He maintains:

“Ownership of large patent portfolios by aggressive, established firms, combined with the boundary and notice problems that surround patents and make it difficult to know when a patent might be infringed, give large firms significant, non-socially beneficial power to intimidate or crush upstart rivals. Such uses of patents contravenes patent policy, eroding competition, which is the backbone of a market economy.”<sup>272</sup>

There is no doubt that large patent portfolios held by aggressive firms may thwart progress and innovation. Nevertheless, a large patent portfolio is only one common characteristic shared by many patent trolls. The second, more prevailing characteristic relates to the *type* of patents they usually assert: these are NPPs. Apparently, Olson’s model applies only to NPPs that are part of large patent portfolios, while it excludes NPPs that are part of small patent portfolios.

Indeed, Olson states explicitly that, “the PTO should establish a progressive system of maintenance fee enhancements, *with no enhancement being assessed on portfolios below a certain size.*”<sup>273</sup> Yet, one can imagine instances where holders of small portfolios of NPPs can abuse their power to extract unfair settlements that impede innovation. Consider, for example, the assertion activities of Innovatio IP Ventures and Project Paperless, which have collectively targeted thousands of small businesses nationwide, claiming infringement of their scanning-related patents.<sup>274</sup> Innovatio’s patent portfolio consists of a total of 31 patents<sup>275</sup> a negligible figure compared to patent portfolios of famous patent trolls, such as Intellectual Ventures, who holds around 10,000 US patents<sup>276</sup> or Road Rock, who holds approximately 3,428 patent publications.<sup>277</sup>

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<sup>271</sup> *Id.* at 6 (“I will simply proceed under the assumption that the weight of the evidence suggests that patent thickets do exist in some areas, at least to a sufficient enough extent to cause significant transaction costs to firms in certain industries like software and high technology. This Article is about alleviating that problem.”).

<sup>272</sup> *Id.* 19-20.

<sup>273</sup> *Id.* at 23.

<sup>274</sup> Cisco Systems Inc. v. Innovation IP Ventures, LLC, No 1:11cv09309 (N.D. III. Filed Dec. 28, 2011).

<sup>275</sup> <http://www.npelitigation.com/Innovatio/Learn-More-About-The-Cases>.

<sup>276</sup> Robin Feldman & Tom Ewing, *The Giants Among Us*, 2012 STAN. TECH. L. REV. 1, 25-29 (2012); Largest Patent Holdings, PATENTFREEDOM (Jul. 13, 2012), <https://www.patentfreedom.com/about-npes/holdings/>.

<sup>277</sup> Patent publications include issued patents and patent applications that have been published by the Patent Office 18 months after the patent is filed. 35 U.S.C. § 122(b).

Nonetheless, the harm that Innovatio and Project Paperless could possibly cause is indisputable.<sup>278</sup>

Olson's approach directly targets large patent portfolios, yet only indirectly targets NPPs. Consequently, the model's impact over the overall number of NPPs appears questionable, as it depends on the size of the encompassing portfolio: a portfolio of 10,000 patents of which 100 are NPPs may potentially be affected by Olson's maintenance fee enhancement, whereas a portfolio of 100 NPPs may be immune (in a model that determines that no enhancements would be assessed to portfolios of 100 patents and less). While Olson's model arguably encourages holders of large portfolios to allow their NPPs to lapse into the public domain, it barely influences holders of small patent portfolios.

This leads to another intertwined problem with Olson's model. Olson's model leaves portfolio holders with full discretion as to whether to condense their holdings of NPPs based on their own cost-benefit assessment (considering the costs of heightened maintenance fees as opposed to the possible benefits from asserting NPPs and extracting settlements). Enhanced maintenance fees only make holding NPPs more expensive,<sup>279</sup> but they do not ban the phenomena completely. Even if holders of large patent portfolios elect to condense their holdings, they still have full discretion to decide which of their NPPs shall lapse into the public domain. This unlimited discretion may be abused when entities divide their portfolios among many subsidiaries and alternative business entities to avoid the fee enhancement.

On the other hand, this article's proposed patent working requirement applies directly to *all* NPPs and requires their holders to submit a statement of use as a condition for retained patent ownership.<sup>280</sup> All patent holders, regardless of the size of their patent portfolio, may risk losing their rights if they fail to practice their patents within a specified time period. Hence, this article, in contrast to Olson's model, tackles the problem associated with NPPs irrespective of whether they are held individually or as a part of large patent portfolios. Here, the problem of large patent portfolios is addressed

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<sup>278</sup> To understand its implications See <http://stop-project-paperless.com/>

<sup>279</sup> Olson, *supra* note 263, at 1 ("A standard economic approach to dealing with unwanted behavior is to try to raise the price for the objectionable behavior.").

<sup>280</sup> For a detailed discussion of the technicalities of the proposed model, see *infra* Section V.A.

only indirectly, as a bi-product of striking out NPPs. Furthermore, the proposed patent working requirement applies equally to all patents, leaving no discretion to their holders and no room for gaming. Even the few numerated exceptions to the proposed requirement are determined clearly and examined by the USPTO.<sup>281</sup> Hence, besides those exempted, all NPPs, unless practiced, will lapse into the public domain and patent holders will not be able to pay extra to keep holding them.

### B. Ted Sichelman's Proposal For a Commercialization Patent

Sichelman proposes a dual-rights model that addresses the problem of under-commercialization of patents. In particular, Sichelman introduces a “commercialization” patent that “is granted in exchange for a commitment to commercialize a product not available in the marketplace.”<sup>282</sup> According to Sichelman, commercialization patents could be filed for any of the traditional patentable subject matter, yet only products that are “substantially novel”—“that is, different from a product currently available in the marketplace and its ‘substantial equivalents’” would qualify for a patent.<sup>283</sup> Commercialization patents must be practiced no later than three years after filing and their claims would be limited to the product specifically disclosed in the specification and its substantial equivalents.<sup>284</sup>

Sichelman's commercialization patent will provide, in addition to the right to exclude others from making and selling the same or similar products, an affirmative right to its holder to make and sell the product.<sup>285</sup> The commercializer will be immune from any injunctive remedies otherwise available in infringement suits by traditional patent holders, while the traditional patent holder will be limited to a low, but fairly reasonable, fixed royalty rate he could win at suit and will be subject to damages apportionment for multi-component products.<sup>286</sup> Furthermore, Sichelman's commercialization patent could

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<sup>281</sup> For a discussion of what would constitute an “accusable delay,” see *infra* Section V.B.2.

<sup>282</sup> Sichelman, *supra* note 48, at 345.

<sup>283</sup> *Id.* at 346.

<sup>284</sup> *Id.*

<sup>285</sup> *Id.*

<sup>286</sup> *Id.*

only be filed after a traditional patent goes un-commercialized for three years after issuance and its duration will be shorter than that of traditional patents.<sup>287</sup>

Sichelman attributes several benefits to his model. First, he argues that the positive rights granted by the proposed commercialization patent will significantly lower transaction costs originating in strategic licensing and litigation that hinder commercialization under the current system.<sup>288</sup> The reason for this is that patents that remain non-commercialized three years after issuance will lose their injunctive value and will only reap small damage awards against the commercialization patent holder.<sup>289</sup> By creating a competition between the invention patent and the commercialization patent holder for licenses to non-patentee commercializers, overall costs will be reduced and commercialization will be encouraged.<sup>290</sup> Second, Sichelman contends that his model will reduce the problems caused by broad claims and concomitant blocking patents.<sup>291</sup> Third, Sichelman argues that commercialization patents will encourage the development of undeveloped inventions that serve important distributive interests,<sup>292</sup> because commercialization patents will apply to any product not currently available in the market, regardless of whether the product was covered by an invention patent (i.e., newly available complementary technologies that lower production prices).<sup>293</sup>

Nevertheless, Sichelman's proposal has some difficulties too. Besides raising administrative costs and increasing complexity,<sup>294</sup> Sichelman's dual-rights model seems problematic in another sense. It could be, that Sichelman's model will effectively replace current patent trolls with a new "bad actor" that will game the proposed dual-rights system. In particular, Sichelman's model may induce wealthy manufacturers to haunt valuable invention patents, wait three years to be sure they go non-commercialized and then file for commercialization patents. As a result, Sichelman's model might create a centralized market in which strong and wealthy firms exclusively hold commercial goods.

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<sup>287</sup> *Id.*

<sup>288</sup> *Id.* at 409.

<sup>289</sup> *Id.*

<sup>290</sup> *Id.*

<sup>291</sup> *Id.* at 410.

<sup>292</sup> *Id.*

<sup>293</sup> *Id.*

<sup>294</sup> *Id.* 411-412.

There are several reasons why wealthy manufacturers will have no reason whatsoever to engage in licensing negotiations with invention patentees before the end of this three years grace period: First, because independent licensing negotiations entail additional transaction costs; second, because waiting three years ensures lower licensing fees: a commercialization patent could be filed three years after an invention patent goes non-commercialized, and at that point the traditional patent holder will only be entitled to “low, but fairly reasonable”<sup>295</sup> licensing fees;<sup>296</sup> and third, because small invention patentees will likely fail to bear the high costs of filing for commercialization patents anyway.<sup>297</sup> By waiting three years, well-capitalized firms will not risk losing the patent. Accordingly, small inventors would lose twice: First, they will lose the possibility of increased licensing fees during the first three years of their patents’ life. Second, with insufficient income, they will not be able to commercialize their patents independently and participate in the market of commercial goods. It is true that invention patentees will remain entitled to “a low, but fairly reasonable, fixed royalty rate,”<sup>298</sup> however it is completely unclear how this royalty rate will be determined. Indeed, one can imagine instances where a “low” royalty fee will turn out to be totally unreasonable.

It turns out, and Sichelman apparently admits it himself, this dual-rights model may possibly hinder innovation.<sup>299</sup> Weaker invention patentees, who lack the resources to commercialize their patents, may be left with diminished, ex ante incentives to invent. Such patentees may find their research costs to outweigh the benefit of “low, but fairly reasonable” royalty fees and elect to abandon their research. Such a scenario clearly decreases social benefit.

This article, on the other hand, puts so called “invention patentees” in a much better position. Indeed, when such inventors realize they cannot comply with the proposed working requirement, they are free to license their patents in return for licensing fees *they negotiate independently*. That is, they are not obliged to accept a “low, but

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<sup>295</sup> *Id.* at 346

<sup>296</sup> *Id.*

<sup>297</sup> *Id.* at 411 (“because applicants for commercialization patents would commit to making and selling a substantial number of products, they should be willing to pay very high filing fees when applying for the patent. For example, the Patent Office might charge \$25,000 to large entities and \$10,000 to small entities, well more than an order of magnitude greater than the current fees.”).

<sup>298</sup> *Id.* at 346.

<sup>299</sup> *Id.* at 408.

fairly reasonable” licensing fee. Consequently, patentees holding patents with clear commercial potential are likely to enjoy high licensing fees under this article’s proposed model. As a result, ex ante incentives to invent *valuable* inventions<sup>300</sup> are remained unaffected. While this proposal encourages the commercialization of valuable patents, it does not do so on the account of decreased valuable inventions.

### C. John F. Duffy’s Proposal to Revive the Paper Patent Doctrine<sup>301</sup>

The “paper patent” doctrine, which Duffy suggests to resuscitate, “authorized courts to differentiate among patents based on whether the patentee had ever practiced the patented technology in the real world. Mere paper patents - those never developed and successfully practiced by their patentees - were construed narrowly and were more likely to be held invalid.”<sup>302</sup> At the same time, patents that were successfully commercialized were favored in determining scope and validity under this doctrine.<sup>303</sup> The paper patent doctrine was prominent between the nineteenth century and the first half of the twentieth century, however afterwards it began losing its power. The emergence of the documentary disclosure theory, under which the *quid pro quo* for patent rights is the disclosure required by statute to be provided in the patent document, ultimately killed the paper patent doctrine.<sup>304</sup>

Duffy argues that today’s controversy over the practices of NPEs yields the demise of the paper patent doctrine “a true loss to society, for the doctrine’s absence

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<sup>300</sup> The proposed working requirement would discourage the development of invaluable inventions that are likely to lapse into the public domain for not being practiced within the specified time.

<sup>301</sup> Duffy, *supra* note 30, at 1360; For additional proposals of judicial doctrines to be used by the courts against abusive NPEs see, e.g. Oskar Liivak & Eduardo M. Peñalver, *The Right Not to Use in Property and Patent Law*, Cornell Legal Studies Research Paper No. 12-62 (October, 2012), available at <http://ssrn.com/abstract=2162667> (suggesting, that in cases brought against independent inventors, patent remedies will be contingent on a patent owners’ efforts to disseminate their inventions to reduce the threats posed by patent trolls); Christopher A. Harkins, *FENDING OFF PAPER PATENTS AND PATENT TROLLS: A NOVEL “COLD FUSION” DEFENSE BECAUSE CHANGING TIMES DEMAND IT*, 17 Alb. L.J. Sci. & Tech. 407 (2007) (proposing a “cold fusion defense,” which restores the patent system to a first to invent system in which an author that is not truly the first person having possession of the idea, having actually built or disclosed a functioning device that others can make, is not the first to invent). While both proposals provide courts with a doctrinal tool against abusive NPEs, they suffer from the same limited impact as that of professor Duffy’s proposal to revive the “paper patent” doctrine discussed henceforth.

<sup>302</sup> Duffy, *supra* note 30, at 1360.

<sup>303</sup> *Id.*

<sup>304</sup> *Id.* at 1361.



means that courts have no doctrinal tool to distinguish between patentees that did, and those that did not, do anything in practical terms to advance the relevant technological art.”<sup>305</sup> According to Duffy, coping with patent trolls and other NPEs presents a striking challenge to the dominant documentary disclosure theory.<sup>306</sup> Indeed, NPEs presumably play by the rules: they respect the documentary disclosure theory by providing a full and adequate disclosure of their claimed inventions along with their patent applications. That’s all and no more. They do not make any beneficial use of their inventions to promote progress and benefit society.

There is no doubt that a paper patent doctrine could provide courts with a meaningful tool to employ against patent trolls and other NPEs who abuse their rights. Indeed it could be used both to invalidate paper patents on which suit had been brought, and to invoke the equitable doctrine of laches to dismiss an infringement action.<sup>307</sup> In between it could also be used to interpret the claims of the patent narrowly, or to limit the range of equivalents available under the doctrine of equivalents.<sup>308</sup> With a doctrinal tool such as the paper patent doctrine, NPEs would find it extremely difficult to win infringement lawsuits and extract un-proportional damages. Presumably, reviving this ancient doctrine would entail less infringement lawsuits brought by NPEs that would result in a substantial reduction in litigation rates and litigation costs.

Nevertheless, as a judicial doctrine,<sup>309</sup> the paper patent doctrine is insufficient to address *all* the problems associated with patent trolls because only a small portion of NPE litigation actually proceed all the way through judgment. In fact, empirical evidence suggests that post-trial settlements are far more prominent than judgments in NPE litigation.<sup>310</sup> Particularly, John R. Allison, Mark A. Lemley and Joshua Walker

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<sup>305</sup> *Id.* at 1363.

<sup>306</sup> *Id.* at 1365.

<sup>307</sup> *Id.* at 1381.

<sup>308</sup> *Id.*

<sup>309</sup> *Id.* at 1382.

<sup>310</sup> This is generally true, and not only in relation to NPEs. Indeed, a recent empirical study of patent litigation found that 90% of lawsuits settle before the court resolves summary judgment or tries the case. Allison et al., *Understanding the Realities of Modern Patent Litigation*, Texas Law Review (Forthcoming 2014), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2442451](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2442451) [hereinafter, Allison et al., *Modern Patent Litigation*].

found that NPEs settle in 89.6% of the cases involving highly litigated patents.<sup>311</sup>

Because negotiations take place out of the courthouse, they may still result in excessive settlements.<sup>312</sup>

While a paper patent doctrine may arguably give more power to defendants in NPE litigation cases, it is doubtful that it will reduce settlement rates in any significant volume. Even without a revived paper patent doctrine, empirical evidence proves that most NPEs lose in court.<sup>313</sup> Nonetheless, most defendants still prefer to settle outside the court, despite their respectively high chances to win at court. Indeed, defending against an infringement suit all through judgment is extremely expensive,<sup>314</sup> and most alleged infringers prefer to end the litigation as early in the process as possible.<sup>315</sup> Apparently,

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<sup>311</sup> Allison et al., Patent Quality and Settlement, *supra* note 125, at 689 (examining 106 patents that have been litigated eight or more times between January 2000 and February 2009, while characterizing each of the patent owners into practicing entities and NPEs).

<sup>312</sup> Bessen and Meurer, Direct Costs, *Supra* note 7 (“The average legal cost to defend a patent case is \$420,000 for small and medium sized companies and \$1.52 million for large companies. The average settlement costs are \$1.33 million for small and medium companies and \$7.27 million for large companies.”).

<sup>313</sup> Allison et al., Patent Quality and Settlements, *supra* note 125, at 694 (finding that product owners win on the merits 40% of their cases, while NPEs win only 8%). This is true also generally: Allison et al., Modern Patent Litigation, *supra* note 310 (finding that patentees generally win only 26% of cases).

<sup>314</sup> James Bessen and Michael J. Meurer, *The Private Costs of Patent Litigation*, 9 J. L. Econ. & Policy, 59 (2013) (examining 352 patent cases in which one of parties requested legal fees between 1985-2004, they found that the mean legal fees for cases that went through trial were \$1.04 million for patentee litigants and \$2.46 million for alleged infringers. Based on survey information collected by the American Intellectual Property Law Association in 2001, they found that the estimated cost through trial was \$499,000 when the stakes are less than \$1 million, \$1.499 million when the stakes are between \$1 million and \$25 million, and \$2.992 million when the stakes are over \$25 million). However, these are only legal costs. Patent litigation imposes also business costs: using means for three categories (suits with multiple defendants, those with single defendants with more than 500 employees and those with single defendants with 500 or fewer employees), Bessen and Meurer had obtained a mean estimated loss of \$52.4 million in 1992 dollars and a median loss of \$4.5 million. *Id.* at 80-81.

<sup>315</sup> Gwendolyn G. Ball & Jay P. Kesan, Transaction Costs and Trolls: Strategic Behavior by Individual Inventors, Small Firms and Entrepreneurs in Patent Litigation (2009). U. Ill. Law & Econ. Research Paper No. LE09-005; Illinois Public Law Research Paper No. 08-21, available at: <http://ssrn.com/abstract=1337166> or <http://dx.doi.org/10.2139/ssrn.1337166> (Kesan and Ball analyzed patent lawsuit termination data available from the Administrative Office of the federal judiciary. Examining 5,207 lawsuits that were filed in 1995, 1997, and 2000, they find that most cases terminate short of trial, summary judgment, or other substantive court rulings. Specifically, they found that 4.6% of lawsuits reached trial, 8.5% of lawsuits terminated with a summary judgment, dismissal with prejudice, or confirmation of an arbitration decision, and the remaining 86.9% of cases terminated earlier in the process.).

even when plaintiffs assert weak claims, infringers do not tend to change much of this practice.<sup>316</sup>

Furthermore, although NPE litigation is a major concern - causing an annual wealth lost of around \$80 billion for publicly traded U.S. firms<sup>317</sup> - it is not the only problem caused by NPEs. As explained earlier, NPEs extract licensing fees from alleged infringers long before any infringement lawsuit is filed, imposing substantial economic damage and impeding further innovation<sup>318</sup> (the funds expended on licensing could have been put to better use, such as further research and development). Often times, all that an NPE has to do to generate income is to send a cease and desist letter to an alleged infringer. A genuine *threat* of litigation is the strongest weapon of NPEs. Most of the targeted infringers surrender long before a suit is filed and pay the demanded licensing fees to avoid the risk of litigation. This appears true, even when defendants face weak infringement suits.<sup>319</sup>

In fact, a survey of 250 companies conducted by James Bessen and Michael J. Meurer found that the estimated direct accrued costs of NPE patent assertions, consisting of the cost of outside legal services, licenses fees, and other direct costs incurred in response to NPE litigation *risk*, total \$29 billion in 2011.<sup>320</sup> This figure proves that NPEs have a huge economic impact long before they actually file an infringement lawsuit. Unfortunately, a revived paper patent doctrine will probably have no effect over these tremendous costs. Alleged infringers, who wish to avoid litigation, especially during

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<sup>316</sup> James Bessen & Michael J. Meurer, *Lessons for Patent Policy from Empirical Research on Patent Litigation*, 9 LEWIS & CLARK L. REV. 1, 16 (2005). ("A rational defendant will sometimes yield to the threat of a weak suit for three main reasons. First, court errors are difficult to avoid in patent litigation, because claim interpretation is complex and it is difficult for fact-finders to assess evidence of infringement. Thus, a deserving defendant may face a significant risk of liability. Second, a weak lawsuit may be difficult to distinguish from a strong lawsuit, at least until defendant gathers information about the patent through discovery. Finally, even a weak lawsuit may impose significant costs on the defendant, and the defendant might settle to avoid the nuisance of mounting a defense.").

<sup>317</sup> Bessen et al., *supra* note 3; But compare to Spencer Hosie, *Patent Trolls and the New Tort Reform: A Practitioner's Perspective*, 4 J. L. & Policy Info. Soc. 75 (2008); Shrestha, *supra* note 38; Morgan, *supra* note 38; Myhrvold, *supra* note at 40-50 (arguing that NPEs play a socially valuable role by enabling small inventors to realize greater profits from their inventions).

<sup>318</sup> See *supra* note 45 and accompanying text.

<sup>319</sup> James Bessen & Michael J. Meurer, *Lessons for Patent Policy from Empirical Research on Patent Litigation*, 9 LEWIS & CLARK L. REV. 1, 16 (2005).

<sup>320</sup> Bessen and Meurer, *Direct Costs*, *supra* note 7.

periods when their business may be least able to afford it, will probably continue to bear them.<sup>321</sup>

Accordingly, it seems unlikely that Daffy's proposal will encourage defendants to fight through judgment to enjoy the benefits of a revived paper patent doctrine. Thus, while Duffy's recommendation to revive the paper patent doctrine may have substantial influence over those limited cases that proceed to judgment, the overall impact of Duffy's proposal over patent trolling remains questionable.

At the outset of these proposals, the need to create an effective distinction between practiced patents and non-practiced ones to discourage the acquisition and maintenance of the later was generally recognized. Nevertheless, none of these proposals attempt to eliminate NPPs completely. While they favor patent holders who practice their patents, they allow patent holders to independently elect whether to practice their patents or not. Creating a new bundle of rights to be afforded to patents that are actually commercialized, heightening maintenance fees to NPPs or providing courts with doctrinal tools against non-practicing plaintiffs may only have a limited effect on patent trolling. Contrary to this article's proposal for a statutory patent working requirement, they do not impose any mandatory obligation on patent holders to practice their inventions.

## **V. A STATUTORY PATENT WORKING REQUIREMENT: TECHNICALITIES AND CHALLENGES**

The previous sections explained why we should consider a paradigmatic shift in the way we perceive the patent troll problem: from one associated with non-practicing *entities* to one related to NPPs. Without NPPs, the previous sections showed, (N)PEs<sup>322</sup> will actually promote innovation and benefit society. At the same time, the negative behavior of patent trolling will be diminished, whether commenced by NPEs or by practicing entities. Additionally, the previous sections argued that indirectly

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<sup>321</sup> Christopher A. Harkins, *FENDING OFF PAPER PATENTS AND PATENT TROLLS: A NOVEL "COLD FUSION" DEFENSE BECAUSE CHANGING TIMES DEMAND IT*, 17 Alb. L.J. Sci. & Tech. 407, 437 (2007).

<sup>322</sup> See *supra* Section III.B.

discouraging patent holders from holding NPPs is not an ideal solution, and therefore NPPs must be addressed directly and unequivocally. Based on this theoretical foundation, the following section turns to elaborate on the practical technicalities of the proposed model, as well as on the various challenges its implementation is likely to impose.

#### A. Technicalities

The proposed patent working requirement will impose a statutory obligation on all patent holders to submit an electronic statement of use to the USPTO, within a defined period of time from the grant of patent protection, to retain patent ownership. This statement of use will *not* constitute an additional condition for patentability, but will rather function as a condition to retain patent ownership. Patent holders will be able to timely request an extension of time based on an acceptable excuse. Patent holders that will fail to submit a timely and appropriate statement, without timely requesting an extension of time, will lose the protection of patent law. As mentioned earlier, this model builds on a model that already exists in trademark law.<sup>323</sup> Trademark law requires trademark owners to submit, through the USPTO's online filing system, a Declaration of Continued Use<sup>324</sup> proving they actually use their trademark in commerce, or an Excusable Nonuse,<sup>325</sup> between the 5<sup>th</sup> and 6<sup>th</sup> year after the registration date.<sup>326</sup>

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<sup>323</sup> See the USPTO's website explaining about the usage requirement in trademark law: <http://www.uspto.gov/trademarks/teas/index.jsp>.

<sup>324</sup> 15 U.S.C. §1058.

<sup>325</sup> Generally, a trademark owner must show that nonuse is due to special circumstances beyond the owner's control to be excused for not using his mark. Examples of special circumstances that excuse nonuse include instances where the owner of the registration is willing and able to continue use of the mark in commerce, but is unable to do so due to a trade embargo; temporary nonuse due to the sale of a business; interruption of production for retooling of a plant or equipment, with production possible again at a scheduled time, if the owner shows that the plant or equipment being retooled was essential to the production of the goods and that alternative equipment was unavailable on the market (In re New England Mutual Life Insurance Co., 33 USPQ2d 1532 (Comm'r Pats. 1991)); the product is of a type that cannot be produced quickly or in large numbers (e.g., airplanes), yet there are orders on hand and activity toward filling them; illness, fire, and other catastrophes may create situations of temporary nonuse, with the owner being able to outline arrangements and plans for resumption of use. Such nonuse is often excusable. However, a mere statement that the owner is ill and cannot conduct his or her business will not in itself excuse nonuse; the owner must show that the business is an operation that could not continue without his or her presence. See <http://tmep.uspto.gov/RDMS/mashup/html/page/manual/TMEP/Oct2012/TMEP-1600d1e916.xml>

Afterwards, trademark owners are required to submit a statement of use (as well as an Application for Renewal) every 10 years to maintain their registration.<sup>327</sup> Pursuant to trademark law, failure to promptly submit these documents will result in the cancellation of the trademark registration.

The reason this article suggests borrowing from the submission system used in trademark law is a practical one: an electronic submission model already exists in a different context but for a similar purpose. Instead of formulating a new model from scratch, we can simply build on an already existing model that addresses many of the technicalities that involve the implementation of a usage requirement. This is not to say that incorporating a usage requirement into patent law is justified for the same reasons as those justifying the existence of such a requirement in trademark law. Indeed, usage is inherent to the nature of trademarks: these are marks that are *used* in connection with specific goods/services in such way that consumers come to associate them as the source of the goods/services.<sup>328</sup> Excluding the preliminary period in which trademarks may be under an intent-to-use obligation,<sup>329</sup> unused trademarks are dead. A trademark owner cannot abuse an unused mark against a competitor because such a mark cannot function as source designator. In contrast, usage is not inherent to the nature of patents. Patents grant their owners a negative right to exclude others, without imposing a positive right of use on the owners. NPPs are not dead; their liveness is the problem that patent trolls raise! They can be abused against competitors because the law of patents protects them. Incorporating a usage requirement into patent law depends on external justifications such as those provided in the previous sections.<sup>330</sup>

According to trademark law, a §8 Declaration must include the following information: (1) the registration number; (2) the name and address of the current owner; (3) a filing fee of \$100 per class of goods/services; (4) a statement that the registered

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<sup>326</sup> See 15 U.S.C. §1058.

<sup>327</sup> See 15 U.S.C. § 1059.

<sup>328</sup> Stacey L Dogan and Mark Lemley, *Grounding Trademark Law through Trademark Use*, 92 Iowa L. Rev. 1669, 1670 (2007) (“The law now protects a broad array of devices—including shapes, colors, sounds, and smells—against use not only by competitors but also by sellers of even peripherally related products.”).

<sup>329</sup> Protecting Your Trademark: ENHANCING YOUR RIGHTS THROUGH FEDERAL REGISTRATION, Basic Facts About Trademarks, United States Patent and trademark Office, pp. 18, available at <http://www.uspto.gov/trademarks/basics/BasicFacts.pdf>

<sup>330</sup> See *supra* Section III.

mark is in use in commerce; a list of the goods/services recited in the registration on or in connection with which the mark is in use; and one specimen per class of goods/services. Examples of acceptable specimens are tags/labels for goods, and advertisements for services; and (5) a signed and dated affidavit or declaration under 37 C.F.R. §2.20.<sup>331</sup> Similarly, to comply with the proposed patent working requirement, patent owners would be required to include in their statement of use similar information, such as: (1) patent number; (2) name and address of patent owner; (3) a filing fee; (4) specimens proving patent practice; (5) an affidavit signed by the patent owner in which he declares that the underlining patent has been developed into a marketable good. While some of these are very easy to implement – especially (1), (2), (5) and even (3)<sup>332</sup> – deciding on the appropriate specimens that will be sufficient to comply with the proposed patent working requirement is more challenging.

Recall, that this proposal defines “practiced patents” as patents that had been sufficiently commercialized within the specified period of time.<sup>333</sup> Mostly, eligible specimens must be able to prove that the underlining patent is embedded in a product or service sold in the marketplace. Nevertheless, there may be instances where commercialization that does not involve actual sales would be sufficient to prove compliance with the proposed requirement. This may happen, for example, when the patent holder uses the patented technology exclusively in his own business without selling it to competitors. The fact that the operating business utilizes the patented technology internally (so we are not dealing with an NPP) dismisses the need of actual sales to safeguard against patent trolling.

On the other hand, merely licensing the patented technology would not amount to sufficient commercialization under the proposed model. It is naïve to believe that because NPPs are deemed to fall into the public domain, licensing agreements would only involve patents with clear commercial potential. Dismissing patent holders who timely license their patented technology from the proposed requirement will likely encourage deception, when patent holders will enter into sham licensing agreements.

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<sup>331</sup> See <http://www.uspto.gov/trademarks/process/maintain/prfaq.jsp>

<sup>332</sup> So long the filing fees are reasonable, I do not think there should be any difficulty to determine them.

<sup>333</sup> Section V.B.1 explains how these technology-specific time frames would be determined.

Unlike the case of sham sale, with which the USPTO and the courts can address doctrinally,<sup>334</sup> identifying sham licensing agreements may be impossible. Accordingly, this article recommends not accepting proof of licensing, alone, as adequate evidence of sufficient commercialization.

Nor would merely developing the patented technology into an end product constitute sufficient commercialization under the proposed model. In the past, when “actual reduction to practice”<sup>335</sup> was needed in order to complete the process of invention, the USPTO used to require small-scale models of inventions to be constructed and submitted with many patent applications.<sup>336</sup> Even then, however, requiring patentees to submit working models of their inventions overly burdened patent applicants and was overall ineffective in assisting the administrative process of patent examination.<sup>337</sup> It is hard to imagine that reviving this requirement to submit specimens depicting physical embodiments of patents will be in any extent more appropriate today, especially when dealing with intangible process inventions, such as those centering most of today’s innovative industries.<sup>338</sup>

Unless the patented technology is used internally, as explained in the previous paragraphs, specimen applicable to prove sufficient commercialization under this proposal must generally show actual sales of the product or service embodying the patent. When evaluating statements of patent use, examiners will be authorized to limit the scope of the claims, in cases where patents are only partly commercialized. It is not required, however, that the product will read on one individual patent. Today, especially in the

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<sup>334</sup> Sichelman, *supra* note 48, at 347.

<sup>335</sup> “Actual reduction to practice” is one of two possible ways in which an inventor can complete the process of invention. Essentially, it is satisfied by “nothing less than the actual practice of some art, or the construction of some article of manufacture.” See WILLIAM C. ROBINSON, 1 THE LAW OF PATENTS FOR USEFUL INVENTIONS § 77, at 181 (Boston, Little, Brown & Co. 1890); Duffy, *supra* note 30, at 1366-8.

<sup>336</sup> See Craig Allen Nard, *Legal Forms and the Common Law of Patents*, 90 B.U. L. REV. 51, 70 n.83 (2010) (providing a history of the Patent Office’s model requirement); see also Michael Risch, *America’s First Patents*, 64 FLA. L. REV. 1279, 1309-10 (2012) (listing the types of models the Patent Office required in 1823).

<sup>337</sup> Duffy, *supra* note 30, at 1370.

<sup>338</sup> Accepting machine-implementation as evidence of sufficient commercialization leaves room for deception, as illustrated by the unaccepted use of general-purpose computers made by inventors attempting to prove subject matter eligibility under the “machine-or-transformation” test. See, e.g., *Bilski v. Kappos*, 30 S. Ct. 3218 (2010) (rejecting the machine-or-transformation test as the sole test for determining patentable subject matter).



software and telecommunications industries (but not only), products integrate multiple functions that may rely on a multitude of combined inventions (like the smartphone that may potentially cover technologies claimed by 250,000 different patents).<sup>339</sup> Hence, a single product may be used to prove practice of several patents held by several different owners, yet a licensing agreement between a licensee and the patent owner will have to be submitted as well.

The following example will illustrate this: Assuming company A owns patent a, company B owns patent b, company C owns patent c and troll T owns patent t. A, B and C negotiate separate licensing agreements with a program developer. Eventually, the developer comes up with product p. Reaching the deadline for filing the proposed patent working requirement, companies A, B and C submit product p as proof of use. Alongside their submission they each submit a copy of the licensing agreement with the program developer. Subsequently, T submits its own declaration, using product p as a proof of use with the hope to retain patent ownership and assert its patent against operating companies. Nonetheless, absent a licensing agreement with the program developer, T will not be able to prove that product p actually builds on its patent t. Losing patent protection for patent t, troll will be blocked from asserting it against practicing companies.<sup>340</sup>

Determining what should be the required sales magnitude obviously demands further research and testing, which are beyond the scope of this article. What can be said

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<sup>339</sup> David Drummond, When Patents Attack Android, Google Official Blog (Aug. 3, 2011), <http://googleblog.blogspot.com/2011/08/when-patents-attackandroid.html> (on file with the Columbia Law Review).

<sup>340</sup> At first glance, this example may invoke a possibility of fraud from the part of the program developer: realizing that NPPs will lose their protection, the program developer might decide to use patents a, b, and c without paying any licensing fees. Assuming that companies A, B, and C will not be able to submit a copy of a licensing agreement in relation to their patents, the program developer might think they will lose their ability to sue the program developer for infringement. While initially appealing, this scenario is extremely unlikely because it ignores the key benefit of patent protection: the right to have an exclusive control over the claimed invention. By causing patents a, b, and c to fall into the public domain, the program developer may forego his status as a monopoly owner. His competitors may quickly develop products that resemble his product. Furthermore, if the troll will search and find some other developer who will agree to license its patent t in order to develop a marketable product, then the proposed model will prove its merits. Such a scenario would demonstrate that T has effectively turned into a practicing entity that not only increases competition for the benefit of all consumers, but also advances progress and innovation.

at this point of the study is that different bars should apply to different fields of technology and that a “sham sale” doctrine would quickly develop to prevent deception.

But what if commercialization efforts will be timely initiated, yet no actual sales will occur? What will constitute an acceptable excuse? And what about industries in which developing a patent into a marketable good takes a particularly longer period of time? These issues, and many others, will be discussed henceforth, as part of the challenges introduced by the proposed model.

## B. Challenges

While the general model of trademark law for imposing a usage requirement on owners may be of great assistance in addressing the technicalities of the proposed patent working requirement, there are several challenges that must be resolved within the specific context of patent law. The following section introduces these challenges and suggests how to address them.

### ***1. Time Frame***

An important consideration in implementing the proposed patent working requirement relates to determining the appropriate time frame for submitting the proposed statement of patent practice. At least two sub-considerations are relevant in this regard: First, the designated time frame must be effective to achieve its intended purpose. On the one hand, it must provide sufficient time for inventors to engage in commercialization and manufacturing,<sup>341</sup> yet on the other hand, the longer the period is the less effective will it be in reducing the number of NPPs. Pursuant to 35 U.S.C. § 154, a patent expires after 20 years from its filing date.<sup>342</sup> Meaning all patents, whether practiced or not, will eventually fall into the public domain. Hence, to allow the proposed model to have any meaningful impact over the misuse of NPPs, the time frame

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<sup>341</sup> Emmett W. Eldred & Michael E. McGrath, Commercializing New Technology-I, RES. TECH. MGMT., Jan.-Feb. 1997, at 41, 41 (“Promising new technologies are not magically transformed into products; they need to be developed to the point where they are ready for commercialization.”).

<sup>342</sup> 35 U.S.C. § 154.

for submitting a statement of patent practice must be substantially shorter than the current length of patent duration.

Second, the designated time frame must adhere to the inherent differences in the process of commercialization as it is manifested in the different fields of innovation. Commercializing a patent in the software industry is nothing like commercialization in the pharmaceuticals industry, where inventing and filing for patent protection is only the first step down a long and expensive road of regulations.<sup>343</sup> Because most pharmaceutical inventions are pioneering – covering basic building block technologies – we generally expect a very long process between the development of the invention and its ultimate commercialization.<sup>344</sup> Indeed, it generally takes about 10-15 years to develop a new medicine from the time it is discovered to when it is available for treating patients.<sup>345</sup> To the contrary, we expect patents in fast-paced, rapidly developing industries, such as the software industry, to be commercialized very soon after issuance because product lifecycles in these industries are notoriously short.<sup>346</sup> Moreover, because such industries are generally not subject to external regulation, we generally expect no regulatory delays to slow down their related process of commercialization. Accordingly, it appears inappropriate to set a single time frame for complying with the proposed patent working requirement that will apply equally to all industries. Instead, a technology-specific model, which applies specific time frames to the different fields of innovation, should be preferred. As the next challenge suggests, it might even be appropriate to generally grant patent owners in the pharmaceuticals industry an extension of time to file the proposed statement based on an acceptable excuse.

## 2. *Acceptable Excuse*

Another important challenge in implementing the proposed patent working requirement relates to determining what circumstances will constitute an acceptable

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<sup>343</sup> Lemley, *Universities*, *supra* note 8, at 11.

<sup>344</sup> *Id.*

<sup>345</sup> See [http://www.innovation.org/drug\\_discovery/objects/pdf/RD\\_Brochure.pdf](http://www.innovation.org/drug_discovery/objects/pdf/RD_Brochure.pdf).

<sup>346</sup> Brian J. Love, *An Empirical Study of Patent Litigation Timing: Could a Patent Term Reduction Decimate Trolls Without Harming Innovators?*, 161 U. of Penn. L. Rev. 1309, 1342 (2013) [hereinafter, Love, *Patent Litigation Timing*].

excuse for not filing a prompt statement of patent practice. Generally, it will make sense to divide these circumstances into two groups: the first will consist of circumstances that are specific to the entities involved in the process of commercialization, beginning with the inventor and proceeding with the program developer, the manufacturer, the distributor and so on. The second group will consist of circumstances that are specific to the underlining invention. Accordingly, serious illness of one of the people involved in the chain of commercialization accompanied with a showing that commercialization cannot proceed without the presence of that ill person may constitute an acceptable excuse under the first group of circumstances. Moreover, instances where anyone of the entities that are substantially involved in the process of commercialization is under a trade embargo may also constitute an acceptable excuse for not complying with the proposed working requirement.

Under the second group of circumstances, I recommend including instances where the process of commercialization is delayed due to the nature of the underlining invention. A regulatory process that predates commercialization and substantially delays commercialization will definitely excuse the prompt filing of the proposed statement of use under this second group of circumstances. Pharmaceuticals patents will often fall under this exception.<sup>347</sup> Additionally, patents whose development into marketable products depends on the introduction of complementary, not-yet developed technologies, should also excuse prompt commercialization. However, their owners should be required to supplement their Acceptable Excuse submission with an explanation about the missing technology and its prospected development deadline.

### ***3. Enforceability***

Another important challenge raised by the proposed patent working requirement relates to the issue of enforceability: will recently issued patents be enforceable during the period of time preceding the deadline for submitting the proposed statement of use? Theoretically, allowing patent holders to enforce their rights during this initial period, before they comply with the proposed patent working requirement, can leave room for

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<sup>347</sup> See supra note 257 and accompanying text.

trolling. Conceivably, during this period of time, owners of not-yet practiced patents will be able to assert their rights against others. On the other hand, limiting the ability of patent holders to enforce their rights during the period of time preceding the deadline for submitting the proposed statement of use may prejudice patent owners, especially when they cannot comply promptly with the proposed working requirement due to an acceptable excuse.

Patent owners should be allowed to enforce their rights even before they comply with the proposed requirement for two reasons. First, patent owners are less likely to abuse not-yet practiced patents against competitors during the period of time preceding the deadline for submitting the proposed statement of use. Since patent trolls primarily value patents for their usefulness in extracting royalties and damages from practicing companies,<sup>348</sup> they usually wait to file suit until a lucrative industry had been developed.<sup>349</sup> Moreover, many trolls do not file their own patent applications, but instead purchase patents on the secondary market for litigation purposes.<sup>350</sup> This, of course, takes time.<sup>351</sup> For these reasons, patent trolls are often blamed for extracting income at the expense of practicing entities by asserting *older patents* after the inventions have disseminated through the relevant industries.<sup>352</sup> Indeed, a recent empirical study found that product-producing companies, at average, begin litigating their patents early in the patent term, more than twelve years before expiration, while NPEs, on average, begin litigating their patents much later in the term, less than nine years from expiration.<sup>353</sup>

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<sup>348</sup> Daniel A. Crane, *Intellectual Liability*, 88 TEX. L. REV. 253, 286 (2009) (noting that trolls and practicing entities “have asymmetrical incentives, since trolls are only interested in exacting payments”).

<sup>349</sup> Mann, *Financing in the Software Industry*, *supra* note 7, at 1024 (“[T]rolls are serving a function as intermediaries that specialize in litigation to exploit the value of patents that cannot be exploited effectively by those that have originally obtained them.”).

<sup>350</sup> Crane, *supra* note 348, at 286.

<sup>351</sup> Love, *Patent Litigation Timing*, *supra* note 346, at 1317.

<sup>352</sup> But see Jonathan H. Ashtor, Michael J. Mazzeo, Samantha Zyontz, *PATENTS AT ISSUE: THE DATA BEHIND THE PATENT TROLL DEBATE*, GEO. MASON L. REV. (forthcoming 2014) (finding that the average age (5.89) of patents asserted by PAEs look very similar to the average age (6.35) of patents asserted by practicing entities in cases awarding damages for infringement); See also Love, *Patent Litigation Timing*, *supra* note 346 at 1312 (“though asserting just over 20% of all studied patents, NPEs account for more than two-thirds of suits and over 80% of infringement claims litigated in the final three years of the patent term.”).

<sup>353</sup> Love, *Patent Litigation Timing*, *supra* note 346, at 1331; for a opposite results see Ashtor et al., *supra* note 352.

Accordingly, it seems reasonable to expect no substantial “trollish”<sup>354</sup> assertions of not-yet practiced patents during the first years of patent protection.<sup>355</sup>

Second, limiting the ability of patent holders to enforce their rights during the period of time preceding the deadline for submitting the proposed statement of use undermines the very essence of the patent right. Such a rule will transform our patent system from a first-to-file system<sup>356</sup> to a first-to-commercialize one because inventors will not be protected from infringement during the first years following the grant of a patent. This is problematic because early-stage assertions often serve practicing entities that file suit soon after their patents issue to fend off competitors that are developing or introducing similar products.<sup>357</sup> Accordingly, the argument in favor of allowing regular enforceability during the time period preceding the deadline for submitting the proposed statement is compelling.

#### 4. Criticism

The final paragraphs of this proposal will introduce the criticism against the proposed working requirement. This criticism can be roughly divided into two groups: the first consists of more practical arguments similar to those regularly raised against patent reform proposals,<sup>358</sup> while the second covers normative concerns. Among the arguments included in the first group, are allegations against a potential increase in administrative

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<sup>354</sup> Love, Patent Litigation Timing, *supra* note 346, at 1315.

<sup>355</sup> Tom Ewing, *Indirect Exploitation of Intellectual Property Rights by Corporations and Investors: IP Privateering and Modern Letters of Marque and Reprisal*, 4 HASTINGS SCI. & TECH. L.J. 1, 35 (2012); John R. Allison et al., *Patent Litigation and the Internet*, STAN. TECH. L. REV., no. 3, 2012, at 5, <http://stlr.stanford.edu/pdf/allison-patent-litigation.pdf> (“[NPEs] do not make or sell products and thus are not vulnerable to patent infringement counterclaims, as are product companies that sue for infringement. NPEs consequently may be less reluctant to sue.”).

<sup>356</sup> See First Inventor to File Provisions of the Leahy-Smith America Invents Act, 78 Fed. Reg. 11059, 11063 (Feb. 14, 2013).

<sup>357</sup> Love, Patent Litigation Timing, *supra* note 346, at 1316.

<sup>358</sup> Sichelman, *supra* note 48, at 411 (“The ‘fine-tuning’ of the patent system described above seems nearly impossible by adjusting the scope, duration, or timing of traditional, invention patents. By providing an additional policy lever through the grant of a different set of rights directly in exchange for a commitment to make and build a product, commercialization patents offer the hope of improving commercialization incentives without significantly diminishing invention incentives or increasing deadweight losses. Of course, adding a new set of rights means more administrative costs and complexity.”); Olson, *supra* note 263, at 39-40 (explaining the objections to his proposal: an increase in maintenance fees, making the patent system more expensive, complexity and gaming possibilities).

costs as well as complaints about implementation difficulties. In particular, critics are likely to argue that employing the proposed model will impose additional costs on the USPTO that relate both to the establishment of the proposed submission platform and to the enlistment of additional patent examiners. Nonetheless, there are two strong responses to this argument. First, no meaningful expenses should be expected from adopting the proposed model because, technically, all that is required to make it work is an online submission platform like the one that exists in the trademark system.<sup>359</sup> Second, the costs of hiring additional patent examiners will be mitigated by the expected decline in the number of patent applications (the proposed model discourages inventors to file patent applications for inventions with no commercial potential).<sup>360</sup> In any event, until the expected reduction in patent applications completely mitigates the costs of hiring additional personnel, the submission fees that patent owners will be required to pay along with their statements of use should be able to finance the increased costs.<sup>361</sup>

Furthermore, the first type of criticism also includes complaints about implementation difficulties, such as formulating a coherent standard for reviewing applications for an extension of time based on an acceptable excuse both at the initial examination level at USPTO and at the judiciary level, where defendants will attempt to invalidate an allegedly infringed patent for not being sufficiently practiced. Furthermore, as mentioned earlier, the process of determining an appropriate, technology-specific time frame for complying with the proposed requirement is also a difficult task. Finally, the requirement to prove actual patent practice coupled with the additional fees that will be imposed on patent owners to finance the creation of the proposed mechanism may over burden patent owners.

While all these are legitimate concerns, they should not dissuade us from seriously considering the adoption of the proposed model. First, formulating coherent standards of review is something both the USPTO and the courts are greatly familiar with. Like with the adoption of any new legal rule, so will the adoption of the current one be gradual and based on a case-by-case analysis. The new rule is not rigid. It does not apply blindly to

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<sup>359</sup> See *supra* Section V.A.

<sup>360</sup> *Id.*

<sup>361</sup> See *supra* note 331 and accompanying text.

all fields of inventions, but rather it appreciates the differences between them.<sup>362</sup> The general new rule is accompanied with specific exceptions, and these may evolve and expand gradually. Hence, the USPTO and the courts will have sufficient leeway to develop appropriate standards of review. Second, determining an appropriate, technology-specific time frame for complying with the proposed patent working requirement is an achievable task. One possibility is to examine the average age of patents being asserted in courts against infringers in different fields of inventions.<sup>363</sup> If patent owners can point at an allegedly infringing feature, it is safe to assume that the patented technology could have been developed into a marketable good at least by then. Such empirical evidence can be of great assistance in determining adequate time frames. Third, patent owners should not be over burdened by the requirement to prove patent practice and pay the necessary fees. As explained earlier, the model adopts a simple electronic submission platform through which patent owners will be able to file their statements. Moreover, submitting specimens depicting actual sales of the marketable good will be sufficient to prove patent practice. Hence, patent owners can photocopy sales receipts and licensing agreements, scan and submit them online. Finally, like the \$100 per class fees trademark owners are required to pay when submitting their Declaration of Use,<sup>364</sup> so will the fees imposed on patent owners be reasonable and appropriate.

Turning to the second type of possible criticism, the normative arguments against the proposed model are essentially concerned with how it will affect the invention process. The first of these is concerned about the ex ante affect of the proposed model on the incentives to invent and the second – about its ex post affect on knowledge transmission. In particular, critics may be concerned about the proposed model transcending the current, reward-style<sup>365</sup> patent system into a commercialization-style<sup>366</sup> system. Because

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<sup>362</sup> See *supra* Section V.B.1.

<sup>363</sup> Here are two examples of similar examinations that have been made: <http://patentlyo.com/patent/2012/10/age-of-patents-when-asserted.html>; See also Love, Patent Litigation Timing, *supra* note 346.

<sup>364</sup> See *supra* note 331 and accompanying text.

<sup>365</sup> Duffy, *supra* note 30, at 439 (explaining that the reward theory justifies patents as necessary to induce the invention and disclosure of new and non-obvious knowledge, which inventors would otherwise be reluctant to do in the fear that others may free ride off their efforts.



the proposed model will cut down the reward for inventing and disclosing new knowledge, inventors will arguably be left with diminished incentives to invent. The practical implication of this transition will be, according to these critics, fewer inventions.

Whether the proposed model is bad because it allegedly decreases the value of invention, or good because it encourages the commercialization and exploitation of knowledge, depends on how we define the objectives of our patent system: Should our patent system promote the development of nascent *inventions* or should it promote *innovation* and development of commercialized end products?<sup>367</sup> Ted Sichelman provides the following explanation of the virtue of the distinction between *invention* and *innovation*:

“There is an important distinction between the notions of ‘invention’ and ‘innovation’ that is often overlooked in the scholarly literature and popular media. Properly understood, in the context of patent law, ‘invention’ refers to the act of conceiving the design for a new and non-obvious technological product or process. Although ‘innovation’ includes the act of invention, it is not so limited; rather, innovation encompasses the entire process of identifying a problem to solve; conceiving a solution to the problem; identifying a market; building a prototype; testing the prototype; making a commercial product embodying the invention; marketing, selling, and distributing the product; and improving upon that product.”<sup>368</sup>

Our patent system provides direct incentives to invent, yet not generally to innovate.<sup>369</sup> This does not mean, however, that it does not, and should not, care about the

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<sup>366</sup> See F. Scott Kieff & Troy A. Paredes, *An Approach to Intellectual Property, Bankruptcy, and Corporate Control*, 82 WASH. U. L.Q. 1313, 1318-9 (2004).

<sup>367</sup> See Sichelman, *supra* note 48, at 341.

<sup>368</sup> *Id.* at 367. See also Jan Fagerberg, *Innovation: A Guide to the Literature*, in THE OXFORD HANDBOOK OF INNOVATION 3, 4 (Jan Fagerberg et al. eds., 2005) (“Invention is the first occurrence of an idea for a new product or process, while innovation is the first attempt to carry it out into practice.”); cf. JOSEPH A. SCHUMPETER, *THE THEORY OF ECONOMIC DEVELOPMENT: AN INQUIRY INTO PROFITS, CAPITAL, CREDIT, INTEREST, AND THE BUSINESS CYCLE* 66 (Redvers Opie trans., Transaction Books 1983) (1934) (contending that innovation consists of novel goods, production methods, markets, production inputs, and forms of organization); Brett M. Frischmann & Mark A. Lemley, *Spillovers*, 107 COLUM. L. REV. 257, 259 n.4 (2007) (“We use the term ‘innovation’ . . . to refer to the process of research, invention, and development and refinement of new ideas.”); Bruce A. McDaniel, *A Survey on Entrepreneurship and Innovation*, 37 SOC. SCI. J. 277, 279 (2000) (“[M]ore recent literature on technology has recognized four stages of development [that form the innovation process] from the scientific laboratory to the market through which a technology must progress.”).

<sup>369</sup> Sichelman, *supra* note 48, at 367.

exploitation and commercialization of inventions.<sup>370</sup> In fact, several rules in current patent law are interested exactly in that, albeit indirectly. For instance, by requiring patent owners to pay periodical maintenance fees,<sup>371</sup> our patent system encourages patent owners to withhold patents they do not use.<sup>372</sup> Furthermore, by allowing the government to grant compulsory licenses in cases where a federally funded invention has not been practiced in a certain amount of time, the Baye-Dole Act promotes the commercialization of knowledge generated through public funding.<sup>373</sup> Many more examples of how the law of IP indirectly promotes patent commercialization can be found in the literature.<sup>374</sup> The problem is that these incentives do not help resolve the troll problem.

In any event, enhancing commercialization must not necessarily yield fewer inventions. First, as explained earlier,<sup>375</sup> many inventions occur without the reward of patent protection. The previously cited survey of university researchers in high-tech fields conducted by Brian J. Love revealed that “the prospect of obtaining patent rights to the fruits of their research does not motivate university researchers in high-tech fields to conduct more or better research.”<sup>376</sup> In that survey, 57% of professors reported that they did not know how, or if, their university shares licensing revenue with inventors.<sup>377</sup> This may indicate that at least in the high-tech industry, where the assertion of NPPs is the most prevalent, inventors invent regardless of the prospected patent reward. Second, because innovation includes the act of invention,<sup>378</sup> enhanced innovation will actually result in more inventions, at least those that are potentially beneficial.

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<sup>370</sup> See F. Scott Kieff & Troy A. Paredes, *An Approach to Intellectual Property, Bankruptcy, and Corporate Control*, 82 WASH. U. L.Q. 1313, 1319 (2004) (“[T]he reward theory fails to explain much of the positive IP law framework.”); F. Scott Kieff, *Property Rights and Property Rules for Commercializing Inventions*, 85 MINN. L. REV. 697, 740-46 (2001).

<sup>371</sup> 124 35 U.S.C. §41(b).

<sup>372</sup> Olson, *supra* note 263, at 22-3.

<sup>373</sup> Patent and Trademark Law Amendments Act (Pub. L. 96-517, December 12, 1980).

<sup>374</sup> See F. Scott Kieff & Troy A. Paredes, *supra* note 370, at 1319-21.

<sup>375</sup> See *supra* note 243 and accompanying text.

<sup>376</sup> Brian J. Love, *DO UNIVERSITY PATENTS PAY OFF?: EVIDENCE FROM A SURVEY OF UNIVERSITY INVENTORS IN COMPUTER SCIENCE AND ELECTRICAL ENGINEERING*, Santa Clara Univ. School of Law, Legal Studies Research Papers Series, No. 08-14, 2014, available at <http://ssrn.com/abstract=2448521>.

<sup>377</sup> *Id.*

<sup>378</sup> Sichelman, *supra* note 48, at 395.

Nor should the proposed model negatively affect knowledge transmission. Inventors do not typically “learn their science from patents.”<sup>379</sup> First, many patents disclose nothing more than vague disclosures that no one interested in the state of the art can really learn from.<sup>380</sup> Second, even those patents that do disclose some useful information are not up-to-date.<sup>381</sup> Because the USPTO is overwhelmed with patent applications, it takes years to issue a patent.<sup>382</sup> Moreover, most patent applications are published eighteen months after filing,<sup>383</sup> meaning the information is likely to be outdated, especially in fast-paced industries. Third, reading all the relevant patents in a field is a time consuming task with a questionable payoff.<sup>384</sup> Because there are so many patent applications and because the categorization system is imperfect, inventors face enormous amounts of patents that may, but may also not, be related to their research. Fourth, the available evidence indicates that most scientists<sup>385</sup> turn to articles, conferences and conversations with friends, more often than they turn to patents.<sup>386</sup> This raises doubts as to whether patents still communicate essential knowledge, beyond who owns what.<sup>387</sup>

The proposed model is clearly expected to reduce the number of patents because NPPs will lapse into the public domain. This does not imply that the model will reduce the ex ante incentives to invent and the ex post benefits of knowledge dissemination. As this section demonstrated, there are many reasons to believe that it actually will not have harmful effects.

## CONCLUSION

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<sup>379</sup> Mark Lemley, *The Myth of the Sole Inventor*, 110 Michigan L. Rev. 709, 745 (2012) [hereinafter, Lemley, Sole Inventor].

<sup>380</sup> *Id.*

<sup>381</sup> *Id.*

<sup>382</sup> The total number of patent applications for 2013 was 609,052. See U.S. Patent Statistics Chart, Calendar Years 1963 – 2013, available at [http://www.uspto.gov/web/offices/ac/ido/oeip/taf/us\\_stat.htm](http://www.uspto.gov/web/offices/ac/ido/oeip/taf/us_stat.htm).

<sup>383</sup> Lemley, Sole Inventor, *supra* note 379, at 745.

<sup>384</sup> *Id.*

<sup>385</sup> [Doug Lichtman, \*Substitutes for the Doctrine of Equivalents: A Response to Meurer and Nard\*, 93 Geo. L.J. 2013, 2023 & n.42 \(2005\).](#)

<sup>386</sup> Lemley, Sole Inventor, *supra* note 379, at 746-7.

<sup>387</sup> Lichtman, *supra* note 385, at 2023.

The purpose of this proposal is to redefine the patent troll problem and relate it to the existence of non-practiced patents (NPPs). First, because the current definition of the problem as one associated with specific “bad actors” that generate income not through commercialization, but through aggressive assertions is erroneous. Second, because redefining the problem may give rise to better solutions. This proposal argues that NPPs are the core reason for the patent troll problem. If all patents were practiced, no one would be immune from patent infringement lawsuits and most everyone would be interested in cross licensing. Consequently, “trollish” patent assertions that thrive from the immunity of NPPs to retaliatory lawsuits as well as from the irrelevancy of cross licensing to such patents, will diminish. To eradicate NPPs,<sup>388</sup> this proposal suggests requiring patent owners to promptly submit a statement of use similar to the one required from trademark owners. Elucidation of the details of the proposed requirement surely requires further testing, empirical study, and elaboration. Nevertheless, pursuing this solution is not only appropriate, but also achievable, and may help us prevent patent trolling, without discouraging innovation<sup>389</sup> and prejudicing the interests of inventors.

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<sup>388</sup> An alternative model that directly addresses NPPS may call to shorten patent duration. See LOVE, Patent Litigation Timing, *supra* note 245. Nevertheless, while such a model directly reduces the number of NPPs, it can not eliminate them all.

<sup>389</sup> As defined in pg...