

## **“Peer to Patent”: A Proposal for Community Peer Review of Patents**

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### ***Part I: Introduction***

The patent system needs our help. The good news is that the United States Patent Office is actively seeking ways to bring greater expertise to bear on the review of patent applications and to ensure that only worthwhile inventions receive the patent monopoly. Currently, underpaid<sup>2</sup> and overwhelmed,<sup>3</sup> patent examiners struggle under the burden of 350,000 patent applications per year<sup>4</sup> and a backlog of 600,000.<sup>5</sup> Though supposedly expert,<sup>6</sup> patent examiners are not versed in all

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<sup>2</sup> A patent examiner gets paid less than half the salary of a first-year associate prosecuting patents for a large law firm. According to the United States Patent and Trademark Office, a patent examiner starts at levels between GS-5 to GS-9, where the salary is between \$35,548 and \$49,729. GS-13 earns \$78,018. See <http://www.usptocareers.gov/home.asp> (follow “FAQ” for the list of grades; and follow “Job Search” for salaries at grade level). Entry level salaries for first year associates in large New York law firms are around \$125,000. *Entry-level Attorney Salaries Remain Stable*, THE DAILY RECORD OF ROCHESTER, August 30, 2005; see also NALP: The Association for Legal Career Professionals, *Salaries and Compensation: Private Sector*, at <http://www.nalp.org/content/index.php?pid=147>.

<sup>3</sup> America has twice the number of applications with the same number of examiners as the European patent office. See ADAM B. JAFFE & JOSH LERNER, INNOVATION AND ITS DISCONTENTS: HOW OUR BROKEN PATENT SYSTEM IS ENDURING INNOVATION AND PROGRESS, AND WHAT TO DO ABOUT IT 11-18, 131 (2004).

<sup>4</sup> The total of 382,139 patent applications in 2004 is more than doubled from 176,264 in 1990. See [http://www.uspto.gov/web/offices/ac/ido/oeip/taf/us\\_stat.pdf](http://www.uspto.gov/web/offices/ac/ido/oeip/taf/us_stat.pdf) (last visited Sept. 30, 2005).

<sup>5</sup> *USPTO Oversight Hearing, Before The Subcommittee on Courts, The Internet, and Intellectual Property Committee On The Judiciary United States House of Representatives* (2005) (The Honorable Jon W. Dudas, Under Secretary Of Commerce for Intellectual Property and Director Of The United States Patent and Trademark Office) at

<http://judiciary.house.gov/media/pdfs/dudas090805.pdf> (“without any change to the system, the backlog of applications awaiting a first review by an examiner is expected to grow from the current level of approximately 600,000 to over 1,000,000 by 2010.”) (last visited Sept. 30, 2005).

<sup>6</sup> Required to become a patent examiner is required “a degree from an accredited college or university in Electrical Engineering, Computer Engineering, Computer Science, Mechanical Engineering, Chemical Engineering, Material Science Engineering, Biology and Organic Chemistry.” No advanced degree is required. See <http://www.usptocareers.gov/home.asp> (follow “FAQ”) (last visited Sept. 30, 2005).

the scientific disciplines.<sup>7</sup> Until relatively recently, even though software applications were coming in, the patent office did not recognize training in computer science as a legitimate qualification.<sup>8</sup> The same is true now for nanotech and other state of the art sciences. Multiple patents have been given for the same invention or patents awarded for inventions discovered previously.<sup>9</sup> The patent examination process is one part of the challenge. The judicial review process that is intended to check regulatory dysfunction is not helping. The Federal Circuit, the specialty patent appeals court, rules in favor of patent holders<sup>10</sup> more often than not and awards large financial judgments for patent

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<sup>7</sup> While there is legal training, there is no continuing science education program for patent examiners. “According to agency officials, examiners automatically maintain currency with their technical fields by just doing their job of examining applications, which they believe contains the most cutting-edge information. However, patent examiners and supervisory patent examiners disagreed and said that the literature they review in applications is outdated, particularly in rapidly evolving technologies. USPTO offers some voluntary in-house training, but the agency could provide no data on the extent to which examiners have taken advantage of such training. Moreover, patent examiners told us that they are reluctant to attend such training, given the time demands involved. In contrast, USPTO’s policy requires examiners to attend extensive training provided by the agency on legal issues on which examiners are periodically tested.” UNITED STATES GOVERNMENT ACCOUNTABILITY OFFICE, REPORT TO CONGRESSIONAL COMMITTEES, USPTO HAS MADE PROGRESS IN HIRING EXAMINERS, BUT CHALLENGES TO RETENTION REMAIN, at 6 (2005), at <http://www.gao.gov/cgi-bin/getrpt?GAO-05-720>.

<sup>8</sup> Computer science became a recognized qualification in 1994 even though the USPTO was granting software patents since the early 1980s. *Diamond v. Diehr*, 450 U.S. 175, 177 (1981) (affirming the Court of Custom and Patent Appeals decision granting a patent for a computerized “industrial process for the molding of rubber products.”). *See In re Alappat*, 33 F.3d 1526, 1545 (Fed. Cir. 1994) (“a computer operating pursuant to software may represent patentable subject matter, provided, of course, that the claimed subject matter meets all of the other requirements of Title 35. In any case, a computer, like a rasterizer, is apparatus not mathematics.”).

<sup>9</sup> *See* Adam B. Jaffe & Josh Lerner, *INNOVATION AND ITS DISCONTENTS: HOW OUR BROKEN PATENT SYSTEM IS ENDURING INNOVATION AND PROGRESS, AND WHAT TO DO ABOUT IT* 4 (2004).

<sup>10</sup> “Judges appointed after 1982 voted to hold a patent valid 164 times out of 298, or 55.0% of the time. While judges appointed to the Federal Circuit, with its widely asserted pro-patent orientation, did vote slightly more often to uphold the validity of a patent than their predecessors, the numbers are quite similar. The Federal Circuit did hold patents valid much more often than its predecessor courts, but the difference cannot be attributed to judges appointed to that court at different times.” Mark Lemley & John R. Allison, *How Federal Circuit Judges Vote in Patent Validity Cases*, 27 FLA. ST. U. L. REV. 745 (2000). *See also* Rochelle Cooper Dreyfuss, *The Federal Circuit: A Case Study in Specialized Courts*, 64 N.Y.U. L. REV. 1 (1989); Donald R. Dunner, *The United States Court of Appeals for the Federal Circuit: Its First Three Years*, 13 AIPLA Q.J. 185 (1985); As Professors Dan L. Burk and Mark Lemley remark, “the Federal Circuit has bent over backwards to find biotechnological inventions nonobvious, even if the prior art demonstrates a clear plan for producing the invention.” Dan L. Burk & Mark A. Lemley, *Is Patent Law Technology-Specific?*, 17 BERK. TECH. L.J. 1155, 1156 (2002).

enforcement, spawning a new industry of predatory “patent trolls,” patenting for litigation not innovation.<sup>11</sup>

There are numerous patent reform proposals on the table, including the Patent Reform Act of 2005,<sup>12</sup> which would make it easier to contest patents after the fact or reduce the burdens of patent litigation. Other “open source patent” projects focus on challenging undeserving patents,<sup>13</sup> promoting socially responsible licensing of patented technologies<sup>14</sup> or encouraging inventors to donate or license patented technology, especially AIDS and other life-saving drugs, to the public domain prior to patent expiration.<sup>15</sup> Yet another proposal suggests that we adopt different patent term lengths for different industries.<sup>16</sup> All of these reform initiatives are trying to fix patents after they are granted.

But what if we could reform patenting *ex ante* and ensure better applications? What if we could make it easier to ensure that only the most worthwhile inventions got twenty years of monopoly rights? What if we could offer a way to protect the inventor’s investment while still safeguarding the marketplace of ideas from bad patents? What if we could make informed decisions about the scientifically complex issues posed by patent law before the fact?

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<sup>11</sup> William M. Bulkeley, *Aggressive Patent Litigants Pose Growing Threat to Big Business*, WALL ST. J., September 14, 2005, at A1 (discussion of impact of patent trolls on successful businesses). See, e.g., Martin LaMonica, *Small Company Makes Big Claims On XML Patents*, CNET (October 21, 2005) (small company seeking to extract licensing royalties from users of open standard XML), at [http://news.com.com/Small+company+makes+big+claims+on+XML+patents/2100-1014\\_3-5905949.html?part=rss&tag=5905949&subj=news](http://news.com.com/Small+company+makes+big+claims+on+XML+patents/2100-1014_3-5905949.html?part=rss&tag=5905949&subj=news). This is one of myriad such cases of someone patenting an already known and fundamental technology and then seeking to extort royalties using a patent that should never have been granted.

<sup>12</sup> Patent Reform Act of 2005, H.R.2795, 109th Cong. (2005) (Introduced in House June 8, 2005).

<sup>13</sup> See the Adelphi Charter on Creativity, Innovation and Intellectual Property at <http://www.adelphicharter.org/> (calling for new public interest standards for patenting). Free Ideas, THE ECONOMIST (Oct. 13, 2005) (describing the Adelphi Charter). See also Electronic Frontier Foundation Patent Busting Project at <http://www.eff.org/patent/> (last visited October 3, 2005) (“EFF is launching a Patent Busting Project to take on illegitimate patents that suppress non-commercial and small business innovation or limit free expression online. The Project has two components: A. Documenting the Damage...B. Challenging The Patents”); see also Sarah Boettlinger and Dan L. Burk, *Open Source Patenting*, 1 J. OF INTN’L BIOTECH L., 221-231, (2004).

<sup>14</sup> The goal of Science Commons is to “encourage stakeholders to create areas of free access and inquiry using standardized licenses and other means: a ‘Science Commons’ built out of voluntary private agreements.” at <http://www.sciencecommons.org> (last visited Sept. 30, 2005).

<sup>15</sup> Consumer Project on Technology, Patent Compulsory License Project, at <http://www.cptech.org/ip/health/cl/>

<sup>16</sup> See Mark A. Lemley, *An Empirical Study of the Twenty-Year Patent Term*, 22 AIPA Q.J. 369, 385 (1994) (assessing fixed and variable length patent terms).

This modest proposal suggests that we can harness social reputation and collaborative filtering technology to create a web-based peer review system of scientific experts ruling on innovation. A key problem with the current patent process is that its notion of expertise is mired in outdated technologies. We continue to trust in bureaucratic experience that does not work instead of in the collective intelligence that the Net makes possible.<sup>17</sup> Technology presents us with the opportunity to improve upon the current system. The idea of citizen juries, blue ribbon juries or advisory committees<sup>18</sup> is not new. But the suggestion to use social reputation software – think Friendster, Linked in, eBay reputation points -- to make such panels big enough, diverse enough and democratic enough to replace the patent examiner is.

By using social software, we can more accurately bring the wisdom, not of the crowd, but of experts to bear on solving complex social and scientific problems. Experience with open source software production has taught us that we need to unleash the power of groups of self-identified experts. We have arrived at a unique moment in history when three factors converge to make this kind of community patent reform possible: first, the state of patenting has become so problematic as to meet with almost universal opprobrium; second patent applications are published after eighteen months independent of grant, making it possible to consider open peer review; and third, we finally have the social reputation and social networking technology to make peer review on this scale possible.

This has far reaching implications beyond the patent process. It implies a fundamental rethinking of our assumptions about bureaucracy and expertise. While Congress passes four hundred items of general legislation per year, federal agencies (of which the patent office is one) enact 4000-8000 regulations that translate those laws into the specific rules for everyday living: requiring seatbelts for cars, limiting the parts per billion of chemicals in the air, dictating the width of doorways in new home construction, restricting the use of dirty words on television. And federal agencies are only just the tip of the iceberg of work done by state and local agencies. While we have democratically-elected legislatures, we rely upon these non-elected "expert" bureaucrats because they are not swayed

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<sup>17</sup> Yochai Benkler, *Coase's Penguin, or, Linux and The Nature of the Firm*, 112 YALE L. J. 369 (2002). See also The Digital Universe, available at <http://www.digitaluniverse.net/> (offering collaborative web portals to foster expertise).

<sup>18</sup> Federal Advisory Committee Act (FACA), 5 U.S.C. App. § 2 (2005) (An act to authorize the establishment of a system governing the creation and operation of advisory committees in the executive branch of the Federal Government and for other purposes.)

by political considerations. They have access to better, more scientific, more objective information.

Or do they?

In fact, overworked, unelected and unaccountable bureaucrats subject to a constant barrage of lobbyists make the rules. Even absent the problems of regulatory capture and political influence, the sheer volume of decisionmaking about complex scientific subject matter renders it challenging to make decisions in the public interest.

The patent office is supposed to stand in for the public to determine whether getting a patent for an invention will, in the words of the Constitution, “promote the progress of the sciences and useful arts.” Intellectual property law rests on this *quid pro quo* with the public. As the Supreme Court has made clear, Congress may not “enlarge the patent monopoly without regard to the innovation, advancement or social benefit gained thereby.”<sup>19</sup> The agency as an expert, on behalf of the public, decides whether an invention is novel and useful enough to warrant twenty years of monopoly rights.

When an examiner tackles an application, he has limited time and less knowledge to assess fully how novel, non-obvious and useful an invention really is. Does the crustless peanut butter sandwich really represent a significant advance over the prior art?<sup>20</sup> Do the claims of the patent for the thumb-shaped lollipop recite something truly novel?<sup>21</sup> Has the marketplace of ideas been enriched and the progress of the useful arts been promoted enough to justify the twenty year grant of monopoly power for the one click shopping cart?<sup>22</sup> Are today’s patents perpetrating a “surprise and a fraud upon the public?”<sup>23</sup>

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<sup>19</sup> *Graham v. John Deere*, 338 U.S. 1, 6 (1966).

<sup>20</sup> U.S. Patent No. 6,874,409 (issued April 5, 2005) (Method and apparatus for making commercial crustless sandwiches and the crustless sandwich made thereby); U.S. Patent No. 6,004,596 (issued Dec. 21, 1999) (Sealed crustless sandwich).

<sup>21</sup> U.S. Patent No. 6,730,339 (issued May 4, 2004) (Lollipop with fluid reservoir handle).

<sup>22</sup> *Amazon.com, Inc. v. Barnesandnoble.com, Inc.*, 239 F.3d 1343 (Fed. Cir. 2001), *vacated and remanded* (action alleging infringement of patent claiming a “1-Click®” method and system for placing a purchase order over the Internet). U.S. Patent No. 5,960,411 (issued Sep. 28, 1999).

<sup>23</sup> *Baker v. Selden*, 101 U.S. 99, 102 (1860) (“To give to the author of the book an exclusive property in the art described therein, when no examination of its novelty has ever been officially made, would be a surprise and a fraud upon the public. That is the province of letters-patent, not of copyright.”).

What if, instead, we used real experts to assist the patent examiner in making these decisions?

It has become easier, cheaper, faster and more manageable to coordinate information-sharing among a group and to create and sustain productive groups. We are beginning to develop the social reputation tools to enable us to work together as a group on-line, to visualize the groups to which we belong and to accomplish tasks together collectively.

So what if we applied this new social software to the patent application process to give the public the benefit of the scientific community's expertise? What if, instead of one examiner, an application had 1000 examiners? What if the community collaborated on developing repositories of prior art for its area of expertise? What if persons skilled in the art were asked how useful, novel and non-obvious an invention actually was? What if a wider array of people had a simple way to put forth prior art before the patent was approved,<sup>24</sup> rather than after in a costly "interference proceeding"?

This proposal argues that we can harness technology to create a community of innovation experts. If we do so, the new generation of social software that enables collaboration might not simply make it easier to get a date, it could bring about a better, fairer form of governmental decisionmaking for patents.

How will it work?

Imagine that for every invention, the proposed invention will be published and put up for comment to a wide-range of experts who will assess whether there is relevant "prior art" – earlier inventions that might preclude the grant of a patent.

Why have one person judge whether something is new when twenty thousand experts can feed that information into the system? Designed right, the graphical networked screen allows more people to participate in a group for shorter periods of time<sup>25</sup> because the screen makes it easier to understand the goals of the group, to see who is participating, what roles they play and what information has been gathered. Done right, the screen can make it possible to manage this input and

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<sup>24</sup> 35 USC 122 (c) (no pre-grant protests or oppositions permitted without consent of patentee); 37 CFR 1.99 (third party submissions limited to patents & publications but no comments permitted).

<sup>25</sup> One of the complaints about blue ribbon juries is that they distract experts for long periods of time sitting in a courtroom. This proposal allows for rapid participation from home or work. Beth Simone Noveck & David R. Johnson, *Society's Software*, 74 *FORDHAM L. REV.* (forthcoming Nov. 2005) (describing incremental nature of participation).

make it useful and informative for the examiner and easy to use for the expert. The same system for advising on prior art can be used to construct expert juries of persons skilled in the art to assist the examiner with the patentability determination. Eventually, this might enable the patent office to consider the outsourcing of the examination process to such substantive experts.

This Article lays out a detailed draft blueprint for the Community Patent system. The next section discusses the current state of patent law and the problems to which the current examination procedure gives rise. In short, review by a lone examiner is crippling our ability to assess innovation. Section Three explains the community patent process (or what I have nicknamed "peer to patent" peer review). It provides a draft specification of its features so that technologists can begin translating the design of the process into software. Finally, Section Four responds to critiques and questions ranging from why will people participate to how will courts review the results. This is the blueprint to provide input into a series of workshops that will enlist a wide array of experts in designing the system. The aim is to create and deploy the peer to patent system, first in small scale pilot projects to test the system on existing, already-granted patents and then, after refinement, full implementation by the United States Patent Office. We would phase in deployment, beginning with those areas where the patent office is most overworked and understaffed.

By using the technology available to tie expert reputation to the visualization of scientific information, it may be possible to improve upon the constitutional promise to promote the progress of science and the useful arts in our democracy and to ensure that only truly innovative ideas receive the odious monopoly of which the first patent examiner, Thomas Jefferson, complained.<sup>26</sup>

Done right, this may point the way toward a new model for the administrative state. It is not the New Deal notion of the bureaucratic expert administrator nor the interest group representation of mid-century nor the analytic management model of recent years.<sup>27</sup> Each of these models suffers from the democratic deficit created by reliance on centralized information and expertise. Peer to Patent argues for a new paradigm of collective governance by the innovation community.

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<sup>26</sup> Along the same lines, Irving Wladawsky-Berger, IBM Vice President of Technology and Strategy said, "Through the U.S. Patent Office any idiot can get a patent for something that should never be granted a patent." INFOWORLD March 7, 2005.

<sup>27</sup> Richard B. Stewart, *Administrative Law in the Twenty-First Century*, 78 N.Y.U.L. REV. 437 (2003) (describing the major models of the administrative state in the twentieth century).

## *Part II: The Parade of Horribles*

Abraham Lincoln said that the "patent system added the fuel of interest to the fire of genius."<sup>28</sup> It is the sole specific grant of power by the Constitution directing Congress to award authors and inventors a private property right in new inventions that "promote the progress of science and the useful arts."<sup>29</sup> This was an inexpensive way for the new and impoverished federal government to create a national patent system and provide a utilitarian basis to stimulate innovation or what was then known as the "useful arts."<sup>30</sup> It is also one of the few constitutional clauses incorporated without debate.<sup>31</sup> Perhaps because the delegates felt, as Mark Twain expressed it, that "a country without a patent office and good patent laws was just a crab and couldn't travel any way but sideways or backwards."<sup>32</sup>

While patents have provided an incentive for national competitiveness<sup>33</sup> and offered a barrier to entry to stimulate investment in new technologies, especially in industries with high start-up and research and development costs, there is a general consensus that the crab is traveling backwards. The system is very much perceived to be broken.

The law calls for a patent to issue where an invention is novel, useful, non-obvious and described with enough specificity to inform the public how to practice the invention. Yet of the two million patents in force in the United States,<sup>34</sup> many do not qualify. Adam Jaffe and Josh Lerner regale the reader in their new book *Innovation and Its Discontents*<sup>35</sup> with horror stories about patents

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<sup>28</sup> ABRAHAM LINCOLN, LECTURE ON DISCOVERIES AND INVENTIONS (FEB. 11, 1859) IN ABRAHAM LINCOLN: SPEECHES AND WRITINGS 1859-1865 11 (DON E. FEHRENBACHER ED., 1989).

<sup>29</sup> U.S. Const. art.I, § 8, cl. 8.

<sup>30</sup> EDWARD C. WALTERSCHEID, THE NATURE OF THE INTELLECTUAL PROPERTY CLAUSE: A STUDY IN HISTORICAL PERSPECTIVE 18 (2002).

<sup>31</sup> *id.*

<sup>32</sup> MARK TWAIN, A CONNECTICUT YANKEE IN KING ARTHUR'S COURT 65 (Bantam Classics 1983) (1889).

<sup>33</sup> *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 146 (1989). ("From their inception, the federal patent laws have embodied a careful balance between the need to promote innovation and the recognition that imitation and refinement through imitation are both necessary to invention itself and the very lifeblood of a competitive economy.")

<sup>34</sup> Mark A. Lemley, *Rational Ignorance at the Patent Office*, 95 Nw. U. L. Rev. 1495, 1501 (2001) (discussing the two million patents in force).

<sup>35</sup> ADAM B. JAFFE & JOSH LERNER, *INNOVATION AND ITS DISCONTENTS : HOW OUR BROKEN PATENT SYSTEM IS ENDANGERING INNOVATION AND PROGRESS, AND WHAT TO DO ABOUT IT* (2005); see also Rochelle Cooper Dreyfuss, *Pathological Patenting: The PTO as Cause or Cure*, 104 MICH. L. REV. (forthcoming) (review of Jaffe and Lerner).



that are anything but “non-obvious,” such as patent number 6,368,227 for “Method of Swinging on a Swing” awarded to a five-year-old boy.<sup>36</sup> Or patent number 6,574,645, a patent on a method for drafting a patent.<sup>37</sup> The “Patently Silly” weblog has hundreds more.<sup>38</sup>

Applications come in and are granted for inventions that are not novel, as the statute requires. The patent awarded to Smucker’s for the crustless peanut butter and jelly sandwich is, by now, legendary. Jaffe and Lerner describe a patent sought for expirationless options thirty years after economists won the Nobel Prize for the same idea. Now lawyers are getting into the game, trying to patent estate planning and other legal techniques that have been practiced in the industry for decades.<sup>39</sup>

We grant patents for invention but not for innovation that promotes the useful arts. Because patent law provides the inventor with a monopoly right to exclude others from using, selling, making or practicing<sup>40</sup> the invention but not a concomitant obligation to use, sell, make or practice that invention, patents issue to the oil industry for solar energy inventions that will be put on the shelf and never used. As a result, an industry has arisen in patent “trolling,” seeking patents solely for the purpose of litigating infringement lawsuits and extorting license fees from competitors without producing any product or bringing any innovation to market.<sup>41</sup> Since everything under the sun is now patentable subject matter<sup>42</sup> and more people are filing patents,<sup>43</sup> the field is rich and fertile for companies seeking to enrich themselves from bio-piracy,<sup>44</sup> patent trolling, patent prospecting and other practices that do not satisfy the constitutional mandate.

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<sup>36</sup> U.S. Patent No. 6,368,227 (issued April 9, 2002) (Method of Swinging on a Swing).

<sup>37</sup> U.S. Patent No. 6,574,645 (issued June 3, 2003) (Machine For Drafting A Patent Application And Process For Doing Same).

<sup>38</sup> Patently Silly Weblog at <http://www.patentlysilly.com> (last visited Sept. 30, 2005).

<sup>39</sup> U.S. Patent No. 6,567,790 (issued May 20, 2003) (Establishing And Managing Grantor Retained Annuity Trusts Funded By Nonqualified Stock Options,).

<sup>40</sup> 35 U.S.C. § 101.

<sup>41</sup> See also Zachary Roth, *Patent Troll Menace*, Washington Monthly (June 2005), <http://www.washingtonmonthly.com/features/2005/0506.rothsidebar2.html> (last visited Sept. 30, 2005).

<sup>42</sup> *Diamond v. Chakrabarty*, 447 U.S. 303, 307 (1980).

<sup>43</sup> John R. Allison and Mark A. Lemley, *Who's Patenting What? An Empirical Exploration of Patent Prosecution*, 53 VAND. L. REV. 2099, 2099 (2000) (individuals and companies are obtaining far more patents today than ever before).

<sup>44</sup> Kasturi Das, *Combating Biopiracy - the Legal Way* (2005) at <http://www.indiatogether.org/2005/may/env-biopiracy.htm> (last visited Sept. 30, 2005); see also the Convention on Biodiversity (1992).

The reality of current patent practice<sup>45</sup> does not conform to the theory of bureaucratic expertise. “The more complicated and specialized modern culture becomes,” wrote Max Weber, the father of modern sociology, “the more its external supporting apparatus demands the personally detached and strictly objective expert, in lieu of the lord of older social structures who was moved by personal sympathy and favor, by grace and gratitude. Bureaucrats are supposed to possess “the knowledge that comes from specialized experience.”<sup>46</sup> Yet the reality is that the supposedly expert bureaucrat – in this case fifty-five percent of patent examiners – has been at the USPTO for less than two years.<sup>47</sup> It is not surprising given the fact that they are getting paid approximately \$55,000 and a first-year associate in a Manhattan law firm earns a base salary of \$125,000. In addition to being underpaid, they are also overworked.<sup>48</sup> An examiner has an average of 18-20 hours to review an application.<sup>49</sup> Arguably, we have returned to the registration regime we abandoned in 1836.<sup>50</sup>

Patent bureaucrats enjoy a great deal more discretion than their counterparts at other agencies. They have responsibility for granting a twenty-year monopoly with limited supervision, oversight or review when a first or second year civil servant at another agency would be drafting memos. The wide-ranging discretion of agency officials would not be such a problem, Jaffe and Lerner point out, were it not for the fact that courts are increasingly likely to find in favor of patent holders.<sup>51</sup> The Supreme Court rarely hears patent-related certiorari petitions.<sup>52</sup>

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<sup>45</sup> Robert P. Merges, *As Many as Six Impossible Patents Before Breakfast: Property Rights for Business Concepts and Patent System Reform*, 14 BERK. TECH. L. J. 577 (1999) (discussing the crisis in patent reform as a result of the volume of patents which must be addressed, in part, by reforming jobs and incentives at the Patent Office).

<sup>46</sup> Richard B. Stewart, *The Reformation of American Administrative Law*, 88 Harv. L. Rev. 1669, 1678 (1975).

<sup>47</sup> ADAM B. JAFFE & JOSH LERNER, *INNOVATION AND ITS DISCONTENTS* 136 (2004).

<sup>48</sup> Gregory Aharonian, *A Few Patent Examiners Complain About Patent Quality*, PATNEWS, (January 28, 1999).

<sup>49</sup> H.R. REP NO. GAO-05-720 (June 15, 2005). *The USPTO Has Made Progress in Hiring Examiners, but Challenges to Retention Remain* (depending on the type of patent and the skill level of the examiner, each examiner is expected to process an average of 87 applications per year at a rate of 19 hours per application. United States Government Accountability Office Intellectual Property The USPTO Has Made Progress in Hiring Examiners, but Challenges to Retention Remain). See also, Brenda Sandburg, *Speed Over Substance?*, INTELL. PROP. MAGAZINE (March 1999).

<sup>50</sup> J. Giles and S. Rich, *Laying the Ghost of the “Invention” Requirement* 14 FED. CIR. B.J.163, 165 (2005) (We had an examination regime from 1790 to 1793 and then adopted a registration system from 1793 to 1836 but the outcry was so great that we had to return to examination and created the modern patent office to handle the work.)

<sup>51</sup> James Bessen & Michael J. Meurer, *Lessons For Patent Policy From Empirical Research On Patent Litigation*, 9 LEWIS & CLARK L. REV. 1, 22 (2005) (There is also direct evidence that the

Patents are consequently both stronger, easier to get and more likely to be upheld without any concomitant guarantee of their quality. This has led to a system that sometimes rewards invention at the expense of innovation and has generated tremendous uncertainty with regard to the role patents play in the marketplace. Whether the cause or the effect, there are double the number of patent applications today. The venture capital industry demands patents as evidence of barriers to entry and a protection for their investment into new information industries.

### ***Part III: The "Peer to Patent" Community Patent Reform Proposal***

While there are those who would advocate doing away with patents altogether, this would require both a constitutional amendment and, at the same time, risk eliminating an important fundament of national competitiveness. The Community Patent idea is a realistic alternative for reform that requires minimal statutory change while narrowing the gaps in the patent system's filter: it increases the likelihood that good inventions will pass through while blocking unworthy inventions. This section outlines that proposal in detail, describing both the process and the technology that might enable it.

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Federal Circuit has changed patent validity and patent scope. The research must be used cautiously though, because it does not control for the selection effect. Allison and Lemley find the patent validity rate has increased since the creation of the Federal Circuit. Lunney finds that the Federal Circuit is less likely to find infringement than predecessor courts and thus has narrowed patent scope. Wagner and Petherbridge find Federal Circuit claim interpretation decisions are growing more predictable.); see also Jay P. Kesan and Gwendolyn G. Ball, *How Are Patent Cases Resolved? An Empirical Examination of the Adjudication and Settlement of Patent Disputes*, U Ill. L. & Econ. Research Paper (2005) ("[S]ignificant percentage of cases (about 8-9%) are resolved on the merits through summary judgment. Consequently, summary judgments are important in patent cases for determining patent validity and infringement, and the summary judgments related to patent validity occur earlier in the litigation compared to summary judgments related to patent infringement. This result is somewhat encouraging given the important role played by the courts in revoking patent rights improvidently granted at the outset by the PTO. Nevertheless, despite the fact that such rulings occur early in the proceedings compared to patent trials, we should still be concerned about the huge transaction costs associated with patent litigation because summary judgments in general, and summary judgment based on invalidity in particular, are expensive compared to summary judgments granted on other grounds."), available at <http://ssrn.com/abstract=808347>.

<sup>52</sup> Mark D. Janis, *Intellectual Property Challenges in the Next Century: Patent Law in the Age of the Invisible Supreme Court*, 2001 U. Ill. L. Rev. 387, 387 (2001) (The Supreme Court has rendered itself well nigh invisible in modern substantive patent law. The Court of Appeals for the Federal Circuit, created in 1982, has become the de facto supreme court of patents.).

The peer-to-patent system relies on well-known social software techniques to manage expert scientific juries and to advise on patent applications. These experts advise on prior art and can also be used to assess the utility, novelty, non-obviousness and enablement of inventions; with many pairs of eyes applied to the problem instead of one they are able, collectively, to give applications a thorough and meaningful review with the benefit of a much wider array of collective experience and intelligence.

The system replaces review by a lone examiner with peer production of review by on-line experts. As we know from other examples of peer produced and collaborative information review and filtering, any peer production system – whether on-line or face-to-face – has to meet several criteria in order to enable the group to work together on solving the problem assigned to it.<sup>53</sup> Members of the collective require a clear sense of the goal or the problem to be solved. They have to be able to divvy up tasks in connection with solving that problem and achieving the goal. Those tasks, ideally, should be modular and short, rather than requiring an extended time investment. This increases the likelihood of participation. Participants in a peer production system, unlike in a firm or other hierarchical organization, need to be able to self-assign their tasks or roles in the group based on their own estimation of expertise.<sup>54</sup> Far better for me to designate what I am good at since I am in the best position to have this information.<sup>55</sup> The group needs to have a clear awareness of the tasks and roles of participants in the group in order for the collective to function well together. Experience with group and organizational dynamics, whether on-line or off, shows that peer production functions where successful participation confers status upon members of that group. Hence the group needs to evolve mechanisms, which may be cultural, of conferring status on those people who participate well and shoulder their burden with regard to the goal of the group.<sup>56</sup>

This experience tells us that we need a modular system implemented through software that creates groups to review patents, breaks down their work into clear stages and tasks, which they can assign to themselves and where they can participate without an undue burden.

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<sup>53</sup> See Yochai Benkler, *Coase's Penguin, or, Linux and The Nature of the Firm*, 112 YALE L.J. 369 (2002) (discussing collaboration in the context of open source, and other peer-review projects).

<sup>54</sup> See STEVEN WEBER, *THE SUCCESS OF OPEN SOURCE* 62 (2004) (“The key element of the open source process, as an ideal type, is voluntary participation and voluntary selection of tasks.”).

<sup>55</sup> See GUIDO CALABRESI, *THE COST OF ACCIDENTS: A LEGAL AND ECONOMIC ANALYSIS* (1970) (Calabresi discusses the notion that the entity in the best position to carry the “burden” is the one that should.).

<sup>56</sup> See Paul Resnick et al., *Reputation Systems*, 43 COMM’N. OF THE ACM (Dec. 2000).

The system demands a means for participants to rate each other and their participation. The system comprises four stages:

- electronic filing
- prior art advising
- patentability advising
- final determination

### **Electronic Filing**

The first step is on-line filing. This provides the opportunity to optimize inputs into the system to facilitate peer review. Patent applications are already electronically filed<sup>57</sup> and sorted according to the patent classification system (USPC) that categorizes based on the classes of technology claimed in the patents.<sup>58</sup> The USPC ensures that applications can be routed to the right examiner.

Under a peer production system, applications could be “tagged” or labeled, not only according to the imposed classification scheme, but also by the community. This kind of community self-tagging – or what is sometimes called a “folksonomy”<sup>59</sup> – might make it easier to ensure that experts can later self-select to examine inventions in their area of expertise. Such a folksonomy might make labeling more granular and precise to speed up the process of self-assignment.<sup>60</sup> We already have tagging and labeling software that allows Internet users to label content for easier retrieval, indexing and searching.<sup>61</sup>

The application needs to include a short summary of no more than a paragraph, again, to facilitate review. This only requires providing, in addition to the written description,<sup>62</sup> a short, plain-English abstract to describe the invention.

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<sup>57</sup> USPTO’s Electronic Filing System Index Page at <http://www.uspto.gov/ebc/efs/index.html> (last visited Sept. 30, 2005).

<sup>58</sup> The Patent Classification System can be found online arranged alphabetically, by subject matter, by class number and by art unit. See, <http://www.uspto.gov/web/offices/opc/>

<sup>59</sup> For more on folksonomies, see Wikipedia, <http://en.wikipedia.org/wiki/Folksonomy> (last updated January 1, 2006). See also, Clay Shirky, *Ontology is Overrated: Categories, Links, and Tags*, at [http://www.shirky.com/writings/ontology\\_overrated.html](http://www.shirky.com/writings/ontology_overrated.html) (last visited January 2, 2006).

<sup>60</sup> “Zoo Bank” is creating just such a user-created taxonomy and classification system in another arena. The technique and the technology could be adopted to classifying inventions. See *Commentary: A Universal Register for Animal Names*, 437 *Nature* 477 (Sep. 22, 2005).

<sup>61</sup> See *del.icio.us* About Page, <http://del.icio.us/doc/about> (last visited Sept. 30, 2005).

<sup>62</sup> U.S.P.T.O., PARTS, FORM, AND CONTENT OF APPLICATION, MANUAL OF PATENT EXAMINING PROCEDURES (8<sup>th</sup> ed. 2004), available at

Once received the patent coordinator has twenty-one days to review the application for completeness and publish the application for peer review. This is a perfunctory check to make sure all parts of the application have been completed and contain the necessary information. It is also an opportunity to ensure that the application relates to patentable subject matter. Where the patent examiner is unsure of that determination, the application publishes to the system for review.

The patent office website will allow participants in the peer review system to subscribe to RSS (really simple syndication)<sup>63</sup> feeds to receive the name and abstract of any new inventions filed, allowing them to know that an opportunity has arisen for review in their area of expertise.

Once published, the peer review process to propose relevant prior art and assess novelty commences. Eventually, parallel peer review processes to assess both novelty and obviousness would take place over the next three to five months, drastically accelerating the process of review from the average 2-4 years<sup>64</sup> that the patent office currently requires to perform patent review. By speeding up the review process, we also speed up the time for scientists to publish and publicly discuss innovation without the fear of triggering a statutory bar.<sup>65</sup> While the normal process will require three months, additional weeks may be added where a

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[http://www.uspto.gov/web/offices/pac/mpep/mpep\\_e8r2\\_0600\\_508.pdf](http://www.uspto.gov/web/offices/pac/mpep/mpep_e8r2_0600_508.pdf) (explaining tagging systems).

<sup>63</sup> While the Patent Office does not offer syndication, a private website, Fresh Patents does. See <http://www.freshpatents.com> (last visited October 19, 2005). See also *Introduction to RSS*, (revised April 14, 2003) (Really Simple Syndication (RSS) is an XML format designed for sharing headlines and other Web content. RSS defines an XML grammar for sharing content. Each RSS text file contains both static information about a website or weblog, plus dynamic information about new stories, all surrounded by matching start and end tags) *at* <http://www.webreference.com/authoring/languages/xml/rss/intro/> (last visited Sept. 30, 2005). For more about the use of RSS in government, see <http://www.rssgov.com> (last visited December 5, 2005).

<sup>64</sup> USPTO FAQ, (Aug. 14, 2003) (Currently, the average patent application pendency is 24.6 months. Applications received in the U.S. Patent and Trademark Office are numbered in sequential order and the applicant will be informed within eight weeks of the application number and official filing date if filed in paper. If filed electronically, the application number is available within minutes.) *at*

<http://www.uspto.gov/main/faq/p220026.htm> (last visited Sept. 30, 2005).

<sup>65</sup> 35 U.S.C. §102 (b); 35 U.S.C. §102 (e); (Section contains three different patent bars; the "printed publication" bar, the "on-sale" bar, and the public use bar. *See also*, *Midland Flour Milling Co. v Bobbitt*, 70 F.2d. 416 (1934) (holding prior publications rest upon same ground as prior patents so far as anticipation is concerned and no valid patent can be obtained if invention or device is disclosed in printed publication.)

specific question arises from the peer jury requiring back-and-forth information exchange with the inventor managed by the patent coordinator as interlocutor.

### **Prior Art and Novelty Review**

The first significant and substantive area where peer review can be of use is the determination of novelty as required by the statute. The law outlines a series of earlier types of invention or publication, whether by a third party or by the inventor himself, that can preclude patentability.<sup>66</sup> Essentially, the statute inquires whether the invention is new as compared to the prior art. Prior to filing for this patent was there a prior patent? Prior to filing for this patent was there a prior printed publication that defeated the uniqueness and newness of the claimed invention? Prior to filing for this patent was there a prior public use? The statute seeks to ensure that, not only is the invention new with regard to what came before, but that the inventor did not sleep on his rights<sup>67</sup> by failing to file an application more than one year after publicly promoting the invention.

It is illogical to have one person – with access to limited information – determining novelty when we can harness the collective intelligence and experience of thousands to answer these questions. Many technological advances are not described in commonly available academic publications or those sources to which the patent examiner has easy access. It is also illogical to turn to a single or even a handful of private firms to conduct this review when those with the deepest experience in any given area of innovation and bring their expertise to bear.<sup>68</sup>

The novelty determination is ideally-suited to peer review because it enunciates a clear goal, requires only minimal participation to answer and lends itself to self-selection on the basis of expertise. While a patent examiner might have to search for prior art for hours, an expert knows instantly whether an invention is reminiscent of earlier work or avenues of research. Designed right, the software can make participation for a network of scientific and innovation experts clear and easy.

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<sup>66</sup> 35 U.S.C. §102.

<sup>67</sup> *Egbert v. Lippmann*. 104 U.S. 333, 337 (1881) (“The invention, forming the springs of corsets of two or more metallic plates, placed one upon another, and so connected as to prevent them from sliding off each other laterally or edgewise, was completed and put to use in 1855. The inventor slept on his rights for eleven years. Letters-patent were not applied for till March, 1866.”)

<sup>68</sup> USPTO, *The 21st Century Strategic Plan* (2003) (To achieve greater examiner productivity by reducing their prior art search responsibilities, the USPTO is looking at market driven examination options.) at <http://www.uspto.gov/web/offices/ac/comp/proc/pctsearch/pctsearchhom.html> (last visited Sept. 30, 2005).

As Eric Raymond, hacker “anthropologist” explained, with many eyeballs “all bugs are shallow.” Just as a community of open source programmers is well-suited to spotting mistakes in code, the peer to patent community is equipped to address whether an invention is novel or resembles something seen before.

A prior art novelty review is an opportunity to get more public input into the patent system and introduce citizen consultation, the common and legally-required practice of every government agency,<sup>69</sup> into the intellectual property review process.<sup>70</sup> This is akin to the practice of scientific peer review, which is not only practiced in the private sector, but in common use in government as well.<sup>71</sup> The National Science Foundation and the National Institutes of Health both use peer reviewers to determine if research is novel and represents a contribution to its field.<sup>72</sup>

The novelty peer review should solicit input in both quantifiable as well as qualitative form in order to provide information that is both useful and manageable for the patent coordinator. This requires taking advantage of graphical and visual aids to make it easier for the expert to participate faster and for the group and the patent coordinator to make sense of the comment. While participation can take the form of text-based comments on prior art it can also be expressed by means of sliders to show the expert’s opinion as to the invention’s novelty. Push-pins can be placed on an electronic map of innovation to indicate where the invention sits with regard to other inventions that have come before.<sup>73</sup>

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<sup>69</sup> Administrative Procedure Act §1, 5 USCS § 553 (b) (1946) (General notice of proposed rule making shall be published in the Federal Register, unless persons subject thereto are named and either personally served or otherwise have actual notice thereof in accordance with law.) *See also*, 5 USCS § 553 (c) (1946) (After notice required by this section, the agency shall give interested persons an opportunity to participate in the rule making through submission of written data, views, or arguments with or without opportunity for oral presentation.).

<sup>70</sup> <sup>70</sup> USPTO, *The 21st Century Strategic Plan* (2003) (To achieve greater examiner productivity by reducing their prior art search responsibilities, the USPTO is looking at market driven examination options, including outsourcing prior art review to private firms) *at* <http://www.uspto.gov/web/offices/ac/comp/proc/pctsearch/pctsearchhom.html> (last visited Sept. 30, 2005).

<sup>71</sup> *See* Lars Noah, *Scientific “Republicanism”: Expert Peer Review and the Quest for Regulatory Deliberation*, 49 EMORY L.J. 1033, 1045 (2000). *See also*, Sidney A. Shapiro, *OMB’s Dubious Peer Review Procedures*, 24 ENVTL. L. REP. 10064 (2004).

<sup>72</sup> *Cf.* J.B. Ruhl, *PRESCRIBING THE RIGHT DOSE OF PEER REVIEW FOR THE ENDANGERED SPECIES ACT*, 83 NEB. L. REV. (2004) (discussing scientific peer review and arguing against excessive reliance on peer review).

<sup>73</sup> The idea of placing electronic push-pins on a visual map is a well-known and developed technique employed by Google Maps. *See* <http://maps.google.com>.



The system will also need to promote “lonely patents” by advertising under-subscribed patents for review to the network of experts. Experts will receive RSS or email notifications of patents awaiting reviewing. Reviewing one patent application will generate a prompt: “Would you like to review another?” Again, if the system is designed to optimize inputs and facilitate participation, it can reduce the burden of reviewing a patent for novelty and commenting on prior art. The National Science Foundation currently relies on a network of over 50,000 reviewers.<sup>74</sup> The National Institutes of Health relies on outside review groups and advisory councils from the scientific community to review over 70% of its applications.<sup>75</sup> The Environmental Protection Agency grant selection process relies heavily upon “Science Review Panels” which are peer review groups chosen and managed by an outside scientist.<sup>76</sup>

Crucial to the design of the system is a social reputation scheme whereby participants rate each other and their participation in the process. The social reputation scheme will form the cornerstone of the next step: advising on the patentability determination.

### **Determining Obviousness and Enablement**

While the novelty review demands the short attention of many eyeballs to identify whether something is new vis-à-vis what has come before and suggest relevant prior art to the patent examiner, the process of determining whether an invention is truly innovative and represents the “flash of creative genius”<sup>77</sup> requires a more probing and thorough examination that will require the advice and assistance of a smaller group of experts over a longer period of time.

The obviousness determination is the core of the patent examination.<sup>78</sup> The standard of non-obviousness is not how hard the inventor worked to obtain the invention but if “the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been

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<sup>74</sup> National Science Foundation, *How We Work* (Jul 15, 2005) at <http://www.nsf.gov/about/how.jsp> (last visited Sept. 30, 2005).

<sup>75</sup> National Institutes of Health, Center for Scientific Review (August 04, 2005) <http://cms.csr.nih.gov/AboutCSR/Welcome+to+CSR> (last visited Sept. 30, 2005).

<sup>76</sup> Thomas O. McGarity, *Peer Review in Awarding Federal Grants in the Arts and Sciences*, 9 HIGH TECH. L.J. 1, 18 (1994).

<sup>77</sup> *Cuno Engineering Corp. v. Automatic Devices Corp.*, 314 U.S. 84, 91 (1941) (flash of creative genius test was overturned by the Patent Act of 1952).

<sup>78</sup> *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 150 (1989); *Cf. Brief of Petitioner, Teleflex Inc. v. KSR Intern. Co.*, 298 F.Supp.2d 581 (2003) (No. 04-1350).

obvious at the time the invention was made to a person having ordinary skill in the art<sup>79</sup> to which said subject matter pertains.”<sup>80</sup> Enablement<sup>81</sup> requires that the inventor clearly describe the invention to give the public the benefit of the knowledge obtained and to clearly delimit the metes and bounds of the patent.

The obviousness and enablement review can commence three weeks into the novelty review to allow time to sort out blatantly unqualified applications while ensuring rapid completion of the peer review process. Obviousness and enablement review will comprise six weeks of on-line “expert jury” counsel to the examiner by smaller groups of 12 to 24 persons having “ordinary skill in the art” as required by law and assisting the USPTO with the review.

We start from the proposition that convening such a jury will depend upon having a *social reputation* system in place to select the members of the jury who demonstrate the ordinary skill in the art. We know from other experience with on-line commons-based peer production projects<sup>82</sup> as well as off-line group organizational projects<sup>83</sup> that the ability to measure and communicate status is crucial to fostering participation.<sup>84</sup> Status and reputation are essential to building the trust in the community necessary for iterative interaction.<sup>85</sup> It is also crucial for determining qualifications for participation and for creating an incentive to ongoing collaboration. The currently prevailing wisdom is that social reputation software is the way to foster and find such expertise.

Developing a robust software system to support a social reputation system requires innovating and adapting from existing reputation tools, such as those

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<sup>79</sup> The system would make it possible to restore the original, statutory standard from which recent caselaw has deviated. See Professors amicus brief in KSR. See also, Rebecca Eisenberg, Obvious to Whom? Evaluating Inventions from the Perspective of PHOSITA, 19 BERKELEY TECH. L.J. 885, 888 (2004).

<sup>80</sup> 35 U.S.C. § 103 (2004).

<sup>81</sup> 35 U.S.C. §112 (2004).

<sup>82</sup> Yochai Benkler, *Coase's Penguin, or Linux and the nature of the firm*, 112 YALE L. J. 369, 375 (2002).

<sup>83</sup> THOMAS MALONE, *THE FUTURE OF WORK* (2004).

<sup>84</sup> For more on the role of status and reputation in fostering collective action, see Paul Resnick et al., *Reputation Systems*, 43 COMMUN. OF THE ACM 45, 46 (Dec. 2000); See also Peter Kollock, *The Production of Trust in Online Markets*, in 16 ADVANCES IN GROUP PROCESSES (E.J. Lawler, M. Macy, S. Thyne & H.A. Walker eds., 1999); Paul Resnick, *Impersonal Sociotechnical Capital, ICT's, and Collective Action Among Strangers*, in TRANSFORMING ENTERPRISE: THE ECONOMIC AND SOCIAL IMPLICATIONS OF INFORMATION TECHNOLOGY 399, (William H. Dutton, Brian Kahin, Ramon O'Callaghan & Andrew Wyckoff, eds., 2004).

<sup>85</sup> See Beth Simone Noveck, *Trademark Law and the Social Construction of Trust: Creating the Legal Framework for On-Line Identity* (2005) (manuscript on file with author).

pioneered by EBay.<sup>86</sup> We imagine the system will start by allowing experts to self-assign their own areas of expertise. I am a materials scientist. I am a derivatives expert. I am a bridge engineer. I know about Expressed Sequence Tags or retailing inventions or plastics. The expert completes a biographical form with a list of publications, research and grants received, as applicable. The biographical form will be customized for different communities to capture that information which is most relevant to assessing knowledge in that industry. In addition to manually inputted information, the software will keep track of each person's participation in the system and the ratings accorded by others to his postings (taking a lesson from Slashdot).

Every time the expert logs on, he will be asked to rate the participation of others in the network. He will rate on two scales: rating the person and rating his participation. The first rating system will identify the person to be rated by name, allowing the rater to view that person's profile. This first measure will assess the person's standing in the community. The collaborative rating can be combined with other automated status rankings. In other words, the community in that industry may decide that certain prizes or grants or educational qualifications or expertise count for added points. This ranking system works like other social software tools, such as Friendster, that permit direct ranking and rating of members of the network. Hence the community, rather than rating the individual, can determine the rating criteria according to which the system should do the rating.

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<sup>86</sup> There are numerous existing social reputation software systems. Some of these websites focus on social or dating relationships and offer rating systems whereby people are "rated" based on who they know and who their friends are. In other words, the wildly popular Friendster or Orkut provide a graphical map of my friendships. Cyworld, another social networking service boasts a quarter of the population of Korea as its user base. Linked In provides such a map for my business relationships. Epinions bills itself as a "web of trust" system. It allows me to create a network of trusted reviewers. Slashdot moderates its site based on similar principles. The community decides which contributors and content is best and that information rises to the top. Virtual worlds, like Second Life, have a social reputation system based on interactions between players. Kuro5hin which uses mojo to allow users to moderate the site. Mojo is a time-weighted average of comment ratings, in order to set the "initial" rating for each new comment. Time spent with another player indicates friendship. New publishing models also rely heavily on social reputation software to filter content. Outfoxed is a service that "uses your network of trusted friends and experts to help you find the good stuff and avoid the bad" by using social reputation as a criterion in web surfing. There is already a wide variety of social reputation tools even though we are just at the beginning of their evolution and are sure to see the development of a wide new array of technological structures designed to measure social reputation. See Beth Simone Noveck, *Trademark Law and the Social Construction of Trust: Creating the Legal Framework for On-Line Identity* (forthcoming).

In addition to rating the person, the system will also allow the community to rate participation in the community patent process as an incentive to participation. We are assuming that participants will rate postings divorced of personally identifiable information. Each time a user logs on to the system (or with regular frequency via email), he will be asked to review another person’s comment in the same way that Amazon asks readers to assess “was this book review helpful” or Netflix asks movie watchers to rate the reviews provided by other users. The system will provide positive feedback for more and better participation in much the same way that eBay provides feedback points and other sites, such as Slashdot, assign positive karma to those who participate well.

This two-track status system will take account of reputation and participation. It will need to be complex and dynamically evolving to keep track of new information provided by participants about measures of reputation within that sector.

Each participant rates as many participants as he wants with the system regularly prompting the user to rate more participants and more postings. Participation might require a minimum of three ratings and incentives can be built into the software, as Slashdot does,<sup>87</sup> to encourage ongoing rating and ranking.

As with any good social reputation system, the software should show the person being rated the evolving information about his reputation. Being able to visualize one’s standing in the community creates further incentive to constructive participation. It also allows members of the group of experts to see the group and sense the community of which they are a part: who is in that group, who is participating, how much and in what ways.

These *visualization* techniques can both be applied to the community of experts and used to enable them to participate more easily. In addition to the map of the community, on-screen visual maps of the subject matter of that community can help inventors to locate the inventions they are reviewing within the context of the prior art. One project currently under development<sup>88</sup> uses natural language search technologies to build a visual map of the landscape of innovation. With such data

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<sup>87</sup> Slashdot moderates its site based on similar principles. The community decides which contributors and content is best and that information rises to the top. See also Slashdot, a “News for Nerds” site which uses a moderation system for both articles and authors that allows for a largely self-governed news outlet that obviates most hierarchical editorial functions at <http://slashdot.org> (last visited Aug. 10, 2005).

<sup>88</sup> Not without irony, the developer of this project has requested to remain anonymous in order to preserve the patentability of his invention.

readily available, the peer to patent system should provide a map of inventions with one axis representing novelty and the other axis representing how related inventions are to each other.

Together, the community can create this map of innovation in particular areas of science and industry. Each participant can rate an invention based on how much of an advance it constitutes over the prior art and how obvious or non-obvious it is. This allows participants to comment via a visual interface quickly and easily and provides the public and industry with the benefit of more information about the state of the art.

### **The Final Determination**

The patent examiner will make the final determination of validity with the benefit of this expert citizen participation. While eventually, with testing and refinement and further use, we can imagine deferring decisionmaking to the group entirely, in the initial deployment, the Patent Office needs to run and coordinate the process and provide an added check on abuse of discretion. With two competing systems in place, namely examiner review and peer review, courts have the benefit of a wider array of information in reviewing any challenged patents. The public, peer review system provides a check on the examiner's discretion and the examiner provides a check on any abuses by the group.

The patent examiner coordinates the back-and-forth colloquy that is essential to the patent application process, feeding the group's questions to the inventor for refinement and response. This preserves the rights of the inventor to hone the application for compliance with the requirements and, at the same time, preserves the public's rights to demand more carefully and narrowly drafted specifications.<sup>89</sup>

### ***Part IV: Why It Will Work: Responding to Objections***

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<sup>89</sup> See, e.g. *Gentry Gallery v. Berklene Corp.*, 134 F.3d 1473, 1479 (Fed. Cir. 1998) (holding that the inventor's narrowing of his claims during the prosecution process may give rise to prosecution history estoppel limiting a finding of infringement under the doctrine of equivalents) ("[the inventor's] original disclosure serves to limit the permissible breadth of his later-drafted claims."). See also Michael J. Meurer and Craig Allen Nard, *Invention, Refinement and Patent Claim Scope: A New Perspective on the Doctrine of Equivalents*, Boston Univ. School of Law Working Paper No. 04-03; Case Legal Studies Research Paper No. 04-5 (April 20, 2004) at <http://ssrn.com/abstract=533083> (arguing that the doctrine of equivalents has promoted efficient investment in patent claim drafting).

In this Section, we flesh out the details of the draft proposal by responding to anticipated critiques.

*This proposal is too radical. How can we put the fate of innovators and national competitiveness in the hands of the public?*

The peer to patent system does not eliminate the Patent Office nor does it alter the substantive, statutory standards we use for reviewing inventions. It preserves the same scheme we have had in place since 1952.<sup>90</sup> It merely combines with that system the "radical" invention of the jury that we have used since the 12<sup>th</sup> century and which we zealously guard as a non-expert institution.<sup>91</sup> Furthermore, this is not merely public participation but participation by mutually self-rating experts committed to a minimum level of participation. We rely on such mechanisms for selecting Academy Awards and Nobel Prizes. We even use them in government, such as the National Science Foundation which claims to operate from the "bottom up," using peer experts to keep track of research "around the United States and the world, maintaining constant contact with the research community to identify ever-moving horizons of inquiry, monitoring which areas are most likely to result in spectacular progress and choosing the most promising people to conduct the research."<sup>92</sup>

*Participants will game the system. How can you ensure that people with conflicts of interest won't place speed bumps and stumbling blocks in the path of their competitors?*

Absolutely! Competition will drive more information into the process. So long as people make valid arguments as rated by their peers, their personal agenda is irrelevant. Having many participants in the process dilutes the effect of any bad apples or unconstructive participants. Within any social reputation system, norms evolve to safeguard the quality of participation and we can expect something similar here. It is also standard and unproblematic to require participants to sign an affidavit representing that they do not have a conflict of interest. The affidavit can include a disclosure of the expert's last two employers and areas of current commercial research. Direct competitors might be prevented from rating a particular invention. The National Science Foundation, the National Research Council and the National Institutes of Health both have well-established

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<sup>90</sup> Patent Act of 1952, as amended, 35 U.S.C. 1 et seq. (1994).

<sup>91</sup> The Magna Carta of 1215 contains the genesis of the modern jury system. See, e.g., MAXIMUS LESSER, THE HISTORICAL DEVELOPMENT OF THE JURY SYSTEM (1894).

<sup>92</sup> National Science Foundation, How We Work (Jul 15, 2005) at <http://www.nsf.gov/about/how.jsp> (last visited Sept. 30, 2005).

regulations and disclosure requirements to weed out conflicts among peer-review participants.<sup>93</sup>

*Giving decisionmaking authority to non-governmental persons degrades impartiality in the system. Wouldn't this be a violation of the non-delegation doctrine prohibiting delegation of authority to unauthorized bodies?*

You couldn't have more discretion than what is currently exercised now by the lone patent examiner who rules on innovation without significant oversight or review. The "wisdom of the crowd" is more accurate and more objective than the judgment of one, uninformed so-called expert.<sup>94</sup> At the same time, ultimate decision making authority continues to rest with the Patent Office and courts will still fulfill the function of judicial review. Under Chevron,<sup>95</sup> agencies have the right to consult and solicit outside information. Under the Administrative Procedure Act<sup>96</sup> agencies are required to solicit outside information from the public when conducting informal rulemaking. While we can imagine the system evolving someday into a mechanism to alleviate the burden by alleviating the examiner through shared burden, that is not the initial proposal which aims to be practical and doable. Where a disagreement arises between the public panel and the examiner, this disagreement can give rise to a reviewable question.

*Competitors will steal information and use this system to misappropriate confidential business information. How do we ensure that this doesn't become a hunting ground for foreign competitors to pillage American innovation?*

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<sup>93</sup> See, e.g., The National Academies Press, Peer Review in Environmental Technology Development Programs, <http://www.nap.edu/books/0309063388/html> (follow "Executive Summary" hyperlink) (last visited September 30, 2005) (A peer is "a person having technical expertise in the subject matter to be reviewed (or a subset of the subject matter to be reviewed) to a degree at least equivalent to that needed for the original work.").

<sup>94</sup> JAMES SUROWIECKI, THE WISDOM OF CROWDS (2004).

<sup>95</sup> Chevron U.S.A. Inc. v. Natural Resources Defense Council, Inc., 467 U.S. 837, 843 (1984) ("If Congress has explicitly left a gap for the agency to fill, there is an express delegation of authority to the agency to elucidate a specific provision of the statute by regulation. Such legislative regulations are given controlling weight unless they are arbitrary, capricious, or manifestly contrary to the statute. Sometimes the legislative delegation to an agency on a particular question is implicit rather than explicit. In such a case, a court may not substitute its own construction of a statutory provision for a reasonable interpretation made by the administrator of an agency.")

<sup>96</sup> The Administrative Procedure Act ("APA"), 5 U.S.C. § 553 (provides that legislative or substantive rules must be preceded by public notice and an opportunity for public comment).

At present, patents are published after 18 months, whether or not they have been granted.<sup>97</sup> The presumption in our system (and every other patent system) is in favor of information disclosure. As the Supreme Court has stated, "[T]he pressure for secrecy is easily exaggerated, for if the inventor of a process cannot himself ascertain a "use" for that which his process yields, he has every incentive to make his invention known to those able to do so. Finally, how likely is disclosure of a patented process to spur research by others into the uses to which the product may be put? To the extent that the patentee has power to enforce his patent, there is little incentive for others to undertake a search for uses."<sup>98</sup> The inventor is taking some risk by disclosing but that risk is that of foregoing trade secret protection, nothing more. This is a small cost to impose on the inventor for the cost imposed on the public from the patent monopoly. If the patentee does not want to forego secrecy or does not feel that the patent is meritorious enough to receive protection, he should not be filing for a patent. Since patent protection applies retroactively to the date of invention (or filing in the case of other jurisdictions), the inventor will be able to pursue anyone who misuses information learned in the process. If and when the patentee receives the patent, he then has the right to go after those who abused the process with a big stick. We can imagine enacting statutory treble damages and other penalties for those who would abuse information learned during the process. The peer to patent system speeds up the disclosure and helps to realize the bargain between the inventor and the public to make information about the invention public.

*Inventions will be excessively scrutinized. Won't the level of patenting decrease?*

Hopefully, yes. We grant too many patents already.

Since it is scientists, innovators and inventors who themselves rely on patents participating in the system, there is not an undue incentive for *Schadenfreude* and defeating every patent.

This system might also be used as a way for the community to award prizes and accolades for particularly meritorious inventions. The Community Patent Prize could become a lucrative and coveted prize to be won.

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<sup>97</sup> 37 CFR 1.211 (2005). Publication is required for most non-provisional applications (other than for a design patent filed under 35 U.S.C. 171 and reissue applications filed under 35 U.S.C. 251) filed on or after November 29, 2000. Exceptions to publication are set forth in 35 U.S.C. 122(b)(2) and 37 CFR 1.211. An applicant may find publication of an application to be a desirable alternative to requesting a SIR since publication of the application is achieved without any waiver of patent rights. See MPEP § 1120 et seq. for more information pertaining to eighteen month publication rule.

<sup>98</sup> *Brenner v. Mason*, 383 U.S. 519, 534 (1966).



*There are too many patents. Won't the workload be too great for non-professional participants?*

What may be hard work for the inexperienced patent examiner or the lay person, is not for the expert in a given field. The expert already knows the answer. It is easy for him to identify prior art. It is simple for him to assess how innovative and non-obvious and invention is. He is familiar enough with the subject matter to assess whether it has been enabled. If we can optimize the design of the system to "chunk" the work into minimal participation then each patent only requires a short time to review either novelty or obviousness or enablement. The novelty and prior art review is deliberately designed to be a quick process with many participants and only a few people at a time are taxed with the more onerous job of reviewing obviousness and enablement. Furthermore, there are plenty of scientists, engineers, economists, consultants and other professionals eligible to participate. If NSF can tap over 50,000 natural scientists to review grant applications, the patent office should be able to solicit the participation of a vastly wider network of experts. Finally, not all inventors will opt for the open process. There are those who, faced with a choice, will go for the closed review process and the resulting five year grant of rights.

*There will be procedural hurdles. Would the Federal Advisory Committee Act (FACA) prohibit Peer to Patent?*

FACA was enacted<sup>99</sup> to protect against closed-door cabals<sup>100</sup> leading to regulatory capture. But all information in the peer to patent system will be open, on-line and available. With an increase in the use of juries ex post to review patent validity in infringement cases, why not use juries a priori? We are simply moving up the jury review in the process but without imposing any added cost on the inventor for that review. If this constitutes a contravention of FACA, we'll amend FACA.

*Won't Peer to Patent decrease certainty and stability in the system?*

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<sup>99</sup> Federal Advisory Committee Act, 5 U.S.C. App. 1, Pub. L. 92-463, Oct. 6, 1972.

<sup>100</sup> Public Citizen v. U.S. Dept. of Justice, 491 U.S. 440, 442 (1989) (legislative history shows that Congress sought only to endorse compliance with FACA's more stringent requirements by advisory committees already covered by Order and Presidential advisory committees, and that the statute's "or utilized" phrase was intended to clarify that FACA applies to committees "established . . . by" the Government in a generous sense of that term, encompassing groups formed indirectly by quasi-public organizations "for" public agencies as well as "by" such agencies themselves).

To the contrary, patents that undergo this process will be much less likely to be challenged subsequently. They will enjoy a presumption of validity and incontestability. This reduces the risk of legal challenge and the burden to innovation from enormous patent damage awards.<sup>101</sup>

*Rational ignorance is intentionally built into the patent system. According to Mark Lemley, since most patents are never litigated or even licensed, spending too much time and money on initial review is a waste and “decisions can be made much more efficiently in litigation.” Why invest in process review?*

When Lemley wrote this<sup>102</sup> he contemplated the choice between imposing the cost on inventors upfront or after the fact and deemed it more cost effective to impose the costs of review on those who are invested enough in their patents to justify litigation. But it is no longer a choice between imposing costs on those seeking to litigate versus prosecute. The Community Peer review system does not impose any additional cost burden on the inventor and, at the same time, it reduces the costs of litigation. It also does not impose the costs of an inter partes interference proceeding,<sup>103</sup> which must be borne by the inventor. Lemley does not measure the significant costs and chilling effects that the overhang of uncertain patents subject to challenge creates in the industry. Furthermore, it ignores the Supreme Court’s clear statement that “primary responsibility for sifting out unpatentable material lies in the patent office. To await litigation is – for all practical purposes – to debilitate the patent system.”<sup>104</sup>

*Isn’t there a lack of incentive to participate?*

We need to build the incentives for participation into the system. First, the social reputation software creates an incentive to join the network of experts. We appeal to status and vanity to induce participation. Second, the system “chunks” the

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<sup>101</sup> Patent Reform Act of 2005, H.R.2795, 109th Cong. (2005) (among other reforms the Patent Reform Act of 2005 would limit damages to the inventive contribution rather than calculating damages on the selling price of an entire product; it would limit damages for willfulness).

<sup>102</sup> Mark Lemley, *Rational Ignorance at the Patent Office*, UC BERKELEY LAW SCHOOL RESEARCH PAPER No. 46, 95 NW. U. L. Rev. 1495 (2001) (“The strong implication of these numbers is that society ought to resign itself to the fact that bad patents will issue, and attempt to deal with the problem ex post, when the patent is asserted in litigation. This result is admittedly counterintuitive. It depends crucially on the fact that very few patents are ever the subject of litigation, or even licensing. Because of this, money spent improving the PTO examination procedures will largely be wasted on examining the ninety-five percent of patents that will either never be used, or will be used in circumstances that don’t crucially rely on the determination of validity”).

<sup>103</sup> Inter Partes Proceeding 37 C.F.R. § 2609.

<sup>104</sup> *Graham v. John Deere Co.*, 379 U.S. 956, 85 S. Ct. 652 (1965)

work so that assignments are modular and participation can be accomplished without an undue imposition on time. Third, more participation creates a feedback score which increases one's standing in the community that is beneficial when the participant himself becomes an inventor filing for a patent. Standing in the community can only encourage serious and focused review by other members of the group. Finally, corporate managers have an incentive to encourage participation to learn more about the state of the art in the industry and to raise the standing of its scientists and experts in the innovation process.

*There will be too few participants. How will you recruit?*

Those seeking to file a patent will be recruited as participants. They will want to increase their karma within the community.

The peer to patent system will solicit participation from large industry, universities, and academic tech transfer offices. Interest groups and industry media can also be used to recruit participants.

Upper level graduate students will want to participate to raise their standing and become known in the community.

Google keywords and ad words can be used to advertise participation.

For the same reasons that many people create the 18 million blogs currently on-line in the United States, namely to put their name out there as the "go-to" person on a given industry and issue, experts from a wide array of innovating professions will want to participate in this network.

*It will be hard to coordinate all these people. How will it be managed?*

Yes, coordination is hard which is why we need a well-designed system that allows participants to see clearly the community of which they are a part, to understand their role within the group, to participate simply and easily in the process and to see the outcome. If eBay can coordinate a million<sup>105</sup> auctions each year, then this system can be built.

*Doesn't big business stand to lose from this process? Won't it want to preserve the status quo?*

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<sup>105</sup> eBay: The Company at <http://pages.ebay.com/aboutebay/thecompany/companyoverview.html> (last visited September 30, 2005) (eBay has 100 million registered users).

Even the biggest patent holders like IBM recognize the desperate need for patent reform. No one wins when patent grants become meaningless, uncertain and subject to expensive legal challenges. The largest companies with the deepest pockets are the ripest targets for patent trolls.

*Don't small inventors stand to suffer from this process?*

Small inventions get equal consideration in this system and the work of even unknown inventors get brought to the fore. With large numbers of eyeballs reviewing prior art, there is minimal risk of large players "stacking" the deck and rigging the jury. With a wide-ranging review system, we increase competition among the players and improve quality for everyone.

*Will we pay people to participate in the process?*

While we can imagine using the system to generate revenue from patent licenses that can be redistributed back to the examiners, this conservative proposal does not propose to "corrupt" the peer review process with payments. The idea is to create more not less impartiality. We can imagine using the process to set aside downstream revenues to benefit social causes and develop a market in venture philanthropy where companies dedicate a portion of proceeds or licenses to civic and developing world causes.

*Can this process be privatized? Could a consortium of companies run this system? Can we "do patents" with contract law?*

Yes and no. The "peer to patent" system addresses how to reform bureaucratic expertise and the way legal grants of monopoly power are doled out. The patent right is a right to exclude that can only be conferred by the state under the color of law. Third parties cannot be bound to the strictures of the patent by contract. However, we can imagine a supplemental scheme for using peer review to examine and rule on innovation privately to strengthen the market for licenses in those technologies. With an independent panel of experts reviewing an invention, its currency goes up and it achieves higher standing in the scientific community and in the marketplace.

We can imagine companies self-regulating and agreeing to engage in peer review as a condition precedent to approaching the patent office.

These are both private alternatives that could be explored, hopefully in addition to, not instead of peer to patent.

*If we change the process what happens to the prosecution history and file wrapper estoppel? How will a record be created for appeal?*

The peer to patent process is far more transparent than what exists currently. With the entire process being conducted online, it will be recorded and archived in entirety. We will be better able to see the reasoning that went into a patent determination. This creates a stronger, more robust and more informed record for review. Courts currently defer to examiners' determinations of patentability.<sup>106</sup> Examiners are entitled to a presumption of correctness. Similarly, in the absence of indicia of fraud or abuse, the examiner should defer to the peer jury. Courts can then scrutinize discrepancies between the determinations of the examiner and the public, giving deference to the determinations of the peer review system.

*Public criticism of the invention will depress the price. Won't this system shine too much light on an invention and hurt the market for innovation?*

Only for unqualified inventions undeserving of a patent will this depress the price but not necessarily dry up the market. First, it will significantly increase the price for successful inventions because these inventions will, effectively, be endorsed by a community of experts. Second, we can use the same system to conduct a market for licenses before the patent determination is made, thereby creating a market for both successful and unsuccessful applicants.

*What about the current library of patents?*

The peer to patent system would not affect the validity of existing patents. It would be phased in over time and apply to patent applications on a going forward basis. The corpus of existing patents will be mined to create maps of the landscape of innovation and make it easier for experts to compare applications with prior art.

*This doesn't solve the problem of AIDS drugs in Africa or reduce the cost of Cipro when Anthrax breaks out, does it?*

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<sup>106</sup> Dickinson v. Zurko, 527 U.S. 150 (1999) (Supreme Court reversed the Federal Circuit's decision and held that the Federal Circuit should apply the standard of review set forth in the Administrative Procedure Act (APA) (arbitrary, capricious, or an abuse of discretion, or unsupported by substantial evidence in a case subject to 5 U.S.C.S. §§ 556, 557, or otherwise reviewed on the record of an agency hearing provided by statute) to review of the Patent and Trademark Office's findings of fact because, at the time of the APA's adoption, the Federal Circuit's predecessor court did not apply the stricter "clearly erroneous" standard.)

No, it doesn't. We still need the reform-minded proposals like those of Jamie Love at CPT, who is proposing to create a fund to compensate innovators when they bring new pharmaceuticals to the market to encourage the donation of those drugs to the public domain.

At the same time, the peer to patent system pushes the conversation about invention and innovation to the forefront and makes more information available to the social activist community interested in these issues.

*Doesn't this system diverge from international norms? What about comity?*

The United States by adopting a first-to-invent instead of a first-to-file rule already diverges from international norms. Whereas in that case we're likely to adopt the universal rule with regard to peer to patent, we're just going to have to change the world.

The European, Japanese and other patent offices in parallel should ideally, run pilot implementations of peer to patent to reform the patent system worldwide and to generate more information about scientific innovation while, at the same time, building the community of scientific experts.

### ***Part V: Conclusion***

Peer to patent represents a fundamental rethinking of governance. By bringing collective intelligence to bear, in this case to reform the patent system, we can make bureaucratic "expertise" a reality. Through better design of both technology and process, we can realize the potential of the community to work together to increase national competitiveness, stimulate invention and create an incentive to innovation.

Patents represent a bargain between the public and the inventor. In exchange for the disclosure of the invention and enriching the marketplace of ideas and domain of scientific knowledge, the inventor receives the grant of monopoly rights. Until now, the patent examiner has brokered this bargain, standing in for the public. With peer patenting, we can expand the longstanding tradition of scientific peer review to allow the most relevant public, namely scientific, innovation and economic experts, to guard the domain of innovation. This approach points the way forward for rethinking the nature of government and the exercise of power in our democracy.