

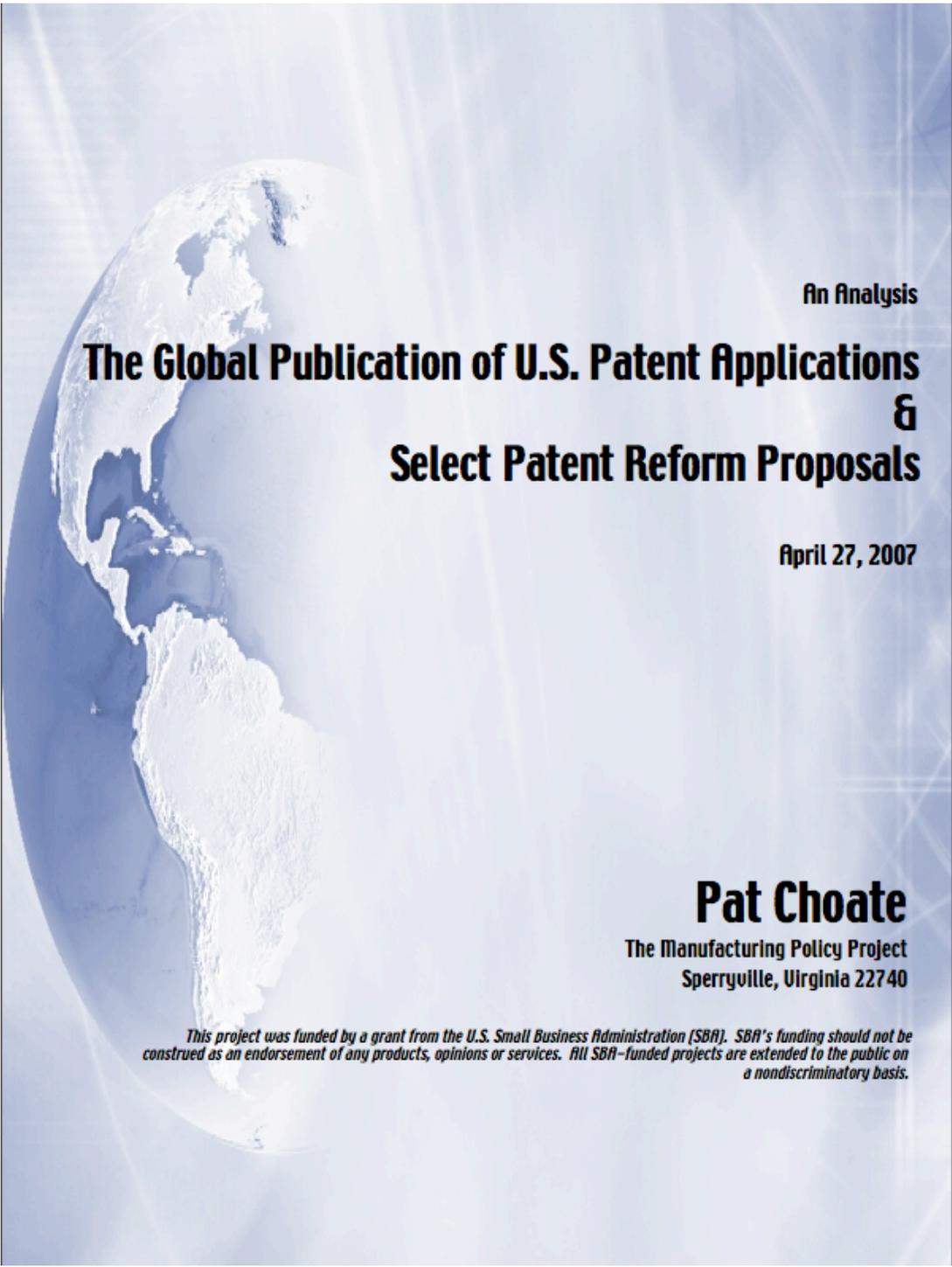
The enclosed study is part of  
a larger report in preparation:

“The Crisis in Intellectual Property  
Protection and China’s Role in that  
Crisis”

The larger report is being prepared  
By one of the members of  
The Trade Lawyers Advisory Group

Terence P. Stewart, Esq.  
*Stewart and Stewart*

The views in the enclosed study are those of  
the author, Pat Choate.



An Analysis

# The Global Publication of U.S. Patent Applications & Select Patent Reform Proposals

April 27, 2007

**Pat Choate**

The Manufacturing Policy Project  
Sperryville, Virginia 22740

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## **About The Manufacturing Policy Project**

The Manufacturing Policy Project (MPP) is a nonprofit, nonpartisan 501(c)(3) research organization that undertakes public policy-related studies. MPP reports, books and related materials examine issues central to the continuing development of the U.S. economy. P.O. Box 422 Sperryville, Virginia 22740.

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## Abstract

America's economy depends upon the creation and enforcement of intellectual property rights. This report examines a key part of that system – the mandatory publication of patent applications at 18 months after the earliest filing date. This “18-month rule” was enacted by Congress in 1999 and was a radical change in U.S. patent policy. The policy objectives it aimed to address have been solved or outstripped by other events. Worse, in today's “flat world” this special rule recklessly exposes American inventions to online pirates before they have the protection of a patent. This exposure is compounded by the equally important problem of examination pendency. In the name of “harmonization,” current patent reform proposals call for expanding this rule; this gains America nothing and only worsens a problem that is not yet widely appreciated.

In today's wired world, this rule facilitates piracy of U.S. intellectual property rights before inventors have patent protections. The problem is significant. Between November 2001 and October 1, 2006, the USPTO published 1,267,000 patent applications, of which more than 600,000 were from American inventors. China, Korea and other countries use the Internet to “hack” the USPTO for innovations; our competitors use published applications as a free R&D lab. While applications languish in an ever-increasing backlog, competitors take our ideas to market and sell products to Americans. Once published the damage is done: A published application is prior art and cannot be used by the inventor as a trade secret or modified for resubmission if rejected.

Pirates already enjoy the advantage of illegal operation. This radical 18-month rule gives pirates the dual gifts of free IP and more than a year head start. Pendency, the backlog in applications waiting to be examined, has exploded since 1992 from 19 months to 31.1 months. While an inventor is held up in limbo the pirate is making money and locking in customers.

Presently, inventors can choose not to have their applications published if they agree not to file a patent application in another country. Almost 20 percent of U.S.-origin applicants make that election. Current patent reform proposals would take this away. Advocates say “harmonization” of U.S. law with other nations is essential. Large multi-national businesses of course want the same rules everywhere, but this ignores small entity inventors' unique role in America.

This right of secrecy is particularly important to small entity inventors (independent inventors, businesses with 500 or fewer employees, universities, and nonprofit research organizations). They file 31 percent of all U.S.-origin applications, and almost half elect not to publish.

This “great invention giveaway” problem is a classic unintended consequence. The 18-month rule was designed in the pre-Internet era (1992) to counter “submarine” patents, a problem the USPTO solved through administrative means, and to “harmonize” U.S. patent practices with those of Europe and Japan. American society gains no innovation benefit from this rule. Nor does such publication entice firms to clear products to avoid infringement.

America is different. We embrace risk and willingly break the status quo. Other nations embrace incumbents and support established networks of economic and political power. It is against America's best interests to “harmonize” our patent standards down to theirs and expose our inventors' secrets without providing the appropriate protections.

Strong patents, quickly processed and fully disclosed create the certainty that inventors and investors need to confront the status quo and provide the diffusion of knowledge that society expects. Congress should legislate a return to the first principles adopted by President George Washington and the 1<sup>st</sup> U.S. Congress in 1790: *No information in a patent application will be disclosed unless and until the protection of a patent is granted. Rejected patent applications will be returned to the applicants with their secrets intact.*

The report includes several recommendations by which Congress can strengthen the U.S. patent system and, by that, strengthen American innovation.

# Summary

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1. Every patent ever issued in the United States was granted under laws that Congress enacted under the authority of Article I, Section 8 of the U.S. Constitution which states: *“The Congress shall have Power ...To promote the Progress of Science and Useful Arts, by securing for limited times to Authors and Inventors the exclusive Right to their Writings and Discoveries.”*
2. The importance of patents to America’s Founding Fathers is reflected in the fact that the Patent Act of 1790 was one of the first laws made by the 1<sup>st</sup> U.S. Congress. President George Washington in his first State of the Union message (January 8, 1790) asked Congress to enact patent legislation. Barely three months later, he signed the first Patent Act into law (April 10, 1790). The Progress clause is the only place in the U.S. Constitution that explicitly grants a “right.”
3. The two fundamental goals of the U.S. patent system are to (a) encourage inventors to produce more and useful creations and (b) expand general knowledge in the United States through disclosure of the details of those creations.
4. The basic “patent bargain” created by America’s Founding Fathers is this: If the inventor will fully disclose the details of a creation, including the best mode of its use, society will grant that inventor the right of exclusive use for a set period, and provide a federal court system in which the patent owner can defend that right. An exclusive right of use for a period in exchange for the full disclosure of information about the creation is the “golden covenant” between society and creative people as embodied in a patent.
5. Between 1790 and 1999 there was a second part to the U.S. “patent bargain.” The U.S. government would not disclose any details in a patent application unless and until the protection of a patent was provided. Then as now, rejected patent applications were destroyed unless they were referred to in a granted patent. Congress radically changed this part of the bargain in 1999, as is described and analyzed in this paper.
6. A patent is granted only for creations that are (a) useful, (b) novel and (3) not obvious. Whether a creation is potentially commercial is not a test of patentability.
7. The USPTO makes the determination of whether an application meets the requirements of patentability. It also provides several means to administratively contest a granted patent. U.S. law also allows a challenge of a patent’s validity in the Federal Court System. In 1982, Congress established a separate court in Washington, D.C. to hear patent appeals – The United States Court of Appeals for the Federal Circuit. Patent cases like all other cases coming from courts of appeal can be taken to the Supreme Court on a petition for certiorari and can be considered at the discretion of the Court. As this suggests, a patent is a powerful right and the U.S. provides the means for a strong defense of that right.
8. Until recently, operating a swift patent process was a high national priority. The quicker an inventor can secure an uncontested patent, the sooner the innovation can be put to use. The sooner the patent process makes public the details of these creations, the quicker the nation’s base of knowledge is expanded. Prompt action, leading to uncontested patents and full disclosure through publication, is vital to U.S. progress.

9. About half of the 443,000 patent applications filed at the USPTO in fiscal year 2006 were from foreign-origin applicants.
10. Of the 173,000 utility patents (the largest category) granted in FY 2006, 89,823 (51.7 percent) went to U.S.-origin inventors.
11. The United States Patent and Trademark Office (USPTO) distinguishes between “small entities” (independent inventors, companies with 500 or fewer employees, not-for-profit organizations and universities) and “large entities” (larger corporations).
12. Of the 89,823 utility patents issued to U.S.-origin inventors in FY 2006, more than 27,000 went to U.S.-origin small entity inventors. In sum, small-entity inventors are a vital part of the U.S. processes of creativity and innovation.
13. The importance of small entity inventors in U.S. innovation is obscured by a combination of factors,
  - The USPTO’s aggregate publication of patent data,
  - Under-examination by scholars of innovation,
  - Under-representation on blue-ribbon groups which review U.S. patent policy and
  - Under-involvement in Congressional hearings and Congressional thinking when patent reforms are being crafted.
14. Small entities are the annual recipients of about 31 percent of all patents granted to U.S.-origin applications. Research funded by the Small Business Administration reveals:
  - Small firm patents on average are more technically important than large firm patents and are twice as likely to be among the top one percent of most frequently cited patents.
  - Small patenting firms produce 13 times more patents per employee than large patenting firms.
  - Small firms represent one-third of the most prolific patenting companies that have 15 or more U.S. patents.
  - Small firms are more effective in producing high-value innovations.
  - Small firm innovation is twice as closely linked to scientific research as large firm innovation on average and substantially more high-tech or leading edge.
15. With the outsourcing of R&D by large entity corporations, small businesses, individual inventors, universities, colleges and non-profit research organizations are becoming ever more important to America’s technological and economic future. The effect of any proposed changes in patent laws on these small entity inventors merits special attention by Congress.
16. While the United States’ patent system provides inventors, large and small entities, with the strongest protections in the world, a handful of “Big Tech” corporations have adopted a business model that fosters a “culture of infringement.”. These companies hire smart people, provide enormous incentives to create state-of-the art products, send their employees to technical conferences, require that they read technical journals, but refuse to allow them to read the patents

of others. Their legal strategy is to feign ignorance of applications and patents to avoid the charge of willful infringement. If U.S. patent law were changed to encourage due diligence as part of any willful infringement defense, such a strategy would be less viable.

17. The business strategy of these Big Tech corporations is to quickly seize ownership of an entire market, gain enormous wealth and sort out any patent infringement problems later through takeovers, litigation, delays, negotiations, settlements, Supreme Court challenges and the lobbying of Congress to “reform” U.S. patent laws in their favor.
18. A check of SEC records of four of the Big Tech corporations that are now actively lobbying Congress for changes in U.S. patent laws reveals that they paid \$3.5 billion in patent settlements in the period 1993-2005. In the same period, they generated \$1.4 trillion in revenues. Their infringement costs were one-quarter of one-percent of revenues, which in relative terms is an insignificant business expense.
19. The U.S. patent system is under attack by:
  - A few Big Tech companies that are trying to reduce their huge contingent liabilities for patent infringement by persuading Congress to change U.S. patent laws to their advantage,
  - A few traditional business groups with transnational agendas who want the convenience of the same rules wherever they are,
  - Academics and businesses in the open source community who are ideologically opposed to the grant of patents for software and business methods and
  - The Governments of Japan and Europe, which are trying to alter the U.S. patent system in the image of theirs.
20. Though these groups and companies do not act in lock-step, the general goals of their political advocacy, under the guise of “patent reform,” are to:
  - Change the U.S. patent system from first-to-invent to first-to-file.
  - Impose 18-month disclosure on all patent applications.
  - Eliminate the “best mode” description in a patent application.
  - Eliminate treble damages for willful infringement of patents.
  - Expand procedures for challenge and review of a patent after grant.
  - Allow third party participation in the USPTO patent examinations.
  - Limit patent lawsuits to a few federal courts.
  - Eliminate juries from patent cases.
  - Expand the rule-making authority of USPTO so that it can unilaterally change the rights of applicants and patent owners.
  - Provide no support for reducing examination pendency or giving the USPTO the resources necessary to truly do its core mission and improve quality.

21. The three principal political and propaganda themes of this campaign are:
- America is in the midst of a patent “litigation crisis.”
  - The USPTO is issuing a large number of “poor quality” patents.
  - Patents are too strongly enforced.
    - Presumption of validity.
    - Juries favor patent owners, especially sympathetic inventors.
    - Patent owner goes first in court proving infringement.
    - Accused infringer goes last and must overcome high burden of proof to challenge validity – clear and convincing.
    - Court of Appeals for the Federal Circuit is too pro-patent.
22. Federal Judicial Caseload Statistics reveal **there is no U.S. patent litigation crisis.** Specifically,
- In the 14-year period 1993-2006, the ratio of patent lawsuits commenced per the number of patents issued remained an almost constant 1.5 percent. Patent disputes grew at the same pace as the number of patents granted. A flat ratio means there are “no unusual surge” of lawsuits and “no litigation crisis.” (See Table Four)
  - Between 2004 and 2006, the actual number of patent lawsuits commenced dropped from 3,075 to 2,700. (See Table One)
  - More than 96 percent of all commenced patent lawsuits settle before trial. Most patent lawsuits filed are part of a negotiation strategy.
  - In 2004, 96 patent lawsuits went to trial in the United States, 107 were tried in 2005, as were 102 in 2006. Only 102 patent trials per year is **not** a litigation crisis by any definition. (See Table One)
  - Of the almost 200,000 patents that are now issued annually, only five ten-thousandth of one percent will be challenged in a patent trial.
23. The patent performance and challenge data of the USPTO reveals that **the U.S. is not in the midst of a “patent quality” crisis.** The quality of patents issued by the USPTO is high and improving, despite a surge in patent applications. Specifically,
- Only a handful of all patents granted are ever challenged at the USPTO or in a trial: a major test of fire for a patent’s validity and the quality of the USPTO’s examination policies.
  - The USPTO issued more than 3,185,000 patents between 1981 and 2006. During that same period, 8,612 patents were challenged through the *ex parte* and *inter partes* processes – that is, one/three hundredth of one percent (0.003), an extraordinarily low rate.
  - The USPTO has, on average, only 100 patent interference cases per year (challenges as to is to who was the first to invent) – an extraordinarily low rate since in FY 2006 the USPTO received 443,000 patent applications, disposed of 332,000 and allowed 185,000 patents. Only 100 such cases a year is mute testimony to the effectiveness of the USPTO and its first-to-invent system.

- For all *ex parte* reviews (1981-12/31/2006), all claims were cancelled for 10 percent, all claims were confirmed for 26 percent and claim changes were made in 64 percent. For the 208 *inter partes* challenges, 7 reexamination certificates were issued (1999-12/31/07) of which 1 had all claims confirmed and 6 had all claims revoked.
  - With 74 percent of *ex parte* reexaminations resulting in claims cancelled or narrowed, the process can be viewed as biased in favor of patent holders.
  - In the period 1981-2001, the USPTO issued more than 3.1 million patents. Of these, fewer than 8,900 were challenged at the USPTO (0.003 percent) – a strong indication that the USPTO is issuing patents of sufficient quality to forestall challenges.
  - Of patents challenged in the 100 plus federal patent trials each year, more than 60 percent are affirmed.
  - “Reform” proponents promote the perception that there is a widespread problem of questionable patents, but they provide no data. Instead, they provide unsubstantiated anecdotes as conclusive “facts” and sound bites.
24. The real patent “crisis” that America faces consists of three parts. None has its roots at the USPTO. None is solvable by any of the proposed “reforms” now before Congress. Specifically,
- The first crisis is the destructively high and rising U.S. patent pendency rate.
    - a. The average time required to process a patent has expanded from 19 months in 1992 to more than 31 months in 2006. The average time for first action pendency has almost tripled from less than eight months in 1992 to 22.6 months in 2006.
    - b. The principal reason for these increased delays is that between 1991 and 2004 the President and Congress diverted hundreds of millions of dollars the USPTO collected in patent and trademark fees to the general fund, and thus other uses. The 2001 appropriation act, for instance, allowed the USPTO to spend only \$784 million of the \$1.1 billion of fees that it collected. These fee diversions prevented the USPTO from hiring the additional examiners it needed to process a rising number of domestic and foreign patent applications. While Congress has stopped the fee diversion, it still does not provide the USPTO with enough additional monies to reduce a massive legacy backlog that will exceed 800,000 patent applications by the end of 2007.
    - c. Largely because of inadequate pay, and also for performance problems and job dissatisfaction, the turnover rate of patent examiners is slightly more than 10 percent per year. While the USPTO will hire an additional 1,000 examiners this year, almost 500 existing employees will quit. Thus, the net increase will be about 500 examiners. These are too few to even process all the patent applications USPTO receives annually, which means the backlog steadily increases, as does the pendency rate.
    - d. The USPTO management is being forced to find shortcut solutions such as reducing the number of claims allowable in a patent. Today, almost 25 percent of all patent applications contain 10 or more claims. Cutting claims would narrow the protections available to complex creations. Shortcut solutions are dangerous for they inevitably come at the expense of inventors; that is, fewer claims, fewer continuances, higher rejection rates, fewer protections, and they become permanent.

- e. While hiring more examiners may be politically and ideologically unpopular, and even sometimes represented as undoable, such a course is, in fact, the best and quickest solution to cut the backlog and ultimately the pendency rate, while simultaneously assuring that the USPTO issues high quality patents. Cutting the backlog and pendency rates, while simultaneously improving patent quality, is a vital national challenge equal in importance to the Manhattan Project or putting an American on the moon, but at a tiny fraction of the cost of those projects.
- f. An average patent pendency rate of 12 months would solve virtually all the problems addressed in virtually all the “reform” legislation now before Congress. If America’s future is dependent on technology, then we need it in use sooner rather than later, which means Congress should appropriate enough resources to meet this challenge. Today, the lack of a sufficient number of talented patent examiners at the USPTO that speak English proficiently is a major chokepoint in U.S. innovation efforts.

- o The second crisis is the virtually unfettered foreign piracy of U.S. patents.

The Office of the United States Trade Representative (USTR) for many years has confronted foreign piracy with diplomacy instead of a forceful assertion of U.S. rights at the World Trade Organization (WTO). In early April of 2007, the USTR filed an intellectual property case at the WTO against China for its inadequate protections of U.S.-owned copyrights and trademarks. While belated, this is an encouraging action. Hopefully, it represents a shift to a broader, more aggressive assertion of U.S. intellectual property rights at the WTO and will be expanded to include patent piracy – actions that are essential to stopping foreign piracy of U.S. patents.

- o The third crisis is the mandated publication of unexamined, unprotected U.S. patent applications.

Foreign corporations, foreign governments and foreign pirates are now able to systematically “mine” unprotected U.S.-origin patent applications and steal American-owned creations because Congress in 1999 mandated that the USPTO must publish applications on the Internet 18 months and a nanosecond from the earliest date an inventor files for a patent. Only Congress can stop this reckless publication of unexamined U.S.-origin patent applications.

25. Congress made its last major changes of U.S. patent law in December 1994 (Congressional ratification of the World Trade Agreement) and in November 1999 (The American Inventors Protection Act.)

26. Over the past 40 years, several “Blue Ribbon” commissions have been formed to make recommendations on patent reform. “The Report of the Presidential Commission on the Patent System” (1966), for instance, recommended publication of patent applications – the “Johnson Committee.” The changes that Congress made in 1994 and 1999 were largely based on recommendations that came from The Advisory Commission on Patent Law Reform, a study group that was formed in 1991 by Secretary of Commerce Robert Mosbacher. Yet, the “Johnson” and “Mosbacher” recommendations were dated for they were made,

- o Pre-globalization.
- o Pre-Internet (One year before the World Wide Web - CERN in 1993).

- Pre-Chinese membership in the WTO – 2000.
  - Pre-globalization, mega-piracy of patents.
27. The Mosbacher recommendations were made at a time that the average patent pendency was 19 months (vs. 31.1 in 2006) and the average pendency for a first action by the USPTO was only 8 months (vs. 22.6 in 2006). The Mosbacher Commission wanted patent applications published, but 24 months after the earliest filing date of a patent application – that is, almost 5 months more than average total pendency in 1992.
  28. The changes in patent law that Congress enacted in 1999 mirrored European and Japanese standards that require publication at the 18-month point. In that legislation, Congress required of the United States Patent and Trademark (USPTO) that *“each application for a patent shall be published, in accordance with procedures determined by the Director, promptly after the expiration of a period of 18 months from the earliest filing date for which a benefit is sought under this title.”*
  29. The USPTO is not required by law to publish the entire application. It chooses to do so.
  30. Publication is significant because once on the Internet the entire contents of a U.S. patent application can be retrieved in about two seconds, anywhere in the world, on tens of thousands of foreign-based computers. Publication at 18-months means that the full contents of virtually all U.S. patent applications are made available for inspection worldwide for an average of 4.6 months before the USPTO takes a first action and an average of 13.1 months before it grants a patent. For complex patent applications this unprotected period can be 30 months or more.
  31. The Congress included with the 18-month rule an “opt-out option” that provides the USPTO will not publish the patent application, *“if an applicant makes a request upon filing, certifying that the invention disclosed in the application has not and will not be filed in another country, or under a multilateral international agreement that requires publication of applications 18 months after filing, the application shall not be published.”*
  32. The requirement that inventors not file for a patent in other nations if they choose not to allow the publication of their patent applications contradicts other U.S. policies that encourage global engagement by American companies and entrepreneurs.
  33. Between 2001 and 2006, about 36 percent of U.S.-origin applicants file foreign applications. Foreign patent offices publish these applications at 18-months from filing. If published abroad at 18-months, USPTO publication at 18-months does not disadvantage these inventors since the information is already public.
  34. Overall, about ten percent of all patent applicants received at the USPTO exercise the opt-out option. Many U.S. inventors and patent attorneys still do not recognize that they have such a choice. The opt-out rate might be greater if the USPTO’s default was not to publish unless requested by the applicant to do so, instead of the reverse – that is, the USPTO publishes unless the inventor exercises their opt-out right.
  35. Hidden in this aggregate opt-out data is a very significant fact: Half of all patent applications at the USPTO come from abroad. As roughly half of the total applications are from foreign-owned entities, this means that the “opt out” share of U.S.-origin applications is 20 percent. Although about 20 percent of all U.S.-origin patent applications choose not to have the USPTO publish their applications, an unknown number of academic inventors disclose information about their creations in journals and conferences prior to USPTO making a patent decision.

36. Narrowing the numbers to U.S.-origin inventors, an estimated half of small entity applications exercise the option of non-disclosure. This option is vital to these inventors. For them, secrecy is their best, if not only, protection until they have a patent in hand, even if the price is not to seek patent protections in other nations.
37. The patent proposals now before Congress would eliminate the right of applicants to not have their applications disclosed and published. Under these proposals, all patent applications would be published at the 18-month point.
38. The arithmetic of USPTO's publication of patent applications is:
- Between November 2001 and October 1, 2006, the USPTO published 1,267,000 U.S. patent applications. Of these, an estimated 620,000 were of U.S.-origin.
  - Of the estimated 620,000 U.S.-origin first patent filings published by the USPTO between 2001 and 2006, almost 64 percent were neither filed at the Japanese Patent Office nor at the European Patent Office or in other nations, all of which also publish patent applications at the 18-month point.
  - The argument "*Publication in the U.S. does not matter because applications will be published in other nations*" is not true for 64 percent of all U.S.-origin patent applications. Almost 400,000 U.S.-origin patent applications filed between November 2001 and October 1, 2006 did not file for a foreign patent.
  - All published patent applications become prior art instantly, available to anyone, anywhere. Consequently, those U.S. inventors whose applications were published but denied could no longer, as in the past, use their innovations as trade secrets or improve them for resubmission. Assuming an average allowance rate (approval rate) of 59 percent of these 400,000 U.S.-origin applications, 160,000 were rejected and their secrets were made public - at the U.S. inventors' expense.
39. The Japan Patent Office (JPO) reports that South Korea and China are systematically "mining" Japanese patent applications published on the Internet. Those nations, among many others, are also mining U.S. and European patent applications on the Internet. In 2005, JPO reported that their computers were getting 17,000 patent inquiries per day from China and 55,000 per day from South Korea.
40. The USPTO does not monitor such inquiries, but the U.S. experience is certain to be similar to Japan's because the patent applications filed in each are equally open to inspection over the Internet.
41. The World Intellectual Property Organization (WIPO) reports that the use of its searchable patent-information system tripled in 2006. WIPO is accelerating training for developing countries on how to secure patent information from issued patents and patent applications that are now available on the Internet. As one WIPO official noted, "Patents are territorial, but disclosure is global."
42. If a patent is published and it is infringed before a patent is issued, U.S. law allows the patent owner to collect damages, but first the owner must identify the infringer, provide notice of the published application and specify which claims are being infringed. If the pirate is located in another nation, such as China, a national patent must have been sought and the lawsuit must be filed there. Therefore, USPTO secrecy is the only real protection an inventor has until a patent is granted.

43. Several patent “reform” groups are urging Congress to create a USPTO-administered “post-grant” patent challenge process, which would allow anyone to challenge a patent before a USPTO administrative judge in the nine-month period after it is granted. The advantages of the “post-grant” process are:
- It would be less expensive than a conventional patent trial.
  - It involves few risks for challengers.
44. The disadvantages of such a “post-grant” procedure are:
- It would instantly increase the de facto pendency rate of all patents by a minimum of nine months. Today, the average USPTO pendency rate is 31.1 months. If this procedure were adopted, inventors would have to wait, on average, 40.1 months before they had an unchallenged patent. Then, challenged patents would be tied up in an appeals process, which is likely to take another 2.5 years.
  - The USPTO *ex parte* and *inter partes* challenges have an average pendency of about 23 and 29 months respectively. The European Patent Office, which permits such “post-grant” challenges, reports that the average duration of their appeals proceedings is 31 months. If the USPTO experience with such a new procedure was similar to that of the European Patent Office, an inventor would, on average, have a challenged patent tied up for 71 months after filing – almost six years.
  - The European Patent Office reports that 5.4 percent of granted patents were challenged through its nine-month post-grant procedure in 2005. This represented almost 3,000 cases annually and does not include private lawsuits commenced in Europe.
  - Europeans are using this relatively inexpensive post-grant challenge procedure as a business tool to extort a license from inventors, block or delay the introduction of competing technologies and restrict the scope of someone else’s patent – practices they and others may find equally attractive if this procedure is available to them in the United States.
  - The U.S. patent challenge rate by all means (*ex parte*, *inter partes*, interference and lawsuit) is 1.8 percent – is less than one-third Europe’s post-grant process.
  - If the U.S. use of such a procedure parallels the European rates (5.4 percent of patents granted), the number of U.S. patent challenges would triple to 10,000 “post grant” suits annually, plus whatever number of patent suits that would be filed in federal district courts.
  - The adoption of a “post-grant” challenge process would require a substantial increase in the number of USPTO administrative judges and support staff.
  - The Japan Patent Office, which had a similar “post grant” challenge procedure, abandoned it on January 1, 2004.
45. The lack of respect for the “special dispatch” rule imposed by Congress leads to uncertainty. A patent owner, particularly a small entity owner, cannot take their asset to market if the cloud of post-grant review(s) looms overhead. Perpetual re-examination hampers inventors’ capacity to go to market and reduces or eliminates the economic value of intellectual properties. Additional post-grant procedures that include features of litigation will slow special dispatch. More disputes will come to a USPTO already struggling with a re-exam backlog.

46. The U.S. first-to-invent system has less confusion and fewer challenges/lawsuits than the first-to-file system used in Europe. The Japan Patent System (JPO) is not comparable.
47. Only 100 U.S. patents a year are challenged as to who was the first to invent, the interference process. As such a tiny number attests, under the U.S. approach there is virtually no confusion or conflict as to who is the real inventor.
48. Although small entity inventors generate 31 percent of all U.S.-origin patents, they are involved in less than 18 percent of the miniscule number of all interference cases – that is, fewer than 20 cases per year. The present system is small-entity “friendly.”
49. The European first-to-file system is sufficiently confusing and conflict-prone that oppositions are filed against 5.4 percent of patents granted in the nine-month, “post-grant” challenge process, of which 38 percent are revoked.
50. This report notes that the Congress should legislate as mandated USPTO policy that no information in a patent application be disclosed unless the protection of a patent is granted.
51. This report recommends:

**Recommendation One** – The U.S. Congress should impose an emergency suspension of the publication of U.S.-origin patent applications until such time as (1) the United States Trade Representative can certify that China, Russia and other nations on its priority watch of intellectual property violators have brought the piracy of U.S. patents under control; (2) the USPTO’s average pendency rate is below the 18-month level and (3) the Congress votes to resume such publication. Ideally, the governments of Japan and Europe would join in this effort. But, if not, the U.S. should proceed unilaterally, while publishing in English foreign applications at the USPTO that are published abroad. While those nations would still publish the many U.S. patents filed in their patent offices, 64 percent of U.S.-origin patent applications are not filed in other nations. Therefore, the secrets in these U.S.-origin applications would remain secure until either a U.S. patent was issued or the inventor filed for a patent in another country or the application. One exception should exist – the USPTO should publish the applications of those U.S.-origin applicants that certify that they want publication at the 18-month point or earlier. An emergency suspension is compatible with U.S. obligations at the World Trade Organization as the TRIPS agreement does not require the publication of patent applications after a specified time of filing.

**Recommendation Two** – The Congress should require the Office of the United States Trade Representative, as part of its annual 301 Special Report, to identify countries whose exports to the U.S. have a substantially higher level than average of counterfeit goods or goods that violate U.S. patent rights. Imports so designated by the USTR would be required to be accompanied by a “Certificate of Authenticity” from either the government where the goods are produced or the U.S. importer that verifies the goods do not violate U.S. patents, copyrights or trade marks. Fraudulent certifications would result in penalties and inspections of all imports from those nations. Once the USTR removes a nation from this strengthened Special 301 list, such certifications would no longer be mandated.

**Recommendation Three** – The Congress should direct the General Accountability Office (GAO) to initiate a study of patent litigation in the United States. The report should examine whether there is a greater number of lawsuits filed against technology companies than against other types of companies as a percent of patents filed, granted

and held. The study should ascertain if the high tech companies surveyed in such a lawsuit used a patent clearance process (due diligence) and if there is any difference in the use of such due diligence between high technology and traditional business defendants. The study should also investigate whether there is a group of plaintiffs that is systematically abusing the litigation process or whether there is a small group of companies recklessly infringing the patent rights of others and thus being sued by many patent holders. If the GAO finds that a higher than average portion of patent litigation is against companies that do not use a patent clearance (due diligence) procedure, Congress should authorize an automatic award of treble damages when such companies lose an infringement case.

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An Analysis  
of  
The Global Publication of U.S. Patent Applications & Select  
Patent Reform Proposals

By Pat Choate

## **Introduction**

The Japan External Trade Organization (JETRO) maintains dozens of offices throughout the world, including six in the United States. They provide Japanese industries with timely foreign market intelligence and business development support. In the summer of 2004, Yoichi Gotani, Director of JETRO's Intellectual Property Office in Beijing visited the Haier Group, China's largest consumer-electronics maker, where he met the executive in charge of the company's intellectual property activities.

When Gotani asked about Haier's research activities, he was told that the company "spends only a small amount on research." Instead, the Haier executive said, "Using several dozen computers, we search for patent applications submitted to patent offices in Japan, the United States and European countries to obtain useful information to develop our products. ... Most of those foreign inventors and companies," he said, "won't apply for patent rights in China; there's nothing legally wrong in us using them."<sup>1</sup>

The Haier example is a pattern not an anomaly. China has a well-conceived plan to get secret and proprietary defense and business information from the United States. Some of this is obtained through spies. The top intelligence officer in the Office of Director of National Intelligence, Michael McConnell, has stated that while "140 foreign intelligence services" are trying to penetrate the U.S., "the Chinese are the most aggressive." Federal prosecutors in Santa Ana, California, for instance, describe how one Chinese family stole detailed secrets about Navy submarine engines that run silent enough to avoid detection. Other federal prosecutors are putting another team of Chinese operatives on trial for stealing from DuPont 22,000 confidential abstracts on company products including advanced materials used in airplane construction.<sup>2</sup>

Since 2001, one of the easiest ways to obtain such proprietary information legally is by systematically mining patent applications published on the Internet. Companies across the world see published patent applications as a gold mine for ideas that they can get to market quickly. Studying U.S. and other foreign patent applications augments, and sometimes replaces, domestic research and development.

Foreign companies can systematically examine the entire content of patent applications

submitted to the Japan Patent Office because Japan, Europe, and now the United States publish those materials on the Internet 18 months after an inventor files for a patent, regardless of whether the patent has been granted or not.

After Director Gotani reported his findings to Tokyo, the Japanese Patent Office (JPO) examined how often people inside China, as well as South Korea, entered their computer system to look at Japanese patent applications. The JPO officials were stunned to learn there were 17,000 inquiries a day from China and 55,000 a day from South Korea.<sup>3</sup> The Chinese and South Korean companies were systematically retrieving information about the most advanced research and development underway in Japan for incorporation into Chinese and Korean research, development and products.

In July 2005, The Yomiuri Shimbun, one of Japan's largest newspapers, used the Gotani story to illustrate the technological vulnerability created in Japan by the Japan Patent Office's premature publication of patent applications. The newspaper editorially concluded that Japan's intellectual property competitiveness, a foundation of that nation's strength, was widely threatened by this practice.

For decades, Japanese and European patent offices have published patent applications at the 18-month point. But to get such information, a researcher was forced to go the Japanese or European patent offices and laboriously search through the filed papers. Then, the principal beneficiaries of such labor-intensive and expensive research were those nations' own domestic corporations. U.S. companies, large and small, were also forced to make early publication of their patent applications a prerequisite to securing foreign patent protection, allowing foreign industries to get an early peek at American innovations.

A decade ago such a review of patent applications in the United States would have been impossible, even illegal. Before 1999, the U.S. Patent and Trademark Office (USPTO) was required by Congress to keep secret the contents of a patent application – the information was published only if, and after, a patent had been granted. The content of rejected applications was also kept secret, allowing the inventors to use their creations as trade secrets. The ultimate example of a how a well-kept trade secret can facilitate long-term success is the Coca-Cola Company and its secret formula for Coke Classic.

## **Unprotected American Secrets**

U.S. patent policy changed in November 1999 when the U.S. Congress enacted Public Law 106-113 that included a little-noticed provision requiring the USPTO to follow the practices of Japanese and European patent offices and publish patent applications 18 months after filing.

The first USPTO publications were made in the fall of 2001 when 27,000 patent applications reached the 18-month mark. By October 1, 2006, the USPTO had placed on the Internet a total of 1,271,000 patent applications.<sup>4</sup>

The electronic publication of patent applications on the Internet gives anyone located anywhere in the world instant access to the file of any issued patent in the U.S., Japan or Europe, plus the details about any patent application that has reached the 18-month-after-filing mark. To put the economic significance of this procedure into context, the U.S., Japanese and European patent

offices receive virtually all the patent applications made worldwide and they issue approximately 85 percent of all patents granted in the world. Thus, the fastest, easiest and least expensive R&D program for a company or a developing nation unconcerned about patent rights is to hire skilled analysts, give them access to the Internet and have them “mine” the information made public by the patent offices of Japan, Europe and the United States.

Other nations, notably China, and their state-owned and private companies, are aggressively mining the U.S., Japanese and European patent systems for their R&D. The ability to access ideas only 18 months after a patent has been filed, but before the protection of a patent is provided, enables these nations and companies to get someone else’s newest innovation to market faster than American, Japanese or European entrepreneurs generally can because the real creators’ ability to produce their innovations is postponed by the need for a patent in order to get seed capital. Well-financed infringers have no such limitation.

Consequently, the Congressionally-mandated publication of U.S. patent applications is akin to the U.S. pouring massive amounts of R&D money into a big bucket in order to stimulate the creation of more U.S. innovations and ultimately more and better American jobs. But imagine that there is a big hole in that bucket and the innovations flowing from that new stream of money are flowing to other nations at the expense of their American owners. This is not imaginary. The 18-month rule is the hole in America’s innovation bucket.

## **The Nano-Power of the Internet**

Although the governments of Japan and Europe had long lobbied the United States to adopt their 18-month rule, those governments and their corporate leaders badly underestimated the power of the Internet to distribute the details of their patent applications.<sup>5</sup> Nor did they anticipate the magnitude of modern commercial piracy, much of which today is state-protected. Thus, not just America’s advanced technologies and creations are available worldwide for early examination, and theft, so too are those of Japan and Europe, as Director Gotani and the JPO were shocked to discover in 2005.

And to compound these vulnerabilities, the governments of Japan and Europe, as did the U.S. government, have given Chinese producers, the most aggressive patent pirates in history, unimpeded access to their goods and their domestic markets.

Logical questions are why does the United States have this 18-month rule in the first place? What was the original intent? In the 1990s when Congress was considering this proposal, three reasons were given.

The first was that the United States needed to harmonize its patent system with those of Japan and Europe. Yet, as skeptics pointed out then, the U.S. has the “gold standard” of global patent systems. Harmonization was a political argument on a par with “everyone else does it, and so should we.”

A second, more substantive, reason was to eliminate the threat of “submarine” patents, an argument developed in the late 1980s and refined in the 1990s by the Japanese development Ministry.<sup>6</sup> Yet, a former Commissioner of the USPTO, has testified before Congress that between 1971 and 1993, only 627 patent applications out of 2.3 million could be classified as

submarine patents. At least a third of those were U.S. government military secrets. In the late 1970s, moreover, the Patent Office had established a system to prevent submarine patents and not one had been issued since then.

A third reason was that U.S. companies were supposedly wasting precious resources on duplicative research. Duplication would be prevented if companies could see what others were doing through the publication of patent applications. What was not considered are the R&D losses to inventors when the details of their creations are published but the USPTO does not grant a patent. Between November 2001 and October 1, 2006, more than 160,000 rejected patent applications suffered that fate – the applications were published, the USPTO did not grant a patent and the inventors' creations instantly became prior art. I suspect that the costs of lost R&D that this entailed far exceeds any losses that would have been created by any duplicative research.

Of course, if patent pendency rates could be reduced to less than 18-months, the need for any such publication would be obviated.

Over the past 40 years, several “Blue Ribbon” commissions and other groups have prepared recommendations on patent reform, the most recent being that by the Federal Trade Commission (2003), the National Academy of Sciences (2004) and the Congressional Research Service (2005) – all of which are distinguished by their under representation of perspectives from small entity inventors. The most influential of these studies was The Advisory Commission on Patent Law Reform, a study group that was created by Secretary of Commerce Robert Mosbacher in 1991, made the case for early publication in its 1992 report. Their work was the foundation for a multi-year legislative effort by the Clinton Administration.

The Mosbacher report recommended publication at the 24-month point. When the Mosbacher Commission made its report the average pendency rate was 19 months, as opposed to 31.1 months in 2006. The average pendency for a first action by the USPTO was only eight months versus 22.6 months in 2006. The anticipation back then was that most patent applications would have been processed and patents issued or denied by the date of mandatory publication.

As this suggests, the changes recommended by the Mosbacher Commission were made in an altogether different era. It was before globalization, before the creation of the World Wide Web, before China's emergence as a major economic power and collector of foreign technologies and before the emergence of mega-piracy. Those changes have altered the world in ways that could not be imagined in 1992. Yet the Mosbacher recommendations from that era still define the present reforms now before Congress.

In an experiment for this analysis, I accessed the Internet from my home computer and examined the published patents and patent applications of a private chemical company that zealously guards its technologies and business strategies. Because of Public Law 106-113, and its 18-month publication requirement, I could view every U.S. patent ever issued to that company, plus its 120-plus patent applications that have reached the 18-month mark. Were I a chemist, I would be able to deconstruct that company's research agenda, identify its breakthroughs and, most likely, identify where its research, development and business were headed.

For small entity inventors, the cost of filing a patent in dozens of other nations is prohibitive.

Neither can they afford to defend their patents in dozens of other foreign courts. Altogether, almost two-thirds of all U.S.-origin patent applications are not filed in other nations. This means that the “*U.S. should publish all its patent applications because they will be made public elsewhere, anyway*” argument is false.

The policy of the USPTO is neither to identify who seeks information from USPTO computers nor count inquiries. The USPTO sells its raw files, the materials provided on its web site, to commercial firms and other governments that then make the information user-friendly for companies such as the Haier Group. So, no one knows whether analysts from other nations examine the USPTO filings any more or less than they examine those of the Japan or Europe. A reasonable assumption is that U.S., Japanese and European patent offices are subject to the same intensive levels of scrutiny.

The USPTO and its employees are merely doing the job Congress has given it, and doing so competently. The problem is that in the 1999 legislation, Congress changed the historic “bargain” the U.S. made with its creative people. For more than two centuries, that bargain was twofold – (1) that in exchange for disclosing the details of a creation, an inventor would be given the exclusive use of it for a set time and (2) if no patent were issued, the details of the creation would be kept a secret, thereby allowing it to be used as a trade secret or be developed further.

Under this new “bargain,” however, the details of inventions are published before USPTO makes a decision to provide the protection of a patent. In effect, society gets its ice cream before having to eat its broccoli. It gets knowledge without providing commensurate protection. This is of great consequence.

The uncompensated, Congressionally-mandated “taking” of information in a rejected patent application and giving it to the world destroys any possibility that the inventor can use the innovation as a trade secret or develop it further for resubmission for a patent. The magnitude of these takings is massive. USPTO reports that about 41 percent of all patent applications were rejected in 2005 - about 69,000 applications. Some of this 41 percent may eventually be given a patent as the data include abandoned applications that may be refiled, continuances and other forms of disposals. Nonetheless, tens of thousands of patent applications, proprietary information, were made public, for use by anyone, anywhere. Today, an inventor’s risk is about 50-50 that their application will be rejected and that the USPTO will put their creation into the public domain unless they choose against publication and agree not to seek a patent in any other nation.

George Margolin, Vice President of the Professional Inventors Alliance and the holder of several dozen patents on photographic equipment and advanced semiconductor production devices, characterizes this premature release of secrets as “reverse alchemy – converting the gold of invention into the dross of lead.” For inventors and the U.S. economy, that is certainly true.

Lengthening pendency rates also increase the risk of piracy and magnify the losses to inventors, and ultimately the U.S. economy. The time required to process an application from filing to the grant of a patent, the period termed “pendency,” has increased from approximately 18 months in the early 1990s to more than 31 months in 2007.<sup>7</sup> The average time the information in an application is on the Internet before a patent decision is made has grown from a few months to

more than a year. For many complex applications, such as biotechnologies and computer-related innovations, this pendency is now past 44 months, leaving this proprietary information on the Internet almost two years before a patent is issued, if it is issued.<sup>8</sup>

Congress enacted two special provisions to mitigate the harmful effects of the 18-month rule. First, any inventor who chooses not to file a patent outside the United States on a creation is exempt from the early publication requirement, though the inventor must make a special effort not to file. The default procedure at USPTO is to publish, unless requested otherwise by the applicant.

Second, the owner of a patent can collect royalties or damages from an infringer from the date the patent application was filed until the date the USPTO granted the patent.

Both these provisions are widely viewed as unsatisfactory compensation to inventors for the early publication of their applications. To force applicants to accept the 18-month rule, in the first provision described above, Congress has effectively prohibited them from seeking the patent protection they need to do business in other nations. Likewise the Department of Justice argued in the *Microsoft v AT&T* case heard by the Supreme Court in the spring of 2007 that a patent owner should file for a patent overseas if they want to protect it in a particular country. By effectively restricting the use of patented intellectual property to U.S. markets, this policy undermines other, broader national policies that encourage full U.S. engagement in the global marketplace.

Despite these stiff limitations, almost ten percent of all patent applicants take the “U.S.-only” option, choosing full patent security in the U.S. now (including keeping their rights to a trade secret) over the chance of getting patent protection in the rest of the world later. But this number is deceiving as to its importance because half of U.S. patent applications are of foreign-origin. Virtually all foreign-origin patents do not seek the opt-out option because their applications are published at 18 months in other nations. As roughly half of the total applications are from foreign-owned entities, this means that the share of U.S.-origin applications is roughly twice the 10 percent of the total – in other words, as much as 20 percent of all U.S.-origin patent applications chose not to have their patent applications published by the USPTO. One caveat is in order: Although many academics, or their employers, may choose not to have USPTO publish their application, many also disclose details of their creations by the publication of papers and presentations at conferences.

Intuitively, most of those inventors are in the small entity category because they cannot afford multiple international filings. Since small entities file 31 percent of all U.S.-origin patent applications, I estimate that more than half of all small entity applicants choose not to have their secrets published. (See Table One) Half is a significant number that should be carefully considered in any Congressional patent reform efforts.

The second compensation Congress provided is also inadequate in that it requires the patent owner to provide the infringer “actual notice” of the published application and then specify the claims that are being infringed. To meet such an impossibly high standard at such an early stage in a patent’s life, patent owners must first discover who, here and abroad, is infringing their patent claims during the pre-grant publication period, and then formally notify them they are infringing. Since each nation has its own patent laws, patent owners must bring any suit against infringers in the nation(s) that issued the patent.

Beyond the onerous impracticality of requiring the patent holder to provide such detailed notice, foreign litigation in faraway places such as China can cost at least a million dollars per case. Moreover, the Office of the United States Trade Representative has repeatedly reported to Congress that such cases have a high risk of failure and that when successful the damage awards are generally trivial.

Total secrecy until an application is approved or rejected, therefore, is the only assured protection an inventor really has while an application is being examined by the USPTO.

The Japanese government is dealing with the reality of the ever-expanding foreign piracy and counterfeiting of its citizens' intellectual property by quietly encouraging its corporations to keep their best and most advanced technologies inside Japan where security is tight. Trade secrets and tight corporate security are their protection. If a patent is warranted, certain high technologies are given priority in the JPO examination process, allowing a patent to be issued prior to the 18-month mark.

Japan's policy is practical, though it diminishes the sharing of knowledge with society. Japan's strategy is also economically risky because if the trade secret is reverse-engineered by a competitor or compromised in a legal manner, few protections exist for the patent owner worldwide.

Interviews with several U.S. inventors and business people, though not a representative statistical sample, suggest that many are increasingly treating their creations as trade secrets. They realistically calculate that a premature disclosure through the 18-month publication process will result in the piracy of their creations. This unintended consequence of action by the U.S. Congress cuts the heart out of America's long-term innovation process, limiting the spread of knowledge created by a vast base of innovators.

## **Parties in Conflict**

Small changes in something so complex as U.S. patent laws are fraught with unintended consequences of great significance. As in medicine, that is why the first principle in any government "reform" should be, "do no harm."

A major unintended consequence of the 18-month rule is that the large U.S., Japanese and European corporations that persuaded the U.S. Congress to legislate it into law are among its principal victims. These corporations and their patent lawyers and advisors did not adequately consider the extraordinary power of the Internet to facilitate the instantaneous, detailed mining of all granted patents and all unprotected patent applications in all the world's patent offices. Nor did they anticipate China's aggressive, technology-based industrial policies. Most important, they did not anticipate how lucrative open global markets would make patent, copyright and trademark piracy. They let the foxes into their economic henhouse.

Historically, Congress set U.S. patent rights through a political process that allowed the affected domestic parties at conflict to find a compromise. That process is impaired now, largely because of the changing nature of the parties at interest.

The United States Patent and Trademark Office (USPTO) usefully distinguishes between what it terms “small entities” (independent inventors, companies with 500 or fewer employees, not-for-profit organizations, and universities) and “large entities” (larger corporations).

Until recently, the principal patent conflict was between independent inventors and large U.S. corporations, a reflection that individual inventors are a natural enemy of the status quo, large corporations and state-owned enterprises. With globalization, however, that conflict has quickly expanded to the world stage and increasingly it is including a conflict between developing and developed nations for access and control of various technologies and industries. The large corporations are even more likely to be victimized by global pirates in this lawless post-Internet economic age than independent inventors because they have more patents applications published, and are thus more vulnerable to theft.

Even with all the filings from large U.S. corporations and their counterparts from around the world, small entity inventors still receive roughly 31 percent of all U.S.-origin patents every year. This happens nowhere else in the world. It is the very heart of what Austrian economist Joseph Schumpeter called “creative destruction” and for more than two hundred years has been the engine of America’s economic growth. It is America’s principal hope for meeting the global economic challenges it faces.

The role of small entity innovation is inadequately understood and undervalued in the United States, largely because it has been under-studied.<sup>9</sup> Small entity inventors play a key role in this creative process. Research funded by the Small Business Administration reveals,

- Small firm patents on average are more technically important than large firm patents and are twice as likely to be among the top one percent of most frequently cited patents.
- Small patenting firms produce 13 times more patents per employee than large patenting firms.
- Small firms represent one-third of the most prolific patenting companies that have 15 or more U.S. patents.
- Small firms are more effective in producing high-value innovations.
- Small firm innovation is twice as closely linked to scientific research as large firm innovation on average and is substantially more high-tech or leading edge.<sup>10</sup>

For small entity inventors, patent rights are essential, providing them the means to raise capital, make license arrangements and defend themselves against infringers.

In the past, large entity inventors were more cavalier about patents. Judge Howard Markey, the first Chief Judge of the Federal Circuit, the appellate court that hears patent cases exclusively, wrote of this:

*Many giant corporations have no need of a patent system. They may obtain patents, but only as a defense against some little machine shop operator who*

*might otherwise invent and patent something the public would demand, and the big corporation would have to negotiate for, instead of adding the item to its product line. Many large corporations should be glad to compete on size, nationwide service, high volume, strong finance, and prompt delivery. They can kill off smaller competitors on any of these bases, unless the small competitor has a patent on a product somebody wants to buy.<sup>11</sup>*

Increasingly, however, large U.S. entities are realizing that global patent rights are also essential to their survival. In a world where China, India, Brazil and other nations are quickly becoming the world's workshop -- manufacturing everything from the simplest to the most advanced technologies -- many large entity American-headquartered corporations have transformed themselves into little more than intellectual property holding companies that design, market and distribute products and services which are produced by others in foreign locales. The protection of those corporations' intellectual property rights is vital because those rights constitute a major portion of their stockholders' real value.

Since each nation has its own patent system and laws, patent owners often face the prospect of having to mount cases in several nations to protect their property. As dozens of major U.S. transnational corporations have discovered, patent protections provided in developing nations, such as China, are generally meaningless, as are the judicial remedies in those countries. The small entity inventors are particularly disadvantaged when pitted against deep-pocket pirates, particularly those who enjoy the political and financial support of their governments, such as in China.

The legislative record of the 1999 enactment of the 18-month rule reveals the consequences of this change in U.S. patent law were given scant attention. The principal arguments for this legislation were that it would make the U.S. system more like those of Japan and Europe, and it would help cut down on duplicative research. Then, the power and reach of the Internet were only partially understood and the limitations of the World Trade Organization intellectual property protections (TRIPS) were not yet clear, as was the reluctance of governments in developing countries to confront patent piracy.

## **A New Culture of Infringement**

In 1999, when the last major legislative changes were made in patent law, Congress and those who advised it did not recognize or understand the emergence of a new U.S. business model, one created in large measure by a new generation of U.S. tech companies whose approach is to pirate the patents of others, quickly become very rich and powerful and deal with the consequences later.

In testimony before the U.S. Senate Committee on the Judiciary in May 2006, Dr. Nathan P. Myhrvold, formerly Chief Technology Officer for Microsoft and now CEO of Intellectual Ventures, explained how this aggressive business model works:

*“Most tech companies have made a deliberate decision to ignore the patent system. ... The tech company will hire smart people and put them under huge pressure and lucrative incentives to create state of the art products. They*

*send people to technical conferences, and encourage them to read scientific papers so they can learn the latest techniques. Yet, they do not allow them to read patents – not even patents by the same people whose research papers they use, or patents of the institutions from which they hire employees. In most tech companies, it is vehemently against company policy for engineers to read patents. This is based on a “see no evil, hear no evil” theory that it is better to feign ignorance than to find you’re infringing. They do not check their products to see whether they infringe anybody else’s patents – a common practice in other industries, known as patent clearance. Nor do they have established programs to license outside patents on a proactive basis. The R&D strategy is very effective because you don’t spend any time worrying about other people’s patent rights. It inevitably leads to infringing many valid patents. It is the engineering equivalent of driving at high speed, with the accelerator pedal mashed to the floor, but not looking to see whether there are other cars around. ... Their strategy is ‘get big fast,’ own the market and, if there is a patent problem, sort it out later.’”<sup>12</sup>*

In fairness, what Dr. Myhrvold describes was the U.S. and German technology strategy in the 19<sup>th</sup> Century, the Japanese strategy in the 20<sup>th</sup> Century and now China’s strategy in the 21<sup>st</sup> Century. The more familiar term is “mercantilism,” a systematic approach to acquiring the technologies of other nations and undercutting their economic abilities. “Predation” is the term applied when companies engage in such strategies.

To expect that the “smart people” under the “huge pressure” Myhrvold describes would obey these corporate edicts, and not sneak a peak at a cutting-edge patent application, is probably unrealistic. If such ambitious and unprincipled people refuse to respect the legal rights of patent holders, why would they be expected to respect the rights of patent applicants?

If these infringers can use the creations patented by others to quickly seize ownership of an entire market, they can become rich enough to buy their way out of any lawsuit, including purchasing the victim’s company, as often happens. Or, they can simply destroy their victims with the cost of litigation, forcing a cheap settlement on their own terms, often forcing the opponent into bankruptcy. Or, they can pay a large settlement out of their winnings. Or, they can invest a few million dollars in lobbyists and trade associations to weaken the patent laws and penalties for infringement. Or they can hire the best Constitutional experts and challenge the validity of key parts of U.S. patent laws. All these options are being used. For them, stealing pays very well.

The economics of the serial infringers’ business strategy, as described by Dr. Myhrvold, can be reduced to a cost-benefit analysis. He commissioned an examination of the Securities and Exchange Commission (SEC) records of four corporations that are leading the political charge to weaken U.S. patent protections and calculated how much they paid out in patent lawsuit settlements during the period 1993-2005. In total, the analysts discovered that these four companies paid \$3.5 billion in patent settlements. But, their “pedal to the metal” business strategy enabled them to take in \$1.4 trillion of revenue. Thus, the settlement costs were only one-quarter of one percent of their revenues (0.26 percent) – in relative terms a minor cost of doing business. If such corporations can persuade Congress and the Supreme Court to weaken existing patent laws and penalties, infringement is made even less costly and thus more desirable as a business model.

This new reality is that the world of innovation is filled with powerful governments and large corporations that have made a deliberate decision to infringe (steal) the patents owned by others, and then do all in their power to derail and postpone a reckoning with the owners. The premature publication of patent applications enables these infringers to access the newest, best technology only 18 months after it is sufficiently perfected for a patent application. As the world's principal source of innovation, the creative people and companies of the United States are the principal victims of such theft.

Naturally, the question is how did something so obviously harmful as the 18-month rule become the law of the United States? The answer is essential to devising a remedy.

## **The Politics of Publication**

The 18-month rule is an old idea, one long used by the Japanese and Europeans to get an early peek at what their inventors are doing. The principal U.S. advocates were large entity corporations and the organizations and service providers they fund, who since the late 1960s publicly lobbied for Congressional adoption of Japanese and European patent publication practices.

As these studies reflect, large corporations and their service providers dominate the membership, control and recommendations of such study groups. Notably absent from such committees are representatives of small companies and individual inventors. The absence is consequential because small entity inventors are the source of about 31 percent of all U.S.-origin patents granted. For more than 40 years, small entity inventors and their organizations have stoutly opposed publication of applications prior to the grant of a patent.

In recent years, the consultative process with Congress has become skewed in favor of the large entities. Partially, this reflects large U.S. corporations' influence with a succession of Presidents and the Congress, allowing them to shape U.S. patent policies. But less visibly, this imbalance also reflects the growing and tightly focused political intervention of Japanese and European corporations and their governments in U.S. politics and governance. Data produced by the Center for Public Integrity, a nonprofit organization that monitors lobbying, reveals that between 1998 and 2004 companies headquartered in 78 countries spent more than \$620 million for the lobbying work of 550 Washington, D.C. firms and 3,800 lobbyists, including 100 former Members of Congress who are working as foreign agents. Today, almost 700 foreign governments and corporations employ almost 4,000 lobbyists in Washington, D.C.

As I documented in Hot Property, large entity corporations from the U.S., Japan and Europe so dominated the creation of what became the Trade Related Intellectual Property Aspects (TRIPS) of the World Trade Agreement adopted in 1994 that their lawyers actually drafted the text the WTO adopted. In that trilateral effort, European business was represented by UNICE, the Union of Industrial and Employers' Confederations of Europe, the official voice of businesses and industries from 22 European nations. The *Keidanren*, whose membership includes all major Japanese companies and industry associations, represented Japanese business. A self-appointed group of corporations from the Business Roundtable represented the United States, including IBM, Pfizer, Merck, Johnson & Johnson, Bristol-Myers, Hewlett-Packard, General Motors, General Electric, DuPont, Monsanto, CBS, FMC, Warner and Rockwell International.

As part of that process, the European, Japanese and U.S. patent offices formed a trilateral project in 1983 to harmonize the creation of a unitary trilateral patent system. Since 1983, the directors of the European, Japanese and U.S. patent offices have held 24 trilateral conferences to effect such integration. Much of that work deals with fundamental questions, such as inter-computer compatibility and which word processing software is mutually acceptable. Yet, much of that work also deals with fundamental policy questions, such as should the United States change from a system that grants a patent to the first person to invent or the first person to file a patent application?

The issue of who advises the governments on the views of inventors is significant. While the governments of Japan and Europe have traditionally relied on the views of their large entities to help set their patent policies, the U.S. now does so as well. That process is formalized in the Trilateral Project these governments have formed. The trade associations of the large entity inventors present the views of U.S. patent holders. Small entity representatives have been absent at those deliberations, and their perspectives ignored.

A uniquely American problem is created by revolving door appointments – that is, policy officials in USPTO moving between high public office and the corporations, lobbyists and law firms that rely on USPTO decisions. It is a culture that provides rich incentives to elevate the interests of large entities over those of small entities and international over national concerns. It is an approach in which lawyers, former Members of Congress and ex-Hill staff with no experience in business or management experience of the scale required are put in charge of the USPTO, an institution responsible for decisions and assets of critical importance to the economy and national security.

The point is that the function of the USPTO is quasi-judicial in nature. It involves the management of thousands of people. The decisions that the USPTO makes are fundamental to America's innovation, competitiveness and economic policies. The Under Secretary of Commerce for Intellectual Property and Director of the United States Patent and Trademark Office has responsibilities that are every bit as sensitive and important to the nation as those of the Director of Federal Bureau of Investigation and the Director General of the General Accountability Office, whose top positions are set respectively for fixed terms of 10 and 15 years, after which the officeholder may not be reappointed. While the positions of Commissioner of Patents and Commissioner of Trademarks are set for 5-year renewal terms, the top job is not. As with the FBI and GAO, Congress should consider requiring a one-time fixed appointment of the top job at USPTO for a duration comparable to that at the FBI or GAO.

## **The Arithmetic of Patent Reform**

Diluting the legal power of U.S. patents, under the guise of “patent reform,” remains a major goal of other governments and numerous transnational corporations, many of which are headquartered in the United States.

The agenda of their lobbying effort contains numerous proposals, including (1) changing the U.S. patent system to a first-to-file approach, (2) eliminating the “opt-out” provision in the 18-month publication rule, (3) eliminating the requirement to provide a “best mode” description in the application, (4) limiting to egregious acts the legal provision that provides triple damages for

willful infringement, (5) permitting a third-type of post-grant challenge of an issued patent and (6) allowing a third party challenge to a patent application while it is under review by the USPTO.

The details of these provisions are complex, and their consequences not immediately obvious. Thus, the lobbying campaigns for these proposals concentrate on two themes that are more understandable and more politically acceptable. The first theme is that a patent litigation crisis exists. The second is that the USPTO is approving a large body of sub-quality patents. Neither is correct.

The “litigation crisis” theme argues that greedy plaintiffs, filing so many unworthy lawsuits, are impeding U.S. innovation, unfairly imposing massive burdens on law-biding corporations and inventors and harming America’s ability to compete in the global economy.

A new lobbying group for tech companies describes this crisis on its web site’s home page as follows:

*Did you know?*

*Nationwide, the number of patent litigation cases more than doubled between 1991 and 2001; the number of patent litigation cases in 2005 was more than 19.5% greater than the number in 2001. In Marshall, Texas alone, where only seven patent cases were filed in 2003, 116 cases have been filed in the last 16 months?<sup>13</sup>*

These numbers are correct, but highly misleading -- a prime example of Professor Darrel Huff’s maxim (Lying with Statistics, W.W. Norton Publisher, 1993) that “*Numbers, when tortured, will confess to anything.*”

While the number of patent litigation cases did more than double between 1991 and 2001, in the same period the number of patent applications grew from 178,000 to 346,000 and the USPTO issued 77,000 more patents in 2001 than it did in 1991.<sup>14</sup> The number of patent cases that went to trial between 2001 and 2005 did rise from 76 to 107, actually a 40 percent increase. (See Table Two) Yet the key fact is that of all the patent lawsuits filed more than 96 percent were settled without a trial. Clearly, most of these filings were for purposes of negotiation.

As for Marshall, Texas, the New York Times did a profile on the town in 2006 noting that more patent lawsuits will be filed in that federal district court than all others except the Central District in Los Angeles.<sup>15</sup> The reason that particular court gets so many patent cases, according to the article, is that Judge T. John Ward is an expert in patent law, quickly moves cases to trial and local juries are willing to give large awards to those victimized by patent infringers. Historically, decisions there favor the patent owner. That court is not a good place for lawyers who try to delay the judicial process, a common strategy particularly when a cash-poor plaintiff-inventor sues a rich infringer-defendant. Almost 95 percent of the cases filed there settle quickly.

Closer to Washington, D.C. the District Court for Northern Virginia is known as the “rocket docket,” a fast, expert, efficient court that handles complex patent cases. Courts with such expertise, and that are managed well, deter gaming of the system and reduce the need for post-

grant procedures at USPTO to administratively hear patent case.

Several advocates of patent “reform” are urging Congress to establish a handful of patent courts around the nation, what is known as the “venue” issue, and forcing plaintiffs to file their cases in the closest one of those few or in the area where they or the other party reside. The goal is to keep cases out of the “rocket docket.” Few of these advocates have publicly supported the idea of providing the federal courts with additional resources for more staff. Not surprisingly, advocates of a weaker patent system also wish to exclude juries from hearing patent cases, though juries now decide more than 50 percent of patent damage awards. For 15 of the past 23 years, the median award of damages in patent cases by juries has exceeded that of judges.<sup>16</sup>

A major advocacy group illustrates the “litigation crisis” by noting the soaring number of “intellectual property” cases filed between 2001 and 2005. Missing in their explanation is that the broad term “intellectual property” includes all copyright and trademark cases filed. It is true that the number of “intellectual property” cases soared from 8,282 in 2001 to more than 12,000 in 2005, but, the surge was created by an explosion of copyright cases filed by entertainment companies against people downloading pirated music and movies from the Internet. There has been no surge of patent suits. (See Table Three)

The Federal Judicial Caseload Statistics, which are issued annually by the Administrative Office of the U.S. Courts, reveal that in the six-year period 2001-2006 the number of patent lawsuits filed increased from 2,520 to 2,700 – a growth of seven percent or barely more than one percent annually. In both 2005 and 2006, the total number of lawsuits commenced actually declined each year.

Equally important is the question of what happened with those cases? The federal judicial caseload statistics and the USPTO data on patent applications and grants reveal:

Only 5/10,000 of one percent of patents issued are challenged in a patent trial.

In 2006, more than 52 percent of all patent lawsuits commenced, settled before pretrial.

In 2006, more than 12 percent of patent lawsuits settled during or after pretrial.

In 2006, only 102 patent cases went to trial, which represents about 3.8 percent of all patent cases commenced.

Put into context, the number of patent lawsuits that go to trial annually rose from 76 cases in 2001 to 102 cases in 2006. While individual companies that were sued could consider themselves as under siege and settle to avoid litigation expenses, the long-term trend suggests that there are proportionally no more patent suits per patents granted now than in the past. The ratio of patent lawsuits per patents granted has hovered around the 1.5 percent level in the 14-year period 1993 and 2006 (Table Four).

For a nation that now grants almost 200,000 patents annually and has millions of patents in effect, 2,700 newly filed cases per year, of which only 102 go to trial, is by no measure a patent “litigation crisis.” The reality is that by the time a case reaches court or appeal, it most likely does involve a real patent with real infringement. The point is not many cases ever reach this point.

A “solution” to this non-existent problem proposed by many in the large entity community is for Congress to adopt a European-type third chance to contest a patent for nine-months after it has been granted. This would be an *inter partes* proceeding before a USPTO administrative judge. As with the current *inter partes* process, all parties would be involved. The principal advantage of this new challenge process is it would lessen a plaintiff’s legal costs, while creating another opportunity to challenge a patent’s validity.

Missing in this discussion, so far, is an examination of the experiences of other nations. The Innovation Alliance reports that,

*Less than 10 years after adopting such a system, Japan, Korea, Taiwan and China have all recently abolished post-grant opposition procedures in favor of a streamlined invalidation proceeding that permits a centralized process for administrative reexamination. The Japanese Patent Office has publicly acknowledged that repeated attacks against a patent under duplicative administrative and judicial opposition systems have imposed undue burdens on patentees, resulting in increased costs and delays. Similarly, Taiwan concluded that its post-grant opposition system unfairly benefited infringers to the detriment of all patent owners.*

The Innovation Alliance concludes that the post grant procedure,

*“... would create a quasi-judicial system of administrative litigation that heavily tips the balance in favor of the challenger’s interests; increases incentives to litigate; and disproportionately shifts litigation costs to the patent owner. Unlike a civil proceeding, a post-grant opposition system would invite challenges by any party adversely affected by a patent. And it would facilitate invalidation by eliminating the patent’s presumption of validity and reducing significantly the challenger’s evidentiary burden. In addition, the challenger would be free of constraints designed to reduce the cost, scope and potential abuses of administrative reexamination.”<sup>17</sup>*

The European experience with such post-grant review confirms that view. Its procedures are used not only to test the validity of patents, but also as a means for infringers to extort patent owners. The March 2007 **Euromoney Institutional Investor** reports that one of the important values of this post-grant challenge process in Europe is its use as a “business tool.”

*It is relatively inexpensive to file an opposition, but it can have the effect of removing a patent which blocks a technology area of interest, restricting the scope of an overly broad patent or simply provoking licensing discussions with the patentee. Thus, the offensive value of oppositions in Europe should not be overlooked.<sup>18</sup>*

The aggressive use of such challenges in Europe can truss a patent for 40 months or more after it has been granted. This process has the effect in Europe of rendering all granted patents as “conditional” until the nine-month window for filing a challenge expires. If challenged, the

EPO reports that the average duration of its *inter parte* process is 31 months. The mere threat of a challenge, therefore, is sufficient to force many patentees to grant a license rather than face a three- or four-year delay.

How prevalent are such challenges in Europe? Very. Wilding and Bridle report that in 2004 and 2005 more than five percent of all granted patents in Europe were challenged through this *inter partes* procedure. Challenged patents were upheld in whole or part 62 percent of the time in the first round. In appeal, 20 percent of the challenged patents were revoked. The issue in Europe is both that of weeding out invalid patents and gaming the *inter partes* challenge process for business reasons.

Imagine what would happen in the United States, which has a far more litigious society than Europe, if Congress adopts this post-grant nine-month review and challenge process. If five percent of U.S. patents granted annually are challenged, as in Europe, the USPTO would be forced to handle almost 10,000 cases a year – 17 times the total number of *ex parte* and *inter partes* challenges (581) filed at the USPTO in FY 2006.

By making patent challenges easier and less costly, this proposed solution is likely to stimulate more rather than fewer lawsuits. The big change is that USPTO judges will be hearing most of these cases. If the U.S. rate of such challenges equals Europe's, the total number of cases filed in U.S. courts and at the USPTO would surge from the current 3,300 per year (2700 lawsuits plus 581 USPTO *ex parte* and *inter partes* challenges) to 10,000 or more post-grant cases alone. Plus, plaintiffs that did not use these procedures would still have the option of filing a patent lawsuit in the federal courts.

The introduction of a post grant challenge process would mean that for thousands of inventors, the time they would have an unchallenged, exclusive use of their creation would drop from 17.6 years on average now to 14 years or even less.

Although no U.S. patent litigation crisis exists today, the unintended consequence of creating of such a post-grant challenge process would be to surely create one.

The second theme being advanced by critics of the U.S. patent system is the poor quality of patents the USPTO is granting. The “usual suspects” of patented frivolity, or what are often called “vanity” or “silly” patents, include a patent on a sandwich and one on a backyard swing, both of which have been revoked by the USPTO. The sandwich patent, however, was not on how to make a sandwich, but on how to package a sandwich for long-term storage and use in places such as convenience stores. The patent on a swing seems to be filed by an applicant and a patent lawyer to demean the patent processes.

Missing from the “poor quality” argument is the identification of instances in which a “silly” patent has been used as the basis for a successful lawsuit. Ronald J. Riley, Executive Director of Inventor Ed, notes that, “many of these silly patents are the work of scoundrels in the invention promotion industry, who have repeatedly defrauded people for typically between ten and fifty thousand dollars.”

USPTO is making a concentrated effort to improve the quality of its product, requiring an examiner to secure the approval of two supervisors before a patent is awarded. Consequently, the patent allowance rate is dropping sharply at the USPTO – that is, the number of applications

compared to the number of patents granted. (See Chart 1) In the late 1990s, that rate was in the 70 percent levels. In 2006, it was 54 percent and dropping. While not conclusive, this is suggestive of tougher standards.

The interference rate (the number of challenges per patents issued as to the origin of an invention) is a second measure of quality. There are on average only 100 challenges per year as to who is the true inventor of a patented creation. So few challenges in a system that is now granting 180,000-plus patents each year is a remarkably positive test of quality. The conflict rate is so low as to be statistically insignificant.

A third measure of patent quality is how many patents are challenged and survive after being formally challenged. The USPTO provides two unbiased and relatively quick ways for anyone to challenge an issued patent. In an *ex parte* challenge, a procedure available since 1981, anyone can challenge a patent and the USPTO will review the patent's claims. In the 26-year period 1981-2006, the USPTO received 8403 requests for *ex parte* reexaminations, of which 7403 were granted. Of the 5640 *ex parte* reexamination certificates issued, 10 percent had all claims cancelled, 64 percent had claim changes and 26 percent had all claims confirmed.<sup>19</sup>

The USPTO also offers a second method for anyone to challenge a patent – an *inter partes* reexamination, which is akin to an abbreviated trial. The *inter partes* process was introduced in late 1999. In the 7-year period between 1999-2006, the USPTO has had 209 *inter partes* requests for reexaminations, of which 168 were granted. Of the seven *inter partes* reexamination certificates issued since 1999, only one had all claims confirmed and six had all claims denied.

The average overall *ex partes* reexamination pendency rate (filing date to certificate issue date) is 23 months. For *inter partes* reexaminations, it is 27.9 months.

Having 74 percent of the *ex parte* reexaminations result in claims cancelled or narrowed and 6 of the 7 *inter partes* challenges result in all claims denied reveals that these patents were of poor quality. This also reveals that these processes are not biased in favor of inventors, as is often asserted. If anything, these numbers reveal the opposite.

Most important, these numbers strongly support the thesis that almost all patents granted by USPTO are sufficiently valid to preempt a challenge. Specifically, the USPTO issued more than 3.185,000 patents between 1981 and 2006. During that same period, 8,612 patents were challenged through the *ex parte* and *inter partes* processes – that is, only one/three thousandth of one percent (0.003) were challenged.

The USPTO makes mistakes and on a rare occasion issues a “bad” patent. Yet, the tiny number challenged over the past quarter century, and the even smaller number totally reversed strongly, suggests that almost all patents granted by USPTO are of sufficient quality to be valid.

A fourth test of validity is the number of patents contested on appeal in a patent trial. By the time a patent has been examined by USPTO, reexamined if requested and tried in a civil case, it has withstood a test of fire. The Congress in 1982 established a special court that hears appeals on patent cases – The United States Court of Appeals for the Federal Circuit. Few patent cases go this far in the judicial process, but of those that do the lower court decisions are affirmed roughly two-thirds of the time.<sup>20</sup>

Critics of the U.S. patent system argue this reflects a bias on the part of this Court. A more realistic view is that by the time a patent reaches this advanced stage in the legal process, it has been examined so closely that only a few are invalid, and those few often reflect a contested point of patent law which ultimately may need to be resolved by either the Supreme Court or Congress.

In sum, the USPTO is granting valid patents. Few invalid patents slip through the process and where an invalid one does get through, the USPTO offers relatively quick, relatively inexpensive challenge procedures. If that is unsatisfactory, a challenger can take the matter to a federal district court, which happened only 102 times in 2006. America's patent system is far from broken. It works admirably.

A partial solution to the problem of "silly" patents could be for the critics to fund workshops in select law schools, where students, working under the guidance of their professors, could file *ex parte* examination requests at the USPTO. The experience for the students would be useful, silly patents could be revoked and the USPTO could identify examiners who need more training and supervision. It could also identify those critics and patent lawyers who are using their special privileges to waste the USPTO's limited resources.

### **The Mossinghoff Study**

The United States is the only nation that gives a patent to the first-person-to-invent. All other nations issue a patent to the first-to-file.

For more than 40 years, the governments of Japan and Europe have urged the U.S. to change its patent system to be like theirs, as have many large-entity groups in the United States. Their basic argument is "harmonization" that is, others do it and so therefore should the United States.

Transnational corporations would like one set of procedures and rules everywhere.

A first-to-file system would cut the costs for filing in multiple countries, since the forms and procedures would be the same. These large U.S. corporations are accustomed to the first-to-file systems in other nations, as are foreign corporations who apply in the United States under our first-to-invent procedures.

The arithmetic behind any determination of which system is preferable for the United States is this, (a) about half of all U.S. patent applications now come from abroad, (b) about 64 percent of all U.S. patent applications are not filed abroad, (c) small entity inventors file 31 percent of all U.S.-origin patent applications, and (d) most small entity inventors cannot afford to file for a foreign patent and do not file for one.

The greatest beneficiaries of the first-to-invent system are America's small-entity inventors. Now, they are not pitted in a race to the Patent Office against richer, larger corporations, though they would be if Congress makes such a drastic change.

The pivotal public policy question is which system has less confusion as to whom the patent should be awarded and results in better quality patents? In that contest, the U.S.'s first-to-invent system wins hands down and is far preferable to the European and Japanese approach.

In 2005, a group of large-entity companies sponsored a study to determine whether small or large entities are advantaged or disadvantaged by America's first-to-invent approach. The study has been cited many times as proof that retaining a first-to-invent system is not justified by the data. In fact, the data reveals just the opposite conclusion, which surely must have been a surprise for the sponsors.

The study was directed by former Commissioner of Patents and Trademarks Gerald J. Mossinghoff, who did a statistical analysis of what happens when two parties claim to have invented something at nearly the same time, something called interference cases or two-party decisions.<sup>21</sup> If there were problems in the first-to-invent system, a large number of such cases would exist. But they do not.

Remarkably, in the 22-year period 1983-2004, Mossinghoff found there were only 3,253 two-party decisions, a period when the USPTO received 4.5 million applications and granted more than 2.4 million patents. There were on average only 155 such interference cases per year, or as Mossinghoff pointed out, less than one in 1000 applications filed. More recently, the USPTO reports the average number of interference cases is only 100 per year.

Mossinghoff also found that the number of small entities advantaged in that 22-year period by the interference process was 286 and the number disadvantaged was almost the same (289), a strong statistical suggestion that the USPTO approach was balanced.

The Mossinghoff data provides an irrefutably strong argument for not changing from a first-to-invent to a first-to-file patent system. Specifically, the supposed disadvantage of the present approach is that it leads to confusion and conflicts as to the real inventor. Yet, as the Mossinghoff data conclusively reveals, this is not so. So few interference cases in the 22-year period analyzed means the existing first-to-invent system is well understood by users and produces few conflicts over who is the real inventor. The first-to-invent system works exceedingly well for the United States. A first-to-file system would be pressed to do as well, even after several years of operation.

The annual European Patent Offices (EPO) challenge rate was 5.4 percent of granted patents in 2005. The combination of all U.S. interferences, plus all USPTO *ex parte* and *inter partes* challenges, plus all U.S. patent lawsuits commenced, per the number of U.S. patents granted produces a comparable U.S. challenge rate of 1.8 percent. The EOP challenge rate is three times that of the United States, not counting lawsuits.

This difference is highly significant. It strongly suggests that Europe would be well advised to adopt the U.S. first-to-invent approach if they wish to reduce confusion and lawsuits in their patent process.

Mossinghoff's study also reveals that small entities were involved in only 17.6 percent of these two-party cases, although they generate 31 percent of all U.S.-origin patent applications. The overwhelming majority of those interference cases (82.4 percent) were between large entities that fully understood the patent process and were capable of financing their advocacy.

The Mossinghoff data document that the number of small entity inventors affected by interferences is only one of every 7,800 applications. This is so statistically insignificant as to

be irrelevant. One of 7,800 is not a problem at the USPTO.

The point is that our present system is not adversely affecting large or small entity inventors nor U.S. or foreign inventors as to who is the first to invent. The system results in less than one third the annual number of patent challenges and lawsuits as that of Europe. Then, why “fix” something that works so well? Why go to all the trouble, all the costs of changing to something else, particularly when any possible benefits are so illusory?

If there is some benefit to U.S.-origin inventors other than imitating what other nations require, other than using the same forms and procedures, which 64 percent of U.S. inventors never do because they do not file for a foreign patent, advocates of that change should be forthcoming as to what those benefits may be.

The other question raised in the Mossinghoff paper is about the ability of those few, those one in 7,800 inventors, to finance the legal costs of a two-party case. He found that 575 small entity inventors, in that two-decade time period, took their cases to conclusion, which also strongly suggests that legal costs were not a barrier, even for those few.

Strikingly, several of the “reforms” being proposed to Congress, including the first-to-file proposal, are not a top priority of many large entity organizations. The Intellectual Property Owners Association (IPO), a trade association of large corporations, reported at the Tokyo Trilateral Meeting in November 2006 the results of a survey of 117 respondents attending its September 2005 annual meeting, asking the attendees what patent reform topics were their most important.<sup>22</sup> The IPO found that only 21 percent of the respondents to its survey thought that modifying the law on willful infringement was the most important topic they faced.

Only 25 percent of the respondents thought a post-grant opposition system were most important. Apparently, they felt the USPTO’s existing challenge processes are sufficient.

Only 40 percent of the responding IPO members believed that shifting to a first-to-file system was the most important patent topic. Not surprisingly, the large entities are experienced and skilled in dealing with the differences between the U.S., Japanese and European patent systems. Indeed that gives them a competitive advantage over competitors who lack those capacities.

Concurrently, the Professional Inventors Alliance, which represents the views of independent inventors, opposes all these proposed changes.

Why, therefore, are these proposals being considered if the large entity inventors do not think they are a top priority and small entity inventors stoutly oppose them?

I conclude that the shift to a first-to-file system is a legacy recommendation, a hardy standard, thrown into most Blue Ribbon studies without any analysis of what it would mean to American inventors. Congress has rejected this change for decades and should reject it now.

### **The Likely Consequences of Patent “Reform”**

If today’s patent “reform” campaign succeeds, the changes now being considered would likely weaken the U.S. patent system and the protections it provides inventors. They would impede U.S. innovation and harm America’s ability to face the global challenges we face.

Should inventors be required to include in their patent applications the “best mode” to replicate and use their creations; that is, should they be required to share their knowledge of how best to use their creation as part of the price for exclusive use?

I think the answer is yes – absolutely. The golden covenant of a patent is simple – exclusive use in exchange for sharing new knowledge. Otherwise, the patent grantee gains the benefits of government-licensed exclusivity, while denying the public the full knowledge to which it is entitled. The possibility that this may cause patent owners future problems in litigation defenses is no excuse for withholding knowledge.

In the early part of the 20<sup>th</sup> Century, I.G. Farben, the giant German chemical cartel, was granted dozens of chemical patents in the United States, giving it exclusive use of its creations. However, Farben cheated. When DuPont and other chemical makers tried to replicate those chemical processes during World War I, they discovered vital elements were missing. Farben had not provided a best mode of use. It got the benefit of exclusive use without sharing knowledge. Indeed, Pierre DuPont, who spent more than \$100 million of 1917 dollars trying to replicate those chemical patents, claimed that DuPont chemists would have been killed if they had followed the Farben patents.<sup>23</sup>

The point is the United States should not give exclusive rights to inventors unless the inventors share with the public the best and true way to independently replicate their creations. Expanding public knowledge is one of the patent system’s most important functions.

In sum, the “reforms” currently being proposed would allow infringers to escape the consequences of their actions, but they also will greatly weaken America’s small entity inventors and those large entity inventors who obey the laws. This will happen through:

- More infringement.
- More litigation.
- More delays for start-ups by small entity inventors.
- More patent system abuses, such as those in Japan.
- More piracy created by more “mining” of unprotected U.S. patent applications.
- More patent applications as inventors rush to the USPTO to be the first to file.
- Lower quality created by the premature filing of applications.
- Lower financial recoveries for victims of patent infringement.

## **Recommendations**

A culture of infringement exists in many developing nations, particularly China and Russia, and among many Big Tech companies in the United States. This culture threatens the viability of patent systems, here and abroad, and thus threatens the incentives that have long underpinned U.S. innovation and development. If the processes of innovation are to be strengthened, this new culture of infringement must be smashed. In 2005, the U.S.-China Economic and Security Review Commission studied the 18-month rule and recommended to Congress that it be revoked, but patent legislation was not enacted in the 109<sup>th</sup> Congress. Thus, the following recommendations are made.

**Recommendation One** – The Congress should impose an emergency suspension of the publication of U.S.-origin patent applications until such time as (1) the United States Trade Representative can certify that China, Russia and other nations on its priority watch of intellectual property violators have brought the piracy of U.S. patents under control; (2) the USPTO average pendency rate is below the 18-month level and (3) the Congress votes to resume such publication. One exception should exist – the USPTO should publish the applications of those U.S.-origin applicants that certify that they want publication at the 18-month point or earlier.

The existing publication of U.S.-origin patent applications effectively destroys the possibility of U.S. inventors using their creations as trade secrets or further developing their inventions and re-submitting a patent application. Tens of thousands of potential U.S. trade secrets annually are being administratively destroyed by such publication. Equally significant, publication is facilitating fast-track piracy by infringers, here and abroad.

Ideally, the governments of Japan and Europe would join in this effort. But, if not, the U.S. should proceed unilaterally, while publishing in English applications from those nations that are published abroad. While those nations would still publish the 36 percent of U.S.-origin patent applications filed in their patent offices, a majority of U.S. inventors are unable to afford the pursuit of patent applications in other nations. Therefore, the secrets in a majority of U.S.-origin applications would remain secret until either a U.S. patent was issued or they filed for a patent in another country. An emergency suspension is compatible with U.S. obligations at the World Trade Organization as the TRIPS agreement does not require the publication of patent applications after a specified time of filing.

**Recommendation Two** – The Congress should require the Office of the United States Trade Representative, as part of its annual 301 Special Report, to identify countries whose exports to the U.S. have a substantially higher level than average of counterfeit goods or goods that violate U.S. patent rights. Imports so designated by the USTR would be required to be accompanied by an “Certificate of Authenticity” from either the government where the goods are produced or the U.S. importer that verifies the goods do not violate U.S. patents, copyrights or trade marks.

Fraudulent certifications would result in penalties and inspections of all imports from those nations. Once the USTR removes a nation from this strengthened Special 301 list, such certifications would no longer be mandated.

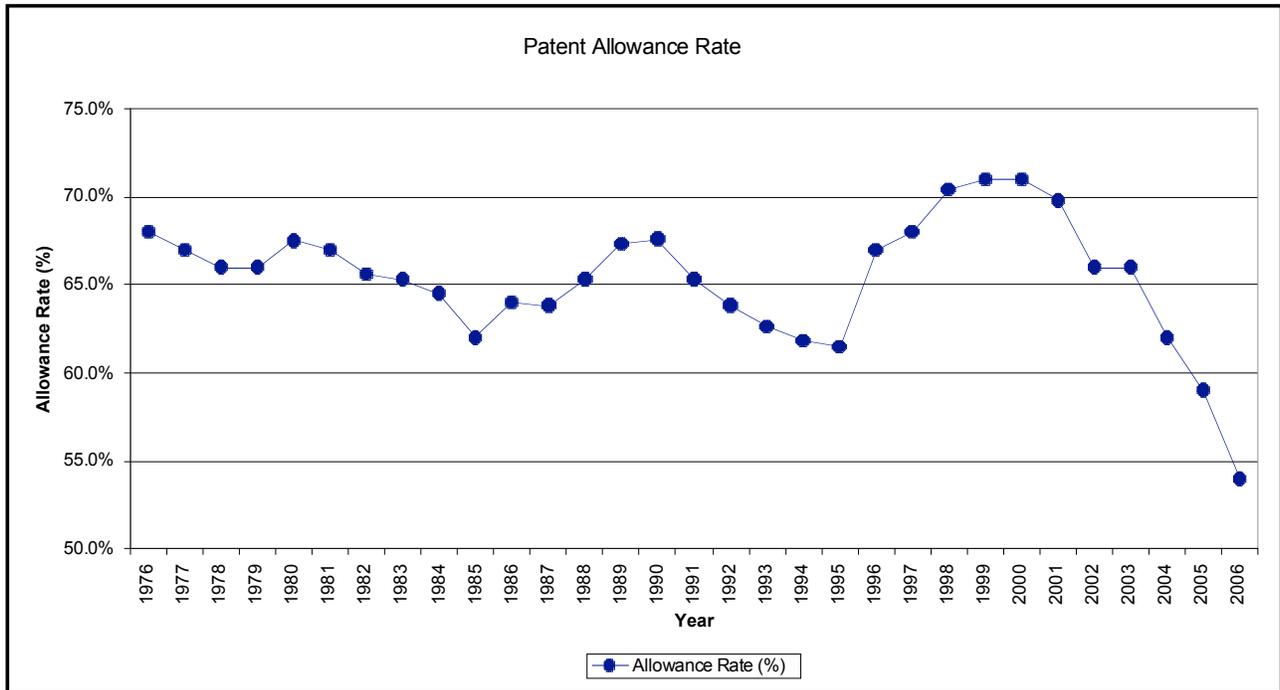
**Recommendation Three** – Direct the GAO to initiate a study of patent litigation in the United States. The report should examine whether there is a greater number of lawsuits filed against technology companies than against other types of companies as a percent of patents filed, granted and held. The study should ascertain if each high tech company in such a lawsuit used a patent clearance process (due diligence) and if there is any difference in the use of such due diligence between high technology and traditional business defendants. The study should also investigate whether there is a group of plaintiffs that is systematically abusing the litigation process or whether there is a small group of companies allegedly infringing the patent rights of others and thus being sued by many patent holders. It should also examine if this threat is sufficiently high enough to merit requiring publicly owned companies to disclose on a regular basis whether patent litigation is a material risk to shareholders’ equity and quantify the value of these intellectual property threats in that reportage. If the risk is real, it should be reported. If the GAO finds that a higher than average portion of patent litigation is against companies that

do not use a patent clearance (due diligence) procedure, and thus are reckless, Congress should consider that an egregious act and authorize an automatic award of treble damages when such companies lose an infringement case.

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## Tables and Charts

**Chart One**  
**Patent Allowance Rate**  
(1975-2006)



Source: USPTO.

**Table One**  
**USPTO Patent Applications and Grants**  
**Vital Data (Utility, Plant and Reissue Patents) (1998-2006)**

<b>Ownership of Utility, Plant and Reissue Patents (UPR)</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>
<u>Total Utility, Plant and Reissue (UPR) Applications (FY)*</u>	240,090	261,041	293,244	326,081	333,688	333,452	355,527	384,228	417,819
Large Entity Applicants									
Percent of Total Applications	69%	69%	71%	N/A	71%	71%	72%	72%	73%
Small Entity Applicants									
Percent of Total Applications	31%	31%	29%	N/A	29%	29%	28%	28%	27%
<u>Total Utility, Plant and Reissue (UPR) Grants (FY)*</u>	140,159	143,681	165,500	170,638	162,216	173,065	170,637	152,088	164,115
Large Entity Grantees									
Percent of Total Patent Grants	71%	71%	72%	73%	76%	77%	76%	76%	77%
Small Entity Grantees									
Percent of Total Patent Grants	29%	29%	28%	27%	24%	23%	24%	24%	23%
<u>Utility Patents Granted (Calendar Year)**</u>	147,518	153,485	157,494	166,036	167,331	169,023	164,291	143,806	173,771
U.S. Origin	80,289	83,905	85,068	87,600	86,971	87,893	84,271	74,637	89,823
Percent of Total	54.20%	54.70%	54.00%	52.80%	52.00%	52.00%	51.30%	51.90%	51.70%
Foreign Origin	67,229	69,580	72,426	78,436	80,360	81,130	80,020	69,169	83,948
Percent of Total	45.80%	45.30%	46.00%	47.20%	48.00%	48.00%	48.70%	48.10%	48.30%
<u>U.S.-Origin Utility Patents (Calendar Year)</u>	80,289	83,905	85,068	87,600	86,971	87,893	84,271	74,637	89,823
Large Entity U.S. Grantees (Calculated)									
Percent of Total	61%	62%	63%	65%	69%	69%	69%	68%	N/A
Small Entity U.S. Grantees (Calculated)									
Percent of Total	39%	38%	37%	35%	31%	31%	31%	32%	N/A
<u>Patent Applications Published at 18 Months (FY)***</u>	N/A	N/A	N/A	25,359	169,729	243,007	248,561	291,221	291,259

Data Sources: "Small entity" means an independent inventor, small businesses with 500 or fewer employees, universities and colleges, and organizations the U.S. Internal Revenue Service designates as a 501(c)(3) non-profit organization. By statute, they may pay reduced patent fees. The data herein is denoted as to whether it is on the basis of a Fiscal Year or a Calendar Year. \*Provided to Author by USPTO Analysts. \*\*All Patents, All Types of Report, USPTO, A PTMB Report, 2006. \*\*\* USPTO Annual Reports, 2004, 2005 and 2006.

**Table Two  
U.S. District Courts  
Patent Cases Commenced and Terminated by  
Nature of Court Action Taken -- 2001-2006**

<b>Year</b>  (12 months ending March 31)	<b>Cases Filed</b>	<b>No Court Action</b>	<b>Cases Terminated and Court Actions Taken</b>			
			<b>Total</b>	<b>Before Pretrial</b>	<b>During or After Pretrial</b>	<b>During/After Trial</b>
<b>2001</b>	2520	634	1689	1330	283	76
<b>2002</b>	2700	665	1801	1413	302	86
<b>2003</b>	2814	673	1809	1372	349	88
<b>2004</b>	3075	769	1907	1432	379	96
<b>2005</b>	2720	863	1941	1492	342	107
<b>2006</b>	2700	860	1840	1409	329	102

Source: Federal Judicial Caseload Statistics, 2001-2006 (As of March 31 of each year).

**Table Three**  
**Copyright, Patent and Trademark Cases Filed**  
**U.S. District Courts**  
(1990-2005 – Calendar Years)

<b>Fiscal Year</b>	<b>Private Cases</b>			<b>Total</b>
	<b>Copyright</b>	<b>Patent</b>	<b>Trademark</b>	
<b>1990</b>	2,075	<b>1,212</b>	2,405	5,692
<b>1995</b>	2,417	<b>1,706</b>	2,716	6,839
<b>2000</b>	2,050	<b>2,460</b>	4,187	8,697
<b>2001</b>	2,446	<b>2,496</b>	3,340	8,282
<b>2002</b>	2,084	<b>2,680</b>	3,458	8,222
<b>2003</b>	2,448	<b>2,788</b>	3,657	8,893
<b>2004</b>	3,007	<b>3,055</b>	3,496	9,558
<b>2005</b>	5,796	<b>2,706</b>	3,657	12,159

Source: **Federal Judicial Caseload Statistics**. The surge in intellectual property lawsuits is primarily due to an increase in copyright filings that was likely due to music companies filing infringement cases against individuals downloading from the Internet copyrighted recordings.

**Table Four**  
**Patents Granted and Lawsuits Commenced**  
(FY 1992-2006)

Fiscal Year	Patents Granted	Patents Suits Commenced	Lawsuits as a Percent of Patents Granted
2006	183,000	2,700	1.47
2005	165,000	2,720	1.64
2004	187,000	3,075	1.64
2003	190,000	2,814	1.48
2002	177,000	2,700	1.52
2001	188,000	2,520	1.32
2000	182,000	2,484	1.36
1999	159,000	2,318	1.45
1998	155,000	2,218	1.43
1997	123,000	2,112	1.71
1996	117,000	1,840	1.57
1995	114,000	1,723	1.51
1994	113,000	1,617	1.43
1993	107,000	1,553	1.45

Sources: Data from the patents Granted is from USPTO Annual Reports. Data for lawsuits commenced is from the Federal Judicial Statistics. The lawsuit data is as of March 31 of each year. The patents granted data is as of the Federal Fiscal Year. While the data is skewed by the different times used for the reporting years, a long-term view is created for this 14-year period. The author calculated the ratios.

## Notes

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- <sup>1</sup> "Naivete or Generosity?" The Planning National Strategies Series, **The Daily Yomiuri** (Tokyo) July 2, 2005.
- <sup>2</sup> "China's Spying Overwhelms U.S. counterintelligence," Jeff Bliss, Bloomberg, April 2, 2007.
- <sup>3</sup> "Naivete or Generosity?"
- <sup>4</sup> "Historical background," The Website of the Trilateral Co-operation, [www.trilateral.net/background/](http://www.trilateral.net/background/).
- <sup>5</sup> Testimony of Pat Choate, The U.S.-China Economic & Security Review Commission, Hearing On Intellectual Property Rights Issues and Dangers of Counterfeited Goods Imported Into the United States, Washington, D.C., June 8, 2006.
- <sup>6</sup> A submarine patent is one in which an inventor files an application on a creation of some value, files continuations to delay the issuance of a patent for many years and then allows the patent to surface (hence submarine) after which the patent is used to sue companies that were unaware of the patent filing. In reality those few patents that could be classified as "submarine" patents mostly were issued by government. The problem was a fiction used to justify changes in U.S. patent law, much as a "litigation crisis" is being used to justify changes in U.S. patent law in the 110<sup>th</sup> Congress.
- <sup>7</sup> Fiscal year 2006: A Record-Breaking Year for the USPTO," USPTO, Press Release, (December 22, 2006).
- <sup>8</sup> "Patent Pendency Statistics," (FY 2006), USPTO Annual Report.
- <sup>9</sup> "Independent inventors and innovation," Cynthia Wagner Weick and Cynthia F. Eakin," **Entrepreneurship and Innovation**, February 2005.
- <sup>10</sup> "Small Serial Innovators: The Small Firm Contribution to Technical Change," CHI Research, SBA Contract no SBHHQ-01-C-0149, February 2003.
- <sup>11</sup> "Stacking the Deck Against the New," Skip Kaltenheuser, Venture Capital Journal, December 1, 1997.
- <sup>12</sup> Testimony of Dr. Nathan P. Myhrvold, Subcommittee on Intellectual Property, Committee of the Senate Judiciary, Washington, D.C., May 23, 2006.
- <sup>13</sup> Coalition for Patent Fairness, web site.
- <sup>14</sup> USPTO, "Patents and Trademarks by Type: 1980-2005, Statistical Reports Available for Viewing, Calendar Year Patent Statistics."
- <sup>15</sup> "So Small a Town, So Many Patent Suits," Julie Creswell, **The New York Times**, September 24, 2006.
- <sup>16</sup> PwC, "2007 Patent and Trademark Damages Study," Pricewaterhouse Coopers, 2007, p. 14.
- <sup>17</sup> Innovation Alliance, "Not Patently Obvious: The Innovation Alliance's Position on Proposed Patent Reform Legislation," March 2007.
- <sup>18</sup> Ames Wilding and Andy Bridle, "Statistics on EPO Oppositions," Euromoney Institutional Investor, March 2007.

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<sup>19</sup> "Ex Parte Reexamination Filing Data," December 31, 2006, and "Inter Partes Reexamination," December 31, 2006. Office of the Commissioner of Patents, USPTO. 2007.

<sup>20</sup> "Statistics," United States Court of Appeals for the Federal Circuit, 1997-FY 2006.

<sup>21</sup> "Small Entities and the 'First to Invent' Patent System: An Empirical Analysis," Gerald J. Mossinghoff, The Washington Legal Foundation, 2005.

<sup>22</sup> "Legal Certainty for Patent System Users," Presentation by the Intellectual Property Owners Association, Trilateral Offices and Users Conference, Tokyo Japan, November 16, 2006.

<sup>23</sup> Pat Choate, **Hot Property**, Alfred A. Knopf (2005).