



## Patents Pending: Patent Reform for the Innovation Economy

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For most Americans, knowledge of the U.S. patent system is limited to seeing the words “patent pending” on the back of a product or reading in the morning paper that their BlackBerry might stop working due to a patent lawsuit. Notwithstanding its opacity, the U.S. patent system provides key economic incentives that spur innovation by giving patent owners a temporary property right to their inventions while at the same time requiring them to disclose their patents to the public. Yet it is cases like the Network Technology Partners (NTP) lawsuit against Research in Motion (RIM—the maker of the BlackBerry) that have brought the patent system’s deficiencies into the public eye. It suffers from three key problems.

First, the U.S. patent system is rife with delay. With over 700,000 pending patent applications in the U.S. Patent and Trademark Office (PTO), it can take 4 years to get a patent.<sup>2</sup> As demand for patents has increased, resources at the PTO have not kept up.<sup>3</sup>

Second, as the RIM case and countless others illustrate, the PTO has issued too many poor quality patents. Lack of sufficient PTO resources has contributed to patent examiners granting questionable patents that are overly broad and overlap with existing patents. Examiners have no more time to review patent applications than they had in the 1970s, even though the technology being patented is much more complex.<sup>4</sup>

Questionable patents contribute to the third problem—the dramatic increase in patent litigation and awards, which impose a significant tax on the U.S. innovation system. Patent litigation increased 120 percent between 1990 and 2005 (while civil litigation in general rose just 5 percent).<sup>5</sup> At the same time, damage awards have grown, providing windfalls to some patent holders at the expense of consumers who must pay higher prices for goods and services. For example, RIM felt compelled to settle with NTP for \$612 million, despite the fact that many experts believe NTP’s patents are invalid.<sup>6</sup> If RIM had passed its settlement fees to the 7 million Blackberry users, each user would have paid a surcharge of nearly \$90.<sup>7</sup>

Addressing these problems does not require wholesale change in the U.S. patent system. In many respects it has significant strengths. Moreover, the PTO has been making strides to improve the system, including increasing hiring, patent examiner pay, and training, as well as encouraging applicants to provide more information about previous inventions (called “prior art”).

Notwithstanding these changes, reforms to the patent system are needed. Senators Patrick Leahy (D-VT) and Orrin Hatch (R-UT), and Representatives Howard Berman (D-CA) and Lamar Smith (R-TX) introduced “The Patent Reform Act of 2007” (S. 1145 and H.R. 1908) that would provide significant needed reforms.<sup>8</sup>

Additionally, the Information Technology and Innovation Foundation (ITIF) proposes certain targeted reforms—some of which are in the current legislation and some are not—that can make the U.S. patent system even better and in so doing enable the U.S. innovation system to be more effective. The ITIF’s recommendations in this paper are not meant to be a comprehensive treatise on patent reform. Rather they focus on two key areas we think deserve particular attention: those that will improve pre-grant activity at the PTO and those that influence post-grant review in the Courts. To do that:

**Congress should facilitate improvements in pre-grant activity at the PTO by:**

- **Statutorily ending the diversion of patent fees to the U.S. Treasury,**
- **Giving the PTO regulatory authority to raise fees,**
- **Requiring third parties submitting prior art to include statements of relevance, and**
- **Creating a post-grant opposition process to be conducted by the PTO.**

**Congress’ actions will enable the PTO to improve the pre-grant process by:**

- **Hiring significantly more patent examiners to reduce the backlog,**
- **Giving patent examiners more time to examine complex applications,**
- **Giving applicants incentives to provide more relevant prior art statements, and**
- **Encouraging public participation in reducing questionable patents.**

**In addition, to reduce litigation in the post-grant process, legislation should:**

- **Require plaintiffs to provide clear and convincing evidence that defendants acted “reprehensibly” in order to show willful infringement,**
- **Require the courts to apply a reasonable royalty only to the economic value of the patent’s contribution over the prior art and not on the entire market value of the infringing product,**
- **Require patent owners to file cases in the district where the defendant has committed acts of infringement and has a regular place of business, and**
- **Change the law to “first to file” and apply the 18-month publication requirement to all applications.<sup>9</sup>**

Innovation is a key driver of U.S. economic growth and patents are an enabler of innovation. While the U.S. patent system is not broken, it is out of balance. These reforms will restore the patent system’s balance and increase innovation. They will significantly reduce the application backlog, help patent examiners to screen out poor quality patents, and reduce excessive litigation and damages, which will in turn enable companies to better innovate and create new products and services and the high wage U.S. jobs that support them.

## Patent System Challenges

Patent rights encourage innovation by letting inventors temporarily exclude others from making, using, selling or importing their new, useful, and nonobvious inventions. These rights are valuable because they increase inventors' profits from investment in research and development (R&D). But in order to foster innovation, patents need to balance the rights of inventors with public benefits. Moreover, the patent system needs to be timely and accurate, awarding patents expeditiously for only those inventions that are new, useful, and nonobvious. When the patent system strays from that ideal, it begins to impose costs on the innovation economy. As noted above there are three main problems now in the patent system: delay, patent quality, and excessive and costly litigation.

It's not that these problems are new. In fact, one historian describing the period from 1793 to 1836 noted:

...the patent system experienced an increase in the number of patent applications...In general, the quality of patents suffered. Many patents issued were neither novel nor useful. Also, the

courts were overwhelmed by a large number of infringement and patent validity suits.<sup>10</sup>

Indeed, it seems that as the nature of the U.S. innovation system transforms periodically, the patent system also faces challenges, eventually changing and reforming, often through Congressional action.<sup>11</sup> For example, Congress enacted a major overhaul of the Patent Act in 1836 and again in 1952. However, as the U.S. economy has entered into a new, global and technology driven economy over the past two decades, fresh challenges have emerged requiring Congressional and administrative action.

## Patent Delays

In the last decade, getting a patent has become an exercise in delay. Indeed, the patent backlog (patent pendency) is at unprecedented levels and is increasing faster than at any time in the last 25 years. From 1986 to 1996 the patent application backlog increased more than 70 percent, but in the last 10 years it rose nearly 500 percent and now stands at more than 700,000 applications.<sup>12</sup> As a result, it can now take 4 years to get a patent for some types of inventions.<sup>13</sup> The

### Box 1: What is a Patent?

A patent is a grant of a property right to an inventor for 20 years from the date the patent was filed, effective in the United States and U.S. territories. This right is enshrined in the U.S. Constitution, Article I, Section 8, which states, "Congress shall have the power to promote the progress of science and the useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries." The owner of a patent has a (negative) right to exclude others from making, using, offering for sale, or selling the invention or importing it. There are three types:

- Utility: new and useful process, machine, article of manufacture, composition of matter, new and useful improvement
- Design: new, original, and ornamental design for an article of manufacture
- Plant: invents or discovers and asexually produces any distinct and new variety of plant

An invention may be patented if it is 1) a process or design of a process; 2) useful; 3) new—it can't be known, used, or patented by others in the United States or patented in a foreign country. In order to be patented inventions also must meet certain statutory criteria. They can't be obvious to a person having ordinary skill in the art (known by its acronym PHOSITA). Secondary factors of nonobviousness include the "suggestion, teaching, motivation test": there should not have been a suggestion, motivation, or teaching that would have led a PHOSITA to know to combine previous patented inventions into a new invention. Another secondary factor the courts consider is whether an invention has been successfully commercialized.

## Box 2: Why Patents?

Patents aren't the only way to protect intellectual property. Inventors can use trade secrets, but these work best when it's not possible for someone to deconstruct an invention to find out how it works (such as the formula for Coca Cola). They also can use copyright where patents may not apply. (Some companies may use copyrights, instead of patents, to protect software, for example.) But patents influence innovation in more economic sectors than any other form of protection.

The economic explanation of the social function of patents is that developing and bringing new technologies to market is good for society but is expensive to do and easy for imitators to copy. So it makes sense for governments to encourage innovation by rewarding inventors. One way is to finance research and development, which the United States does with particular areas of national interest, like defense and energy R&D. Another way is to give inventors a prize. But patents are the most effective and least expensive method to give inventors a temporary monopoly. For hundreds of years governments have used patents to spur innovation over other types of awards because they are politically popular, they generally work, and they even adjust their value according to the value of the invention—a patent for technology that everyone wants to copy is worth much more than one for an invention that no one wants.

One argument against patents for some new technologies is that they may constrain innovation by making it more complicated to invent and protect new inventions. Inventors can get patents for improvements on other patented technologies, as long as these improvements are new, useful, and nonobvious. This results in cumulative or overlapping innovation. For example, computer hardware and software may contain an extremely large number of incremental innovations. In some cases a product embodies so many patented technologies that the manufacturer of a new invention may be forced to negotiate a dense “thicket” of patents in order to get permission to produce and sell its technology. So, patents may discourage some types of innovation because inventors may think it is too complex or costly to introduce a new technology.

While it's true that it can be difficult to negotiate patents for complex technologies, most companies are increasingly patenting their inventions to get better leverage in license negotiations. Also, technology that combines many patents can be very beneficial for consumers. We use these inventions every day. Our cars, phones, computers, televisions, and a multitude of other useful devices all depend on agreements between patent holders.

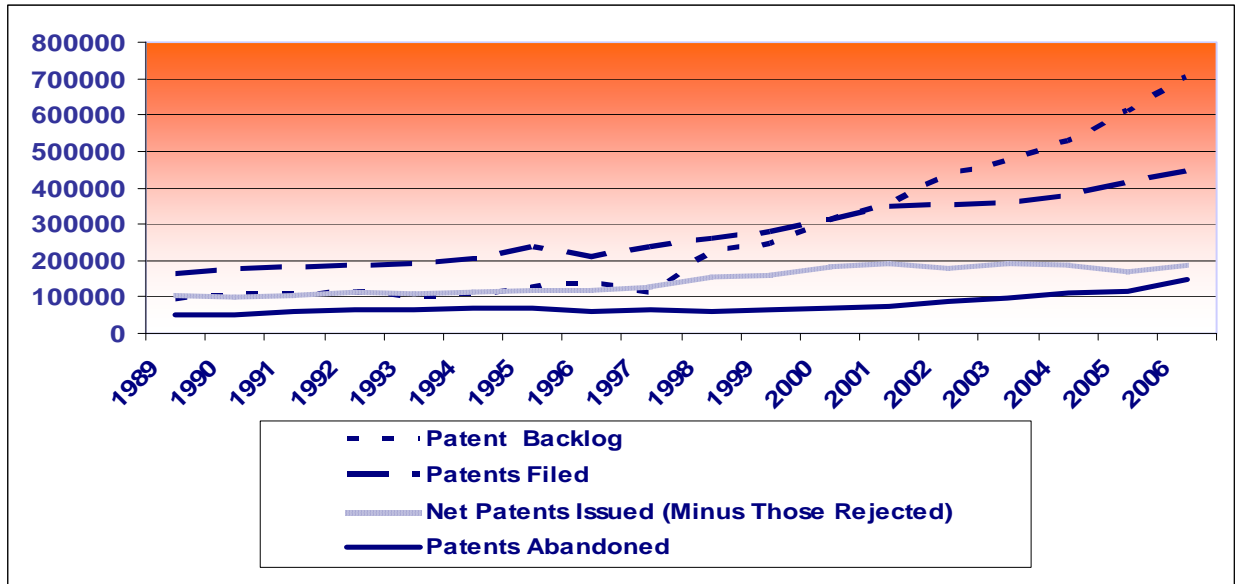
reason is simple. Demand for patents has grown faster than the number of patents processed. New applications rose modestly, increasing 50 percent from 1986 to 1996 and a little over 100 percent in the last decade. Yet, after increasing modestly between 1997 and 2001, the number of patents issued by examiners has since remained relatively steady while abandoned patents (those that were rejected and no longer contested) have increased slightly (see Figure 1).

Although demand for patents (as illustrated by numbers of applications) is not increasing as fast as the backlog, it nonetheless rose significantly in the last 10 years. There are three reasons for this. First, companies are increasingly using patents instead of copyright or trade secrets to protect their intellectual property.<sup>14</sup> Patents are becoming a key way to transact, both to cross-license technologies and to secure venture capital.<sup>15</sup> Second, the courts expanded the types

of technologies for which the PTO can grant patents to include computer software (*Diamond v. Diehr* in 1981) and business methods (*State Street & Trust v. Signature Financial Group* in 1999). This expands the number of inventors who are eligible to seek patents. A third reason is that the U.S. economy is becoming more technology intensive. So, as R&D has increased, the number of patents issued by the PTO has risen correspondingly (see Figure 2).

Increased demand becomes a problem only when it exceeds supply. That is, as long as the PTO expands the number of patent examiners to keep up with demand, patent pendency will not increase. Yet the number of patent examiners has not increased as quickly as applications. From 1999 to 2004 the number of applications per year per examiner rose from 90 to 110.<sup>16</sup> As a result, pendency has skyrocketed. There are two reasons. One is that Congress has restricted

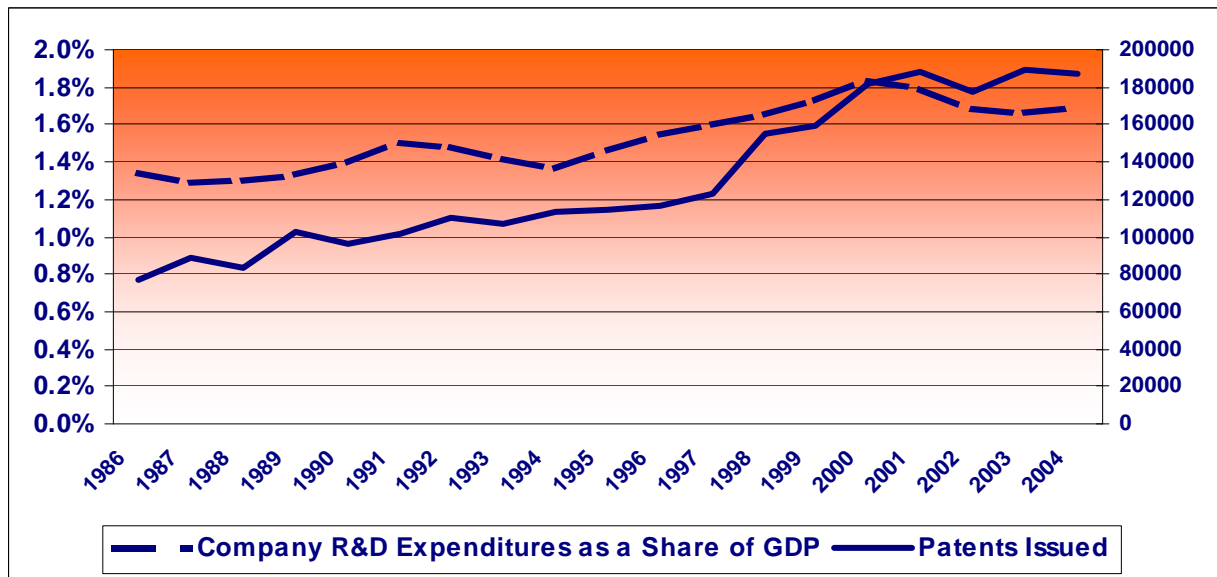
**Figure 1: Patent Application Backlog, Patents Filed, Issued, Abandoned 1989-2006<sup>17</sup>**



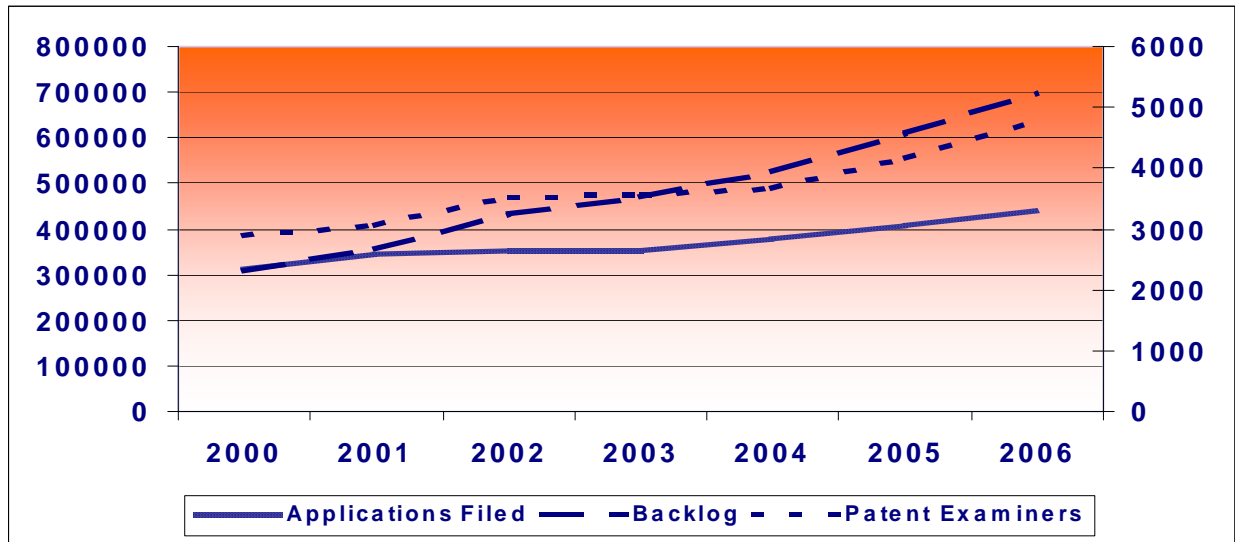
the PTO’s budget and its personnel. Specifically, the Omnibus Budget Reconciliation Act of 1990 established that patent fees should fund the PTO but also that the PTO would not have access to fees in excess of its appropriation. As a result, “excess” fees are diverted to the Treasury, rather than being used to process the applications that paid these fees.

The second reason the number of patent examiners has not kept up with applications is that the Federal Workforce Restructuring Act of 1994 forced the PTO to limit hiring. The law required a government-wide reduction in staff of 272,900 by 1999. This limited growth in PTO personnel and prevented the agency from hiring enough examiners to meet workload increases.<sup>18</sup>

**Figure 2: Patents Issued Correlated to Company R&D Expenditures as a Share of GDP**



**Figure 3: Recent Patent Backlog, Patent Examiners, and Applications 2000-2006<sup>19</sup>**



By 1997, the results of these two policies became all too clear. The patent backlog took off and hasn't looked back since. Because the PTO couldn't hire more examiners to meet growing demand there was only one possible answer: long delays. Moreover, since the number of patent examiners grew only slowly until 2004, emergency increases were insufficient to even keep up with demand, much less to begin to reduce the backlog (see Figure 3).

In spite of the fact that fee diversion and hiring limits prevented the PTO from keeping up with demand, Congress has not statutorily ended the practice of diverting fees. While it voted in 2005 to temporarily suspend fee diversion for two years, this policy will continue unless Congress ends it permanently. Yet taken cumulatively these fees are nonetheless significant. From 2000-2004 they equaled nearly \$2 billion and averaged \$350 million per year. The PTO has not felt the impact in recent years because in 2005 and 2006 its collected fees did not exceed its appropriations so no fees were diverted (see Figure 4). Nonetheless, the PTO cannot access these unavailable fees from past years, which prevents it from hiring the patent examiners it needs to bring down the backlog.

Thanks to fee diversion the backlog has steadily increased—due to the patent examiner shortfall—as has the total average number of months applicants must wait to get a patent (total average pendency). For example, if the PTO had been able to access the \$573 million in patent fees that Congress withheld from 1992 to 2004 and hire more examiners, total average pendency would have been reduced somewhat, from 27.6 months to 21.2 months.<sup>20</sup> Yet, a lower average pendency of 21.2 months is still significant considering that patent examiners may review a patent in as little as 8 hours. Meanwhile, recent total average pendency has risen to more than 30 months and increased 70 percent since a low of 18.2 months in 1991 (see Figure 5). Furthermore, total average pendency is even higher for some types of technology. For example, inventors seeking patents for computer architecture, software, and information security wait an average of 44 months.<sup>21</sup>

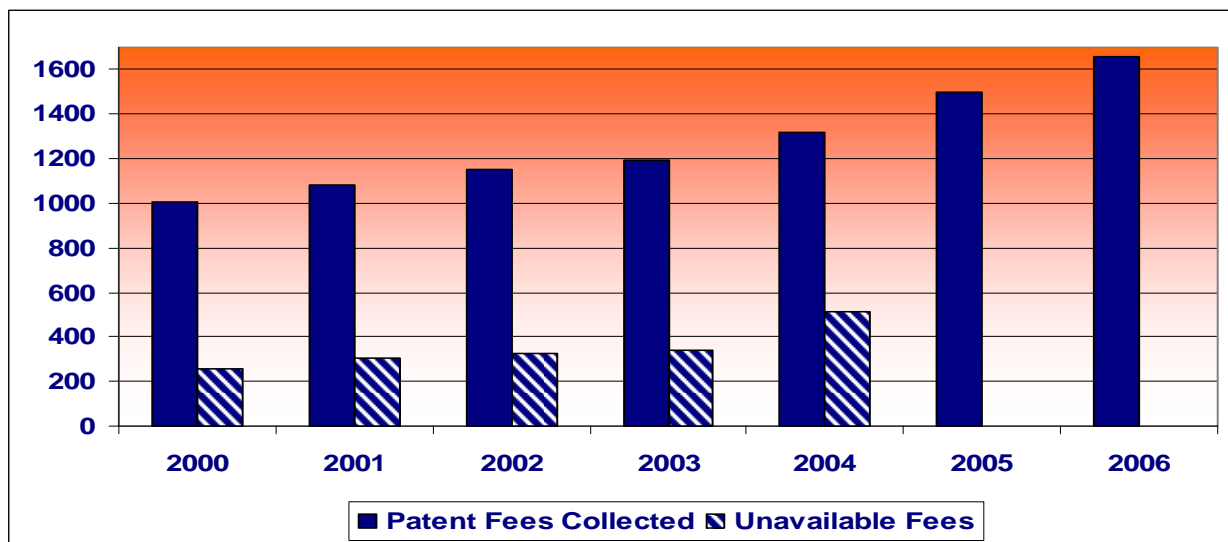
This is not an issue of the proper size of government. There may be legitimate reasons to shrink the size of the federal government in particular areas, but reducing a fee-supported organization has only one outcome—Soviet-style delays. The PTO size should be determined by only one factor: the demand for its services by its fee-paying customers.

Reducing pendency doesn't get easier when relatively high levels of attrition mean that the PTO must run fast just to keep up. Even though the PTO has hired more patent examiners—nearly 1,000 in 2005 and over 1,200 in 2006—attrition has significantly undermined the anticipated benefit. In 2000 the PTO lost more examiners than it hired and attrition nearly cancelled out hiring in 2003, while wiping out half of the gains in 2005 and 2006 (see Figure 6). From 2000 to 2006 the average rate of attrition was 16 percent, much higher than the federal government average of 6 percent. In 2001 the average for all PTO staff was 7 percent, which if applied to patent examiners would have reduced 6-year loses to 1,544 instead of 4,011.<sup>23</sup> One reason why attrition increases delays is that more experienced examiners are more productive and new examiners need three or more years of training before they can take over the workload. Worse yet, many examiners wait until they are trained before they leave the PTO, which cuts directly into the numbers of examiners that would be able to tackle the backlog.<sup>24</sup>

There are several causes of attrition. Changes in the economy tend to affect whether or not examiners leave. For example, during the dot-

com boom (June 1999 through October 2000) 46 percent of examiners with training in electrical and computer engineering left for private sector jobs.<sup>25</sup> Another reason is that until recently patent examiner compensation was not competitive with similar private sector positions. But the PTO addressed this by instituting special salary rates with a varying percentage increase. The result is that a top level (GS15) examiner can earn between \$120,982 and \$145,400, while the salary for someone who is fully trained (GS9 or GS11) is between \$55,518 and \$83,052<sup>26</sup>, which is comparable to a median private sector salary of \$76,974.<sup>27</sup> In addition, the PTO has recently allowed patent examiners to telecommute, have flexible schedules, and get bonuses for improved performance, all attempts to increase job satisfaction and reduce turnover. Nonetheless, the PTO could find more creative ways to increase examiners' job flexibility. In particular, the PTO requires staff to check into the office every two weeks. This rule forces examiners to live in the Washington region—an area with some of the highest living expenses in the country. Instead, the PTO should set up satellite offices around the country, enabling staff to live in lower-cost areas and increasing their flexibility and standard of living.

**Figure 4: Patent Fees and Yearly Fee Diversion 2000-2006<sup>22</sup>**



Yet, discussions with patent examiners suggest that a major reason for attrition is the limited time to process complex applications. A trained patent examiner spends an average of 8 hours evaluating a patent’s claims, searching for prior art, and rendering an initial decision.<sup>28</sup> This time has remained largely unchanged, despite the growing complexity of applications as represented by the growth in the number of claims and prior art citations per application.<sup>29</sup> For example, in 2004 the PTO introduced fees for independent claims in excess of three as well as fees for multiple dependent claims—yet it did not correspondingly increase examination time. The PTO has resisted giving examiners more time because it fears this will cause the backlog to go even higher. But lack of PTO resources when combined with attrition increases the backlog more quickly, and insufficient examination time contributes to another of the patent system’s problems: poor quality patents.

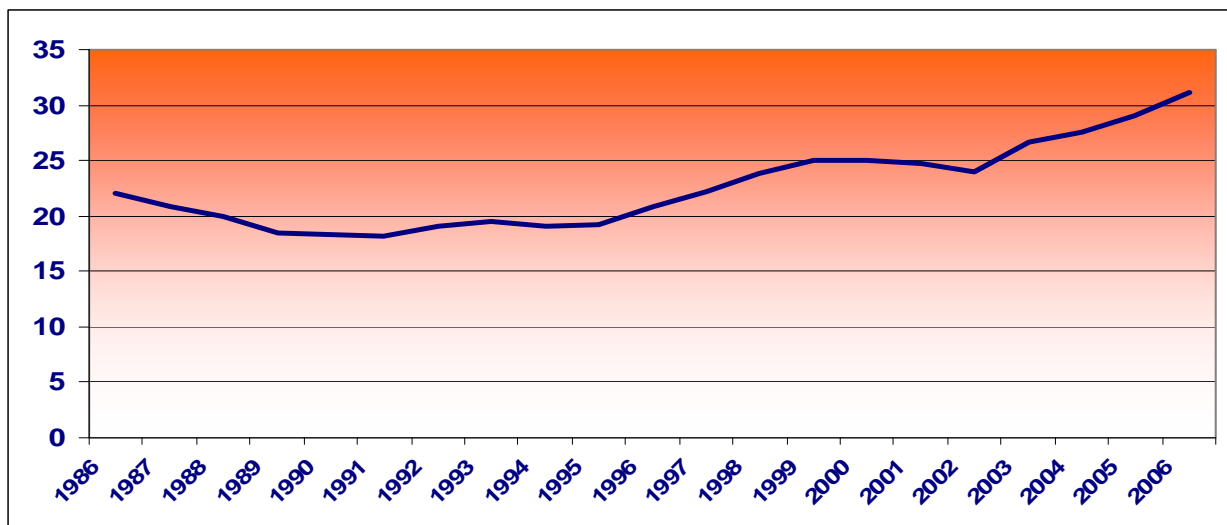
### Poor Quality Patents

Poor quality patents are those that patent examiners grant but that do not meet the general conditions of patentability: novelty, usefulness, nonobviousness, and disclosure requirements.<sup>31</sup> No one has empirically tested the claim that patent quality has deteriorated in a broad and

systematic way.<sup>32</sup> However, some legal scholars have suggested that quality is nonetheless declining, particularly due to the court’s relaxed standards for determining whether a patent is new, useful, and non-obvious (patentability) and the presumption of validity. There is no lack of anecdotal evidence. Many are familiar with the example of the patent for a crustless peanut butter and jelly sandwich, but there are many others, such as the jump rope without the rope<sup>33</sup> or the diaper for a horse,<sup>34</sup> or a method of styling hair using scissors or combs in both hands, or for a computer algorithm for searching a math textbook table to determine the sine or cosine of an angle.<sup>35</sup> Others suggest that the PTO more frequently issues questionable patents, especially in new technology areas such as computer software and business method patents.<sup>36</sup> Examples include the patents NTP used to attack RIM and its BlackBerry technology, or those that Acacia Research Corporation claims for the technology that lets users view and hear video and music clips on the web.<sup>37</sup>

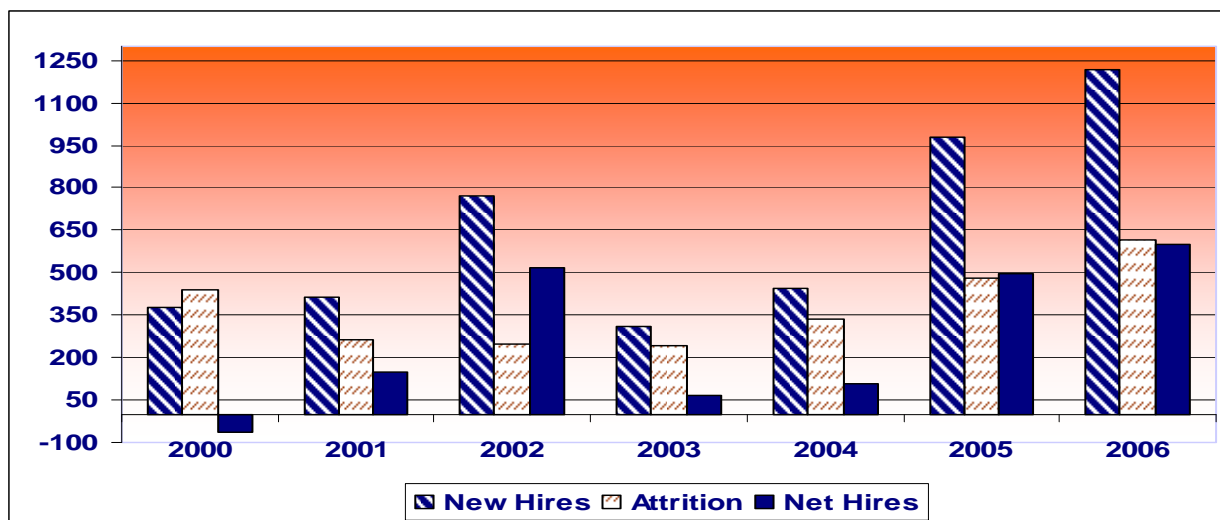
The PTO deserves credit, however, for bringing down the percentage of patents granted per examiner (the patent allowance rate) each year, from a high of 71 percent in 2000 to only 54 percent in 2006—the lowest rate on record (see Figure 7). So as the number of patent

**Figure 5: Total Average Pendency (Months) 1986-2006<sup>30</sup>**





**Figure 6: Patent Examiner Attrition (New Hires, Attrition, and Net Hires) 2000-2006<sup>39</sup>**



applications has been steadily rising, the percentage of granted patents has fallen, at least since 1998. This would suggest that some of the PTO's strategies to improve patent quality, such as training and certification programs for patent examiners, could be paying off. However, it is likely that many dubious patents continue to slip through the screening process and that there are many patents issued before 2000 that were poor quality. The PTO still grants a higher percentage of patents than the European Patent Office (EPO). Compared to the EPO, the PTO percent of granted patents for equivalent filings increased 18 percent to 40 percent in the last 20 years, suggesting a decline in the PTO's standards.<sup>38</sup>

When the PTO fails to effectively screen out questionable patents, there are three major effects. First, it encourages other companies to pursue patents for potentially infringing inventions because they know that they are likely to get them. (This in turn, creates even more demand for patents.) Second, it creates doubts about patent validity that encourage more infringement and litigation—which sets up a feedback loop: more poor quality patents lead to more litigation which leads to more incentives to file applications for poor quality patents. Third, questionable patents hinder innovation because they increase transaction costs and discourage

investment.<sup>40</sup> This is because they give owners of questionable patents market power to restrict access and raise prices without providing incentives for them to innovate or disclose their innovations to the public.<sup>41</sup> For example, NTP's patents significantly raised RIM's cost of doing business.<sup>42</sup>

There are several causes of questionable or overly broad patents. Two—lack of access to prior art and insufficient time for patent examiners to review applications for complex technologies—are problems with the pre-grant process. The PTO is addressing the first of these by initiating two new programs to give applicants and others incentives to provide more information about prior art (information about previous inventions). The first is the Accelerated Review Option, started in August 2006, which gives applications priority handling—a final decision in 12 months—when applicants provide more specific information about prior art.<sup>43</sup> This program helps increase patent quality by giving examiners greater access to relevant prior art.

The second is one of the PTO's strategic initiatives, the Peer to Patent Project.<sup>44</sup> Professor Beth Noveck, Director of the New York Law School's Institute for Information Law and Policy, conceived of this approach to

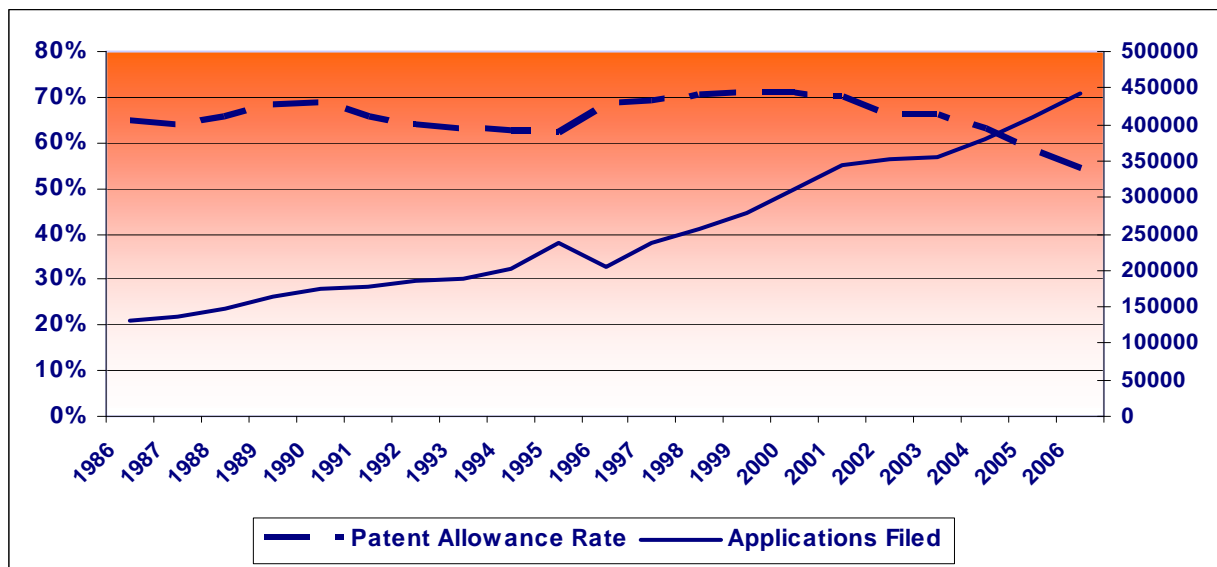
involve the expert public in the patent examination process by giving patent examiners more information about prior art. The pilot, which the Institute will launch with the PTO in June 2007—and potentially with other countries’ patent organizations—allows anyone to see a voluntarily published patent application and submit relevant prior art via an online software system. It uses the “wisdom of the crowd”<sup>46</sup> to support a network of experts to advise the PTO on prior art as well as to assist with patentability determinations. To ensure that they don’t flood the system with fraudulent information, each reviewer will be required to state the relevance of the prior art to the applicant’s claims and the system will forward only the top 10 references to patent examiners. Initially the project will be limited to computer software patents and several technology companies are participating. Like the Accelerated Review Option, it gives patent examiners access to more relevant prior art provided by peer reviewers—who will probably be experts in the field as well as the applicants’ competitors.

The Peer to Patent Project is an important initiative because it is a public policy innovation that improves how the PTO issues patents. Information technology—by bringing together a

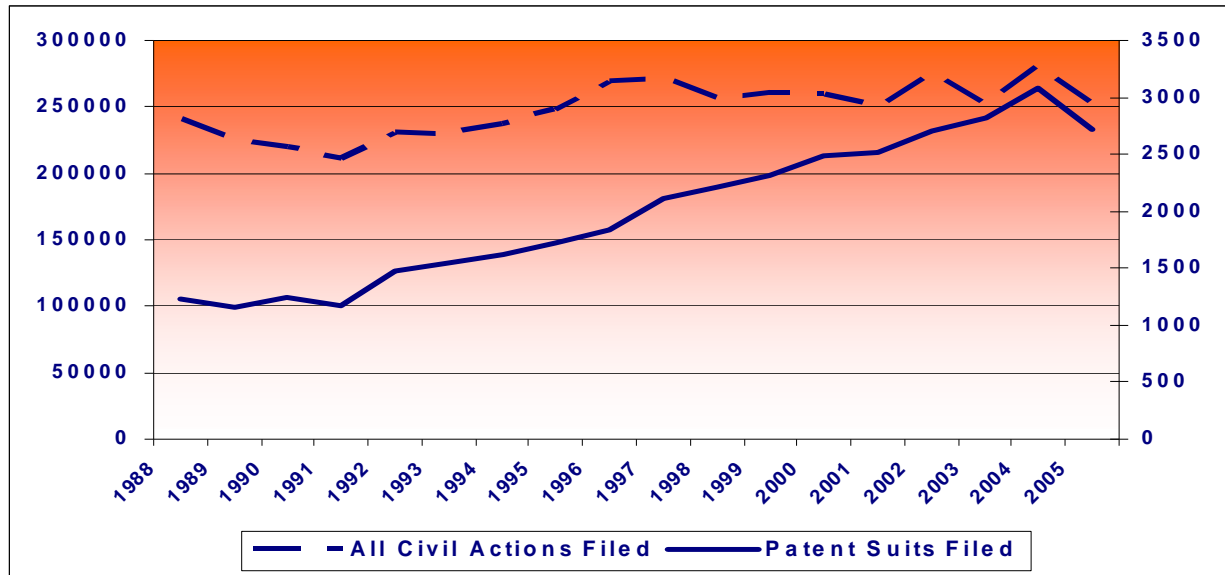
wealth of knowledgeable experts—has made possible what we could not have achieved even five years ago. The project addresses a key problem: that we are asking too much of patent examiners. One individual may never find a needle in a haystack, but many might. Engaging more people in evaluating patent claims takes advantage of innovative technology to improve the process.

Yet, the Peer to Patent Project will be more effective if there are complementary changes in the patent legal system governing third party submission of prior art. This is because patent rule 1.99 prohibits third parties from providing relevant statements concerning prior art submissions. This means that peer reviewers will not be able to explain how the prior art they submit relates to the patent application’s claims.<sup>47</sup> Current proposed legislation corrects this problem by amending Section 122 of Title 35 of U.S. Code to require that anyone submitting prior art must include a concise description of relevance. Additionally, current law requires applications to be confidential until publication (18 months after filing for most patent applications), which would make peer review impossible. But the Peer to Patent Project gets around this limitation by asking

**Figure 7: Patent Applications and Patent Allowance Rate 1986-2006<sup>45</sup>**



**Figure 8: Patent Lawsuits as Compared to All Civil Lawsuits 1988 to 2005<sup>51</sup>**



participating applicants to allow their applications to be published.

Another way to encourage the public to help patent examiners to identify questionable patents is to allow third parties to request a patent re-examination at any time during the life of the patent. The PTO has two such processes. The first is an *ex parte* procedure, which means communications are only allowed between a patentee and the examiner. Third parties may request an *ex parte* re-examination but cannot communicate directly with either the examiner or the patentee. Yet, patentees initiate nearly half of all *ex parte* re-examinations in order to strengthen their patents.<sup>48</sup> The second is an *inter partes* (between parties) process, which Congress created under the American Inventors Protection Act in 1999. This allows more participation by third-party requestors, such as filing written comments, but not third-party discovery, cross-examination, or oral presentations. However, in subsequent litigation for invalidity third-party requestors cannot use grounds that they “raised or could have raised” during the re-examination process (referred to as “estoppel”)

The limitations of these re-examination processes—that they are confined to determining whether the patented invention is new and nonobvious based on prior art, and that third parties have only limited participation—have constrained their use.<sup>49</sup> In addition, estoppel prevents challengers from attacking the same claims in litigation. Consequently, not many third parties have used the *inter partes* re-examination, despite Congresses’ attempt to improve it by allowing parties to appeal decisions to the CAFC.<sup>50</sup>

The fact that third parties seldom use the re-examination process suggests that it’s not working effectively and should be revised. There are several proposals. In its *21<sup>st</sup> Century Strategic Plan* the PTO proposed to allow the public to petition the PTO to challenge a patent on all issues of validity within one year of the patent’s issue date. In addition, it recommended that anyone threatened with a patent infringement suit could petition for review at any time during the life of the patent (the so-called “second window” of review). Moreover, the PTO proposed that third parties participating in the process would be able to present

documents and participate in cross-examination conducted by Administrative Patent Judges of the Board of Patent Appeals.<sup>52</sup> Reports by the Federal Trade Commission and the National Research Council of the National Academies of Science had similar proposals.<sup>53</sup>

Others have proposed revising the existing *inter partes* process by expanding the grounds for invalidating a patent and the scope of evidence, allowing for appeal of the decision regarding a substantial new question of patentability, establishing a dedicated review panel in the PTO, and increasing requestor involvement to include oral hearing and testimony.<sup>54</sup> As with the current *inter partes* process, this revised process would not be time delimited, so third parties could initiate it at any time during the life of the patent.<sup>55</sup> Others have suggested a limited open review process that third parties could initiate shortly after the PTO issues a patent and before the patent is licensed and patent holders make investments based on the patented technology.<sup>56</sup> Still others have proposed an open review system that gives third parties the right to challenge a patent nine months after the PTO issues it, but without the “second window.”<sup>57</sup> Another proposal would limit post-grant opposition to nine months after grant, but emphasizes that the system should be low cost, permits both parties to appeal, and encourage a swift decision-making process.<sup>58</sup>

Most recently, the Patent Reform Act of 2007 (S. 1145/H.R. 1908) contains language requiring the PTO to establish a post-grant review procedure with an expanded scope by which third parties could file a proceeding within 12 months of the patent being issued or re-issued. It includes an estoppel provision that prevents claimants from subsequently raising the same questions of patentability in later litigation. In addition, third parties would be able to file for opposition after the 12-month period if they are sued for infringement or can show a substantial reason that the continued existence of the challenged patent “causes or is likely to cause the petitioner significant economic harm” (the “second window” review).<sup>59</sup>

There are pros and cons to each of these proposals. Proponents of an open review process say it will improve patent quality, provide a lower-cost alternative to litigation, and benefit the public. First, they suggest it helps weed out weak patents by drawing on the expertise of competitors and others.<sup>60</sup> They also argue that it improves quality by providing a market-based means to focus examination on the most economically significant patents.<sup>61</sup> Moreover, proponents think a more robust review system could reduce patent litigation since it would provide a lower cost and more expeditious way to challenge a patent’s validity,<sup>62</sup> and encourage efficient responses to patent quality issues.<sup>63</sup>

Others emphasize that a post-grant review system, if properly designed, could generate high welfare gains for two reasons.<sup>64</sup> First, it would give patent examiners low-cost access to searchable information. Second, they argue that post-grant review would reduce questionable patents that create uncertainty, causing inventors and potential competitors to under-invest in technology and instead expend resources pursuing costly litigation.<sup>65</sup> This is because commercial welfare suffers when low-quality patents deter companies from entering certain areas of technology when the cost of invalidation is too high.<sup>66</sup>

Post-grant review is a complicated issue. There are many ways it could be accomplished and we don’t have the definitive answer. But it seems that moving in the direction of involving the public in the patent process—bringing more eyes to the examination—would enhance patent quality. This is because patent examiners are fallible. No one can have all of the information necessary to always make an accurate determination. Encouraging patent applicants to provide more relevant statements of prior art will help, as will peer review processes like the Peer to Patent Project. But even with these procedures some questionable patents will slip through. Not all of these should, or will, be challenged in an open review—but some may deserve a second look.

Another reason the patent system needs to change is because it makes applicants reluctant to provide relevant prior art statements. A key disincentive is courts' tendency to find defendants guilty of willful infringement and liable for treble damages if they determine the applicants simply were aware of the infringed patents. The basis for this concern is the Patent Act's standard for honest, equitable conduct in the disclosure and claiming requirements of 35 U.S.C. § 112-114 and the oath required in 35 U.S.C. § 115 where the patent application swears that "he believes himself to be the original and first inventor" of the invention under consideration.<sup>67</sup> Since the Supreme Court's *Precision* decision in 1945, intentional or willful conduct was considered as part of the inequitable conduct defense.<sup>68</sup> The law governing inequitable conduct is meant to discourage applicants from submitting fraudulent or malicious applications. It can be useful given the huge backlog and the examiners' performance quotas and time constraints, which forces them to take applicants' statements at face value. But it also discourages applicants from searching for and making statements of relevance about prior art—or encourages them to flood patent examiners with irrelevant prior art citations. This is because if these applicants are sued, even knowing about a previous patent could be grounds for a ruling of willful infringement and punitive damages. The result is that applicants tend to not conduct broad searches of relevant prior art, which makes it harder for patent examiners to evaluate patent applications, making it more likely that they will grant questionable patents.

### **Excessive Litigation and Damages**

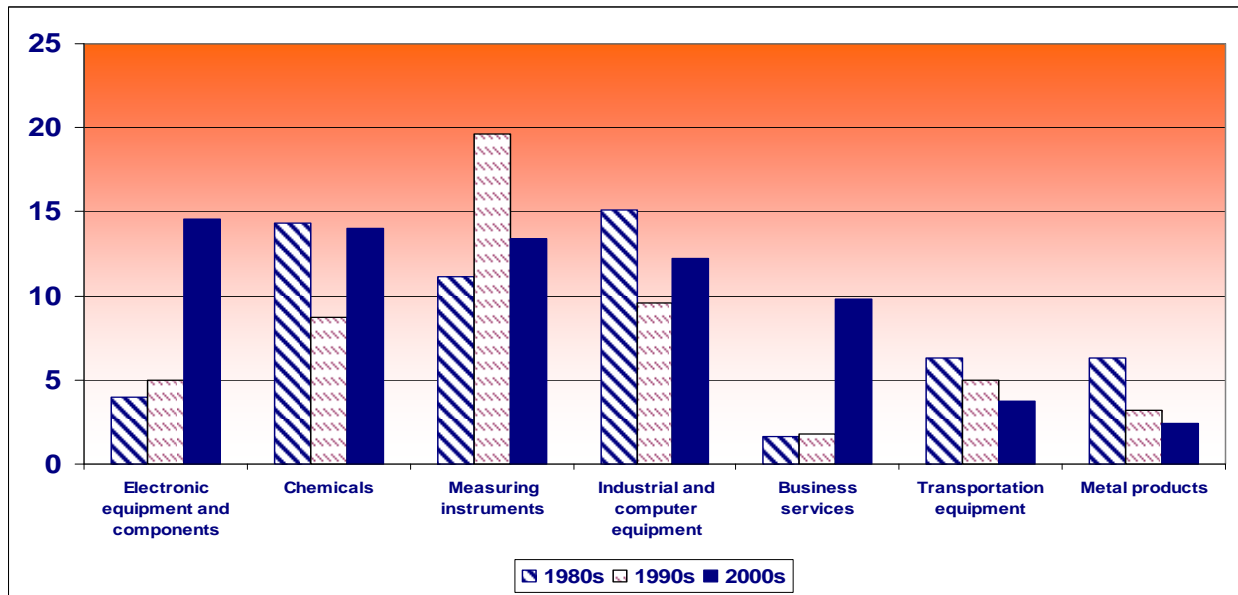
In addition to problems of patent pendency and questionable patents, excessive litigation and damage awards act as a tax on our innovation system, diverting resources from activities that could produce real innovations. Patent litigation increased 122 percent from 1988 to 2005 while civil litigation in general rose only 5 percent (see Figure 8). In 2002 the rate was 32 suits per 1,000 patents.<sup>69</sup>

An example of the types of cases that patent owners are increasingly filing is Washington Research Foundation's (WRF) complaint against several technology companies for infringing a University of Washington student's patents for radio frequency receiver technology. WRF, which runs a patenting service for the university, claims that these companies are selling devices that use Bluetooth—a technology that infringes the student's patents.<sup>70</sup> But the student patented his claims in 1999 while Ericsson, the Swedish mobile phone company, patented Bluetooth in 1994. Although it appears that the student's patent is invalid, since Ericsson invented Bluetooth first, WRF is basing its lawsuit on the fact that it was able to extract licensing fees from one company. CSR, a chip manufacturer based in Cambridge, UK, recently settled with WRF for \$15 million if WRF agreed not to sue CSR's customers, suppliers, or end users, despite maintaining that the patent lawsuit was without merit.<sup>71</sup>

While these and other types of patent lawsuits are increasing, so are excessive damage awards. In each decade since the 1980s both the average number and size of patent awards have increased. Awards since 2000 increased 59 percent and 91 percent compared to the 1990s and 1980s respectively (see Figure 9).<sup>72</sup> A brief list of landmark cases in the last 20 years illustrates this:<sup>73</sup>

- 1986: Hughes Tool co. v. Smith International \$205 million
- 1990: Polaroid v. Kodak \$910 million
- 1994: Alpex Computer v. Nintendo \$260 million
- 2002: Igen International v. Roche Diagnostics \$505 million
- 2003: Eolas Technologies v. Microsoft \$521 million
- 2004: Intergraph Corporation v. Gateway \$250 million
- 2006: NTP v. RIM (BlackBerry) \$612 million
- 2007: Alcatel-Lucent v. Microsoft \$1,520 million

**Figure 10: Percentage of Patent Litigation Awards by Standard Industry Classification Code (SIC) 1980s-2000<sup>80</sup>**



This increase in patent litigation and excessive awards is a significant problem because it hinders innovation. First, patent litigation is costly and risky. Even the threat of litigation can force companies to pay royalty fees or abandon product development.<sup>75</sup> An American Intellectual Property Lawyers Association survey in 2003 found that the average cost of bringing a patent lawsuit is almost \$2 million—although some suggest costs could be as high as \$5-\$6 million.<sup>76</sup> Some technology companies may spend \$100 million per year on patent litigation. Second, the high cost of litigation may cause companies to drop development plans, pressure them to settle, or discourage them from asserting their own patent rights.<sup>77</sup> The result is that a larger share of the economy is going to litigating disputes instead of to innovation and production activities.

There are two factors contributing to increases in excessive litigation and damage awards. The first is the increasing numbers of patents as more companies consider that a strong patent portfolio is essential to compete, particularly in semiconductors, computers, software, biotechnology, and other technology

industries.<sup>78</sup> This is because complex technology innovation in these industries is often cumulative and may involve hundreds or even thousands of patents, which may be a source of uncertainty, cost, and infringement lawsuits.<sup>79</sup> Increasing damage awards in technology industries seem to prove this. For example, since 2000, information technology dominates the top five industries involved in major damage awards (see Figure 10). So these are the industries that are most likely to use their patents to protect their products by filing infringement lawsuits and seeking large damage awards.

The second catalyst for increased litigation and damage awards is the court's determination of what constitutes willful infringement and punitive (treble) damages. Although the Patent Act allows the court to compensate for infringement "in no event less than a reasonable royalty for the use made of the invention by the infringer, together with interest and costs as fixed by the court" and to determine punitive damages "up to three times the amount found or assessed,"<sup>81</sup> it does not specify what triggers these punitive damages. The courts have

decided to apply them in cases of deliberate infringement both to punish infringers and to deter applicants from filing fraudulent applications.

This is a problem for two reasons. First, since a 1983 court decision (*Underwater Devices, Inc. v. Morrison-Knudsen Co.*, 717 F.2d 1380 (Fed. Cir. 1983)) defendants in patent infringement suits must prove that they were not negligent in continuing to ship their products after notice of the patent. This is a lower standard of proof than nearly all other areas of the law in which punitive damages are a remedy, in which the burden is on the plaintiff to show that the defendant's conduct was reprehensible. Second, the courts determine that defendants willfully infringed a patent based on whether they received notice of the patent's existence, even if such notice only vaguely alleges infringement but doesn't specify which claims were infringed. The result is that defendants who acted in good faith by reviewing existing patents and determining they weren't infringing them, or who received a vague notice letter alleging infringement, could be found guilty of infringement and thus liable for treble damages.

This provides incentives for rent-seeking patent holders to flood companies with vague letters that they must subject to a legal opinion (sometimes costing these companies as much as \$100,000 in legal fees per opinion) to avoid being found guilty of infringement. The typical vagueness of these letters also often prevents defendants from determining the grounds of a potential lawsuit or identifying the patent claims or processes that they allegedly infringed. Furthermore, as these rent-seeking patentees succeed in their infringement lawsuits and receive treble damages, this encourages other patentees to adopt these tactics. In addition, because the courts may find defendants guilty of infringement even if they acted in good faith in researching existing patents and endeavoring to design around them, inventors are reluctant to learn about prior art. This limits the patent system's public disclosure benefits, which would otherwise encourage innovators to create new products and processes. The result is

increased uncertainty and risks, and reduced efficiency.<sup>82</sup>

Another contributing factor in excessive damages and increased litigation is that the courts determine reasonable royalties (the basis for many damage awards) based on the entire market value of a product, even in cases where the infringing patent forms only a small component.<sup>83</sup> For example, in the case of the standard windshield wipers on a car, determining reasonable royalties based on the full value of the car instead of the value of the wipers, attracts rent seekers with the lure of larger damage awards.<sup>84</sup> Consequently, rent-seeking companies are more likely to sue a company with a successful product of which the allegedly infringing patent is a small part. A more accurate standard would be to only use the product's entire market value when a component is the key to its commercial success—e.g. when airbags were introduced many people purchased cars that had them in favor of those that didn't.

Moreover, a further aspect of U.S. law that encourages excessive damages is that Subsection (b) Section 1400 (Patent Venue) of Title 28 of U.S. Code (Judiciary and Judicial Procedure) allows any party to bring a civil action only in the judicial district where all defendants reside or in which the claim arose.<sup>85</sup> This allows patent owners to sue companies that distribute their products nationwide in any judicial district in the country. The result is that patent owners may choose jurisdictions that favor small companies over large ones, or where juries are known to favor patent owners. For example, in Marshall, Texas patent owners filed only seven patent lawsuits in 2003, while from January 2005 through June 2006 they filed more than 116. Patent lawsuits increased over this period as patent owners realized the court in this jurisdiction favored their cases.<sup>86</sup> This increases both litigation and damage awards because patent owners are more likely to file if they think their chances of winning are greater.

Legal uncertainty in the patent system is yet another factor in excessive litigation and damage awards. This uncertainty arises because

**Table 1: Percent of U.S. Patent and Trademark Office Applications That Are Filed Only Domestically 2002-2006<sup>88</sup>**

	2002	2003	2004	2005	2006
<b>All patents filed</b>	<b>353394</b>	<b>355418</b>	<b>378984</b>	<b>409532</b>	<b>443652</b>
<b>Patents published</b>	<b>169729</b>	<b>243007</b>	<b>248561</b>	<b>291221</b>	<b>291259</b>
<b>U.S. only patents</b>	<b>52%</b>	<b>35%</b>	<b>35%</b>	<b>29%</b>	<b>34%</b>

potential patentees may not be able to determine whether there are existing patents that they might infringe before they develop a new technology. U.S. law bestows patent ownership on the first person or entity to invent a new and useful process (first-to-invent), not the first inventor to file a patent for it (first-inventor-to-file). In addition, the PTO only requires publication after 18 months of filing for applicants who file both domestically and overseas—not for those who only file applications in the United States. The problem is that potential patentees cannot always know who holds the patent for a technology because the inventor may not have filed for a patent or may not have disclosed it.

Congress established the “first-to-invent” system because it believed it would protect small inventors who may not have the resources to file as quickly as large companies. Yet a study of priority disputes between patent holders between 1983 and 2000 found that the system did not benefit small inventors on average.<sup>87</sup> Many research institutions recently have criticized proposals to change to a “first-inventor-to-file” system for similar reasons, yet unlike small individual inventors, these institutions often have separate organizations whose sole purpose is to register patents based on the institution’s research (e.g. the Washington Research Foundation, which files and defends patents for Washington State University). Likewise, in the American Inventors Protection Act of 1999, Congress maintained the 18-month publication exception for applicants who file patents only in the United States because it believed that publishing domestic-only patents would enable foreign companies to steal them and produce them overseas. This exception differs from practice in other countries, where most

applications filed under the Patent Cooperation Treaty are published 18 months after filing. Yet, the number of patents filed only domestically is decreasing. In 2006 it comprised only 35 percent of patents filed in the United States (see Table 1).

All of these factors drive excessive damage and litigation. If the chances of getting treble damages go up, the risks involved in filing a lawsuit go down. Patent owners more easily get damage awards even if they have a poor quality patent because the court requires “clear and convincing evidence” to invalidate a patent. As a result, companies with weak patents appear to have proliferated. They are sometimes called “patent trolls” because like trolls keeping their treasure in a cave they sit on their patents for years, only to attack when a company successfully sells an infringing product.<sup>89</sup>

### **Policy Recommendations**

Effective patent reform involves addressing all three problems: pendency, questionable patents, and excessive litigation and damage awards. The key is to focus both on the pre-grant and post-grant process. The “Patent Reform Act of 2007” rightly addresses many post-grant and some pre-grant problems. In addition, we propose the following reforms, many of which also are included in the current legislation.

### **Eliminating the Backlog**

**1) Congress should statutorily end the diversion of patent fees to the U.S. Treasury (as in H.R. 2336<sup>90</sup>), and give the PTO regulatory authority in order that it may raise fees to meet budgetary needs:** In order



for the PTO to eliminate the backlog, it must be able to use all of its fees to hire additional patent examiners and to be able to give them more time to process applications. Fees by their very nature represent demand on the PTO resources. Without letting the PTO use those fees to increase its ability to respond is a recipe for delay. Ending fee diversion is necessary to enable the PTO to hire additional examiners as well as to make other improvements to patent processing, such as running the Accelerated Review Option and the Community Patent Review Project. Fee diversion has contributed to the backlog by constraining the PTO's budget and preventing it from hiring examiners to keep up with demand.

**2) The PTO should hire significantly more patent examiners to reduce the backlog:** The PTO's top priority should be to adopt an aggressive strategy to reduce the backlog and thereafter keep up with demand. To do this, it needs to hire and train enough examiners to reduce the backlog to around 75,000 applications, where it was before the mid-1990s. This will take several years because examiners require three to four years of training before they are fully qualified. Nonetheless, it is an imperative step. Once the PTO reduces the backlog, it should maintain sufficient examiners to keep up with demand and allow attrition to eliminate excess personnel.

**3) The PTO should expand its telecommuting programs to establish satellite offices around the country to allow patent examiners greater flexibility to live in lower-cost areas:** The PTO's policy of requiring examiners to check into the office every two weeks requires patent examiners to live in the Washington, DC metro area. By setting up small satellite offices around the country could choose to live in less expensive areas and increase their standard of living, while still enabling them access to an office.

## Improving Patent Quality

**4) In conjunction with training and certification programs for patent examiners,**

**the PTO should give patent examiners more time to search for and evaluate prior art for complex technologies:** One of the reasons fully trained and certified patent examiners may nonetheless grant questionable patents is because they don't have enough time to do a thorough review of complex technologies. Lack of time also causes patent examiners to leave for jobs outside of the PTO. Attrition at the PTO is higher than at any other government agency and it is undermining the PTO's strategy of hiring to reduce the backlog. Giving patent examiners more time to review complex applications will complement the PTO's existing training and certification programs to both enhance patent quality as well as reduce attrition.

**5) The PTO should expand applicants' incentives to provide more relevant statements of prior art:** Another reason that patent examiners grant questionable patents is that they do not have access to enough relevant prior art. This is because applicants and others are reluctant to provide relevant statements of prior art. **The PTO should continue to expand programs such as the Accelerated Review Option that give applicants incentives to provide relevant statements of prior art.**

**6) To support the PTO's efforts to get access to more prior art statements of relevance Congress should amend Section 122 of Title 35 of the U.S. Code to require that any person submitting prior art must include statements of relevance for consideration or inclusion in a patent application record:** Current patent law does not allow anyone other than the patent applicant to describe how prior art is relevant to the patent application's claims. This constrains initiatives such as the Community Patent Review Project because peer reviewers will not be able to explain how their submissions are relevant to the patent application in question. By amending Section 122, Congress will support PTO initiatives to encourage more relevant prior art submissions—which will improve patent quality.

**7) Congress should create a post-grant opposition process to be conducted by the**

**PTO that allows any party to challenge a patent's validity 12 months after it is issued, and at any time during the life of the patent if the patentee sues the challenger for infringement:** Currently few third parties use the PTO's existing patent re-examination process because it limits their participation and grounds for challenging a patent's validity. Yet, more public participation in the patent process will help the PTO identify questionable patents. A system that allows for limited opposition after the PTO grants a patent will encourage third parties to participate, but also limit uncertainty by restricting grounds for a "second window" review.

### **Reducing Excessive Litigation and Damages**

**8) Congress should require patent owners to provide clear and convincing evidence that after alleged infringers received adequate written notice of infringement they performed one or more alleged acts of infringement while having no basis to believe the patent not infringed, invalid, or unenforceable:** The ease with which plaintiffs currently can prove willful infringement and gain treble damages restricts applicants and third parties' ability to research relevant prior art. Requiring patentees to provide more specific written notices and to prove infringement will discourage patentees from initiating frivolous lawsuits and engaging in rent seeking.

**9) Congress should require the courts to determine actual damages based on the economic value of the patent's specific contribution over the prior art:** Another important part of patent reform is to ensure that damage awards are more accurate and reasonable. So, instead of the courts determining actual damages based on the entire market value of a product of which the patented component is only a small part, the "Patent Reform Act of 2007" proposes changing the law so courts apportion damages based on the economic value attributable to the new and nonobvious feature(s) of the invention. This

would make it harder for patentees to get excessive damage awards by attacking an inconsequential component in a commercially popular product. However, if an infringing component was found to be a key part of that product (for which the infringement would be more egregious) the legislation allows the claimant to prove that the patent's specific contribution over the prior art is the basis for the market's demand for the product. This change would let patent owners obtain appropriate damage awards in cases where a defendant infringed a patented component that was fundamental to the commercial success of the defendant's product.

**10) Congress should amend the jurisdiction and venue provision of patent law to specify that a patent owner must file cases in the district where either party resides, where the defendant has committed acts of infringement and has a regular place of business:** One way patent owners get excessive damages is to file in courts that are favorable to them. Amending the law so that patent owners can only bring patent civil actions in the judicial district where either party resides, where the defendant has committed acts of infringement, and has a regular established place of business would discourage some patentees from forum shopping. However, other patentees may simply get around this restriction by incorporating in districts (such as those in Texas and Virginia) that they believe are favorable to them in infringement suits. Nonetheless, Congress needs to take action to curb this abuse and even this proposed minor change could reduce excessive damage awards.

**11) Congress should amend the Patent Act to create a "first-inventor-to-file-system":** It is difficult for potential patentees to determine who first invented a patented product or technology. A "first to invent" system creates uncertainty for all inventors, both during the application process and after an examiner grants the patent. This uncertainty hinders innovation by increasing risks and costs, and because it may deter companies from developing new products.

Changing the law to a “first-inventor-to-file-system” will eliminate this uncertainty.

**12) Congress should apply the 18-month publication requirement to all applications:**

The U.S. law limiting publication of the patent application 18 months after filing to applications filed both domestically and internationally creates uncertainty. It prevents the public from learning of new inventions. Eliminating the exception for domestic-only applications would encourage innovation by giving inventors the incentive to come up with new, and perhaps better, ideas. Conversely, exempting domestic-only applications from this rule constrains innovation and limits the invention’s public benefit.

**Common Arguments Against Patent Reform**

While there are compelling reasons for patent reform, some policy makers and industry groups argue against the kinds of reforms proposed here. They make a number of arguments, including that:

**1) Any increase in PTO resources—such as ending fee diversion—should be tied to increased accountability:**

Critics are concerned that increasing funding with no strings attached could enable the agency to expend resources in non-essential areas, such as on overseas advocacy, rather than on hiring and training patent examiners and researching ways to improve performance. Yet the PTO, even without additional funding, already has taken many steps in the last several years to address problems with patent quality (instituting training

and certification programs) and pendency (hiring as many examiners as possible under the current funding).<sup>91</sup> One result of these initiatives is that the percentage of patent grants per examiner is at its lowest point since the PTO has tracked this indicator. Moreover, the PTO’s number one goal in its *2007-2012 Strategic Plan* is to “optimize patent quality and timeliness.”<sup>92</sup> Since the PTO already is focused on hiring and training patent examiners to address the backlog

as its key goal, it’s likely that it would use any additional fees to achieve that objective, not on peripheral programs. However, at its discretion, Congress could address this concern by stipulating that the PTO must use fees in excess of the agency’s appropriation to hire and train patent examiners and on other initiatives to improve performance, such as the Community Patent Review Project.

**2) Broad patent reform will make it more difficult for inventors to protect their patents against infringement:**

Some argue that broad patent reform, particularly of the post-grant process, will make it easier for companies to attack and invalidate existing patents. For example, they are concerned that increasing the plaintiff’s burden of proving willful infringement will make it harder for plaintiffs to defend themselves against companies that are infringing their patents. While it’s true that requiring plaintiffs to prove that defendants acted “reprehensively” in infringing their patents increases their judicial burden, there are two reasons that it does not prevent them from prevailing against infringers as long as they have strong, valid patents. First, changing the way that courts determine willful infringement does not undermine the presumption that a patent is valid. The courts will continue to presume that any patent that the PTO has granted is valid, unless proven otherwise. So plaintiffs will continue to have this advantage over defendants. Second, plaintiffs with strong patents should have no difficulty proving infringement. It is only plaintiffs with weak patents that should be concerned about this change, and these are exactly the types of patents the law should not be protecting.

**3) A post-grant opposition process will create uncertainty that will weaken the patent’s presumption of validity and will have a potential adverse effect on the independent investor community:**

First, opponents of post-grant opposition argue that since an open review process would allow third parties to attack patents at any time prior to expiration, the risk that a patent could be invalidated would make investors reluctant to fund innovation.<sup>93</sup> They

point out that this is particularly true for proposals that provide for a “second window” review, especially if that review can be triggered when third parties believe either that they have been, or may be, harmed economically by a particular patent. Yet, litigation already holds threats for any patent holder. Litigation invalidates at least 46 percent of patents challenged in court.<sup>94</sup> Moreover, most patent infringement cases occur many years after the PTO grants the patents, so a patentee may simply wait until the open review time limitation expires (if it is limited to 9 or 12 months) and then sue for infringement.<sup>95</sup> However, Congress could design a post-grant review system that avoids this uncertainty by only allowing third parties to initiate the process when they are sued for infringement—but not on the basis of economic harm. Such a limited “second window” would give patentees the near certainty that the validity of their patents would be challenged if they raised an infringement suit. Second, opponents of open review also fear that the process could be used to prevent independent inventors from asserting their patents. Yet, studies of the European Patent Office’s opposition process shows that independent inventors’ patents are attacked less, not more, than those held by large companies.<sup>96</sup> Moreover, the EPO’s post-grant opposition process revoked only about a third of patents, maintained but amended one third, and rejected less than a third of patents it reviewed.<sup>97</sup>

**4) Changing the way courts determine reasonable royalties will prevent inventors from being appropriately compensated for infringement:** Critics of changes to damage determination argue that a mandatory apportionment text would encourage juries to determine patent value based on an artificial and arbitrary comparison of patented and non-patented components of a patented product. They say that this would substitute the jury’s judgment for the PTO’s in determining which parts of a patent claim are new and useful. So the jury would calculate the invention’s contribution to an end product based on the relative quantity, rather than quality of the new and useful components. The result is that any

change to the way courts determine damages would eliminate the possibility that a component’s technical contribution may disproportionately contribute to the aggregate value of the product. However, the problem with this argument is that it assumes there is no middle ground. The way to address their concerns is to allow patent owners to prove that the patent’s specific contribution over the prior art is the basis for the market’s demand for the product (as in *S. 1145/H.R. 1908*). This enables them get reasonable damages in cases where a defendant infringed a patented component that was fundamental to the commercial success of the defendant’s product.

**5) Preventing patent owners from choosing a reasonable judicial venue to file their cases is unnecessary:** Some policy makers and industry groups argue that patent owners should be able to choose a reasonable judicial venue to file their cases and limiting this is unnecessary. They think that proposed changes concerning venue would restrict the ability of plaintiffs to bring cases in jurisdictions where there is a meaningful connection between the parties, and also that these changes unfairly assume that only patent owners—not alleged infringers—use venue to their advantage. However, these critics have not suggested an alternate solution to the problem that current law lets patent owners file their cases in any district where the defendant infringed the patent owners’ patents. This means that patent owners can sue defendants who distribute their products nationwide in any judicial district in the country, which encourages them to file in favorable jurisdictions. The result is increased litigation as patent owners file more lawsuits because they believe they are more likely to win. Furthermore, proposed changes to the law will not significantly limit patent owners’ choice of venue. They will still be able to file in judicial districts where defendants committed acts of infringement. The only difference is that the defendant also must have a regular and established place of business in the venue.

## Conclusion

Over the course of American history, the patent system has changed as the nature of technological innovation has evolved. As the new, global and technology-based economy has emerged in the last two decades, the patent system has not changed adequately in response. As a result, the time is ripe for patent reform. Problems with patent delays, quality, and excessive litigation and damages are getting worse. They are impeding the growth of the innovation economy and making it harder for

U.S. companies to compete. Inventors wait years to get a patent, which prevents consumers from getting the benefits from these innovative products. The current system also encourages poor quality patents while making it harder for inventors with legitimate patents to defend them. More worrisome is that these problems threaten America's technology leadership. It's time to restore the balance. Congress should support the PTO in its reforms and enact legislation that improves patent quality, reduces excessive litigation and damages.

## Endnotes

1. The author thanks the following individuals for providing input to this report: Beth Noveck and Brian Kahin, as well as ITIF President Robert Atkinson and ITIF staff Daniel Castro, Dan Correa, and Torey Liepa.
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7. The amount of damages was more than \$50 million, but RIM settled for the higher amount of \$612 million to avoid an injunction. The surcharge is derived by dividing 7 million into \$612 million.
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