

**“The Mystery of (Intellectual) Capital”
Prepared Statement of AmberWave Systems Corporation**

Before the

**Committee on Small Business
United States House of Representatives**

“The Importance of Patent Reform on Small Businesses”

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Chairwoman Valázquez, Ranking Member Chabot, and Members of the Committee, my name is Bryan Lord and I am Vice President for Finance and Licensing and General Counsel of AmberWave Systems Corporation. Thank you for the opportunity to appear before you to discuss the importance of patents to small businesses such as ours.

AmberWave is a small firm focused on research and development of advanced materials. Our company was founded in 1999 by Dr. Eugene Fitzgerald and Dr. Mayank Bulsara, both of the Massachusetts Institute of Technology. Banking only on an idea and the promise of patent protection, Drs. Fitzgerald and Bulsara were able to raise \$500,000 in start-up capital from a local venture capital firm, Adams Capital Management, and negotiated an exclusive license agreement for its technology from MIT. Eight years later, this classic university spin-out operates a 30,000 square foot, state of the art research facility in Salem, New Hampshire, just north of the Massachusetts-New Hampshire border, and has 23 employees, one-quarter of whom have PhDs and 80% of whom have technical degrees. AmberWave has assembled a portfolio of over 180 patents from MIT, AT&T Bell Laboratories (where Dr. Fitzgerald's previous research was conducted) and our own researchers. We have raised over \$91 million in venture capital funding from four venture capital firms, one strategic corporate investor, individual angel investors, and our own employees. AmberWave has expanded its research relationships to include Purdue University and is in current discussions with additional research organizations. We have licensed our technology to seven semiconductor manufacturers including Intel Corporation, Applied Materials, Agere Systems, Sumitomo Mitsubishi Corporation, Siltronic, among others.

AmberWave is a pioneer in the field of strained silicon technology and its founder, Dr. Fitzgerald, has been called the "Father of Strained Silicon." This technology helps semiconductor chips operate faster or with less power and has been described as one of the industry's most important new technologies because it allows semiconductor manufacturers to continue to meet the incessant "faster, better, cheaper" demands postulated by Moore's Law.¹ AmberWave's business model is to bridge the gap between basic university research and product commercialization. By utilizing a licensing business model, AmberWave avoids duplication of the already existing manufacturing infrastructure, and is instead able to facilitate relationships on both ends of the innovation stream, incorporating our own internal development work in a comprehensive suite of technology transfer to our customers. As AmberWave's CEO, Richard J. Faubert, likes to say, "AmberWave invests upstream in the river running between the headwaters of innovation and the delta of commercialization."

AmberWave is proud to be a founding member of the Innovation Alliance, an alliance of small, medium and large technology companies who believe in, and rely upon, a strong, pro-innovation patent regime to support and protect their research and development (R&D) programs. Of course, this testimony is mine and on behalf of AmberWave alone. However, a copy of the Innovation Alliance's position paper on patent reform is included with my testimony for your reference.

Before diving deep into patent policy, I would like to begin by citing some observations from a seminal and very insightful book, *The Mystery of Capital*, written by Peruvian economist Hernando de Soto. Hailed by both former Presidents Clinton and Bush for its contribution to ending poverty and economic stagnation, de Soto's research unravels the mystery of why capitalism triumphs in the West and fails in so many other places. Citing Adam Smith's *Wealth of Nations*, he asserts that assets become "active capital" only when those assets "become fixed and defined in a parallel and representative instrument that lasts in time beyond the labor which created it."² In short, the West's legal and financial system which recognizes, protects, and preserves deeded property ownership, provides a basis for investment in enforceable legal instruments, symbolic but real representations that are separate and distinct from the physical occupation of the real property they represent, enabling its full potential to

¹ Peters, Laura, "Options Narrow at 45 nm," *Semiconductor International*, January 1, 2006.

² de Soto, Hernando, *The Mystery of Capital: Why Capitalism Triumphs in the West and Fails Everywhere Else*, (New York: Basic Books, 2000), p. 42.

emerge. It is the reliably enforceable property deed and the rule of law that makes the right it represents enforceable which explains the West's success with capitalism. De Soto goes on to identify the six essential attributes of a real property system that support a dynamic economy:³

1. The value of real assets must be captured in proper property records;
2. The records must be integrated into one system;
3. People must be held accountable to respect titles, honor contracts, and obey the law;
4. The records permit fungibility, transferability, and creative reordering of various ownership interests in the assets;
5. The formal property system must create an infrastructure of connected devices that radically improves the flow of communications about assets and their potential; and
6. The property records must be continually tracked and protected as they travel through space and time.

Summarizing, de Soto states, "The substantial increase of capital in the West over the past two centuries is the consequence of gradually improving property systems, which allow economic agents to discover and realize the potential in their assets, and thus to be in a position to produce the non-inflationary money with which to finance and generate more production."⁴ With predictable, enforceable legal instruments—the deed and the mortgage—granting dependable title and opportunities to borrow against a piece of property, the West enjoys the benefits of a robust real estate market with an abundance of instruments, services, and specialists. This has brought relative stability to a potentially volatile marketplace and, even in the midst of current concerns over sub-prime lending, national home ownership is at near record levels and Americans own trillions of dollars in aggregate home equity. Today, much of the developing world, including China just this month, is referencing de Soto's blueprint to enhance real property ownership and ignite its own capital generating engine.⁵

America meanwhile is undergoing its own revolution. Replacing our prior revolutions of agriculture and industry, it is a revolution of information and ideas called "innovation." Its economic driver is not tangible, real property, but intangible, intellectual property. Its symbolic representation is not a deed, but a patent. And de Soto's insights continue to resonate with lawmakers charged with shaping policies that reflect and respect what we as a nation are doing right and what we can do better to encourage the continued viability of our nation's wealth generation engine. In fact, if one references de Soto's six criteria for a dynamic real property system, one can clearly recognize the shape of a familiar blueprint for a successful intellectual property system:

1. Inventions need to be captured, properly recorded, and protected in the form of patents;
2. The patent recording system should be integrated in one national system;
3. People must be held accountable to respect patents, honor contracts, and obey intellectual property law;
4. Patent rights should be able to be split up, combined and licensed in numerous creative and capital enhancing ways;

³ Ibid, pp. 49-67.

⁴ Ibid, pp. 64-65.

⁵ "China's Next Revolution," *The Economist*, March 8, 2007.

5. Innovators and inventors should use patents to create a whole infrastructure of connected ideas; and
6. Patent ownership and assignments should be continually tracked and recorded by the United States Patent and Trademark Office (USPTO).

These six criteria ably describe our nation's existing patent system. It should be of no surprise then, that just as de Soto hails the economic successes of capitalism in the West, so too the West has become a beacon of successful innovation in the post-industrial era. A recent study entitled "Global Innovation Index 2007" from the French business school INSEAD hailed the United States as the world's most innovative country, stating "The US leads the second most innovative nation by a [very large margin], putting it in a league of its own as far as global innovation is concerned."⁶ America's innovativeness, entrepreneurial spirit, venture capital and risk taking culture are often credited as the keys to this world stature.

But just as de Soto credits our real property system as an underlying source of our past economic success, so too should we credit our intellectual property system as an underlying foundation for our innovative success. And while some have said that patents don't themselves stimulate innovation⁷, they are only partially right. For just as a title to a piece of property doesn't itself create capital, it does create the instrument, separate and distinct from the physical occupation of the real property, which allows investments to be reliably made in the property, and that process, in turn, creates capital. Patents work the same way. They create an instrument, separate and distinct from the inventive technology, which allows investments to be reliably made, and that creates capital for more innovation. That is the underlying reason patents are fundamentally important to our innovation economy. For, like title to landowners, developers, and lenders, patents are the basis for the process in which universities, entrepreneurs, and venture capitalists reliably represent and invest in a piece of innovative technology.

As a result, lawmakers entrusted by our Constitution to shape our patent system must be careful to preserve two parallel virtues: At a macro-level, lawmakers must be very careful to heed de Soto's structural guidance and ensure that our patent system will maintain our nation's economic leadership as we move into this new age. Lawmakers must also, at the micro-level, heed the special protection that is so important to the individual inventor that our Founding Fathers specifically included authorization to grant exclusive rights to their discoveries in Article I of our Constitution. President Lincoln observed, "Any man might instantly use what another had invented; so that the inventor had no special advantage from his own invention. The patent system changed this; secured to the inventor, for a limited time, the exclusive use of his invention and thereby added the fuel of interest to the fire of genius, in the discovery and production of new and useful things."⁸ When we look to the knowledge economy and contemplate our economic future, we must strengthen, not weaken, America's intellectual property system because that system -- the inventions it protects and the innovation systems it stimulates -- that will be the key to our future economic success in the knowledge economy lying ahead.

Reforming (?) the Mystery of (Intellectual) Capital

Despite America's place in the world economy, some would have you believe that the innovation sky is

⁶ Dutta, Soumitra, INSEAD, and Caulkin, Simon, *World Business*, "The World's Top Innovators," *World Business*, January 17, 2007.

⁷ "Defending Innovation, An Interview with Cisco VP for Intellectual Property Discusses the Cisco Patent Strategy," July 8, 2003. Available at: http://newsroom.cisco.com/dlls/hd_070803.html

⁸ Allen, Joseph in "Swords Into Plowshares: How Tech Transfer (Unless We Mess It Up) Can Help Change the World," *les Nouvelles*, December 2006, p. 219.

falling and that patents are to blame.⁹ Apparently taking issue with de Soto and Lincoln, their argument both misstates the problem and misplaces the blame.

Misstated problem

First, as the aforementioned INSEAD study reported, America's place as an innovation leader is not presently at risk. However, as witnessed by the closure of industrial research stalwarts such as AT&T's Bell Laboratories and Xerox's PARC labs, the basic research that fuels innovation *is* in jeopardy at some of the nation's largest technology manufacturers. *The Economist* has recently observed, "The big corporate laboratories are either gone or the shadow of what they were. Companies tinker with today's products rather than pay researchers to think big thoughts."¹⁰ But, the fall of big corporate R&D is a largely self-inflicted wound. One Intel executive described this shift: "Rather than working on discovery of the next new thing, there is intensified concentration on incremental product adjustments. Our people have that tattooed on their tonsils," he emphasized.¹¹ What's more, an increasing number of large firms are moving components of their operations overseas, further exacerbating the decline in large company technology research in America.

But thanks to the vibrant network of the nation's research universities, risk capital from the nation's angel and venture investors, and the many small firms like AmberWave, the nation's pool of early stage research activity has not become stagnant. The Association of University Technology Managers (AUTM) reports that \$42 billion was spent on R&D in U.S. academic centers in 2005. This led to 4,932 new licenses, 527 new products, and 628 new spin-off companies introduced to the market in one year alone. Since 1980, over 5,000 spin-offs were created, including AmberWave. This activity is stimulated in large part due to the passage of The Bayh-Dole Act in 1980.¹² Until its passage, US patent issuance steadily declined for more than ten years, investment in research and development had been dormant, and small businesses were receiving a smaller percentage of federal R&D money.¹³ With its passage, the title for inventions funded with federal government research dollars became the property of the institution conducting the research. While the bill was controversial at the time (the Chairman of the Senate Finance Committee called the bill "the worse he had ever seen")¹⁴, *The Economist* in 2002 called Bayh-Dole "possibly the most inspired piece of legislation to be enacted in America over the past half century."¹⁵ It went on to say, "More than anything, this single policy measure helped to reverse American's precipitous slide into industrial irrelevance."¹⁶ For example, a 2003 report entitled, "Engines of Economic Growth", cited the eight research universities in the Boston metropolitan region as the key driver for the region's economy, providing stimulus and stability through the area's technology transfer oriented research cluster.¹⁷

General Georges Doriot, a man called the "First Venture Capitalist" and the co-founder of American Research and Development said, "The postwar prosperity of America depends in large measure on finding financial support for the comparatively small percentage of new ideas and developments which

⁹ See: Jaffe, Adam and Lerner, Josh, *Innovation and Its Discontents: How Our Broken Patent System is Endangering Innovation and Progress, and What to Do About It*, (Princeton: Princeton University Press, 2004) and Coalition for Patent Fairness <http://www.patentfairness.org/index.cfm>

¹⁰ "Out of the Dusty Labs," *The Economist*, March 1, 2007.

¹¹ *Ibid.*

¹² Bayh, Birch, "Bayh-Dole: Don't Turn Back the Clock," *les Nouvelles*, December 2006.

¹³ *Ibid.*, p. 215.

¹⁴ *Ibid.*, p. 215.

¹⁵ "Innovation's Golden Goose," *Technology Quarterly*, *The Economist*, December 2002.

¹⁶ *Ibid.*

¹⁷ Appleseed, "Engines of Economic Growth: The Economic Impact of Boston's Eight Research Universities on the Metropolitan Boston Area," 2003, available at http://www.masscolleges.org/index.php?option=com_content&task=view&id=37&Itemid=120

give promise of expanded production and employment, and an increased standard of living for the American people. We cannot float along indefinitely on the enterprise and vision of preceding generations. To be confident that we are in an expanding, instead of a static or frozen economy, we must have a reasonably high birthrate of new undertakings.”¹⁸ General Doriot prophetically outlined the role that venture investment plays in today’s innovation economy. Today, hundreds of venture capital funds provide capital for innovation, including some like ARCH Venture Partners (spawned from the Argonne National Laboratory/ University of Chicago Development Corporation) who focus specifically on transferring “science into sustainable enterprise.”¹⁹ ARCH has made over \$1 billion in investments in more than 100 technology companies, including AmberWave. In total, PricewaterhouseCoopers and the National Venture Capital Association report that venture capital funds invested over \$25 billion in 3,400 investments in 2006, a healthy 10% increase in deal volume and 12% increase in dollar value from 2005.²⁰ In addition, Center for Venture Research at the University of New Hampshire has reported that 51,000 entrepreneurial ventures received over \$25 billion in funding in 2006 from 234,000 smaller angel investors.²¹ Almost 90% of the 2 million jobs in the computer and peripherals industry alone come from venture capital backed companies²² and angel investments are credited for creating over 201,000 new jobs last year in the United States.²³ Harvard’s Josh Lerner also found that venture capital investment has a positive impact on not only innovation, but also higher quality patents and higher patenting rates.²⁴

As for small firms in general, a recent study by the Small Business Administration lauded the small firm’s place in the innovation economy. “Despite the corporate machines dedicated to patent generation in some large firms and the barriers faced by small firms in patenting, it seems quite likely that small firms and inventors who are self-employed or associated with small firms account for about 40% of U.S. corporate patenting. This is a substantial contribution to technical change in the U.S. on a par with the small firm share of the manufacturing economy. Some of this reflects a continuation of the Edisonian tradition of individual ingenuity, some will be biotech firms spun out of university research, and some will be innovative small firms of long-standing. A variety of small entities innovate, and they maintain the diversity in our country’s innovative capacity which is a source of economic strength over the long-term.”²⁵ The study went further. “Small firm innovation is twice as closely linked to scientific research as large firm innovation on average, and so substantially more high-tech or leading edge.”²⁶ Thus, while challenges undoubtedly exist for our nation to maintain its innovation leadership (see, e.g. the report from the Taskforce on the Future of American Innovation²⁷) the problem is not with our nation’s commitment to early stage research by the university, venture capital, small firm ecosystem, but with many big firms’ commitment to early stage research in America.

¹⁸ Gupta, Udayan, *The First Venture Capitalist*, (Calgary: Bayeux Arts, Inc., 2004), p 54.

¹⁹ Lazarus, Steve and Gupta. Udayan, *Mind Into Matter, How ARCH Transforms Science into Sustainable Enterprise*, (Calgary: Bayeux Arts, Inc., 2006). See also <http://www.archventure.com/archview.html>

²⁰ “Venture Capital Investing Hits \$25.5 Billion in 2006,” *American Venture Magazine*, January 23, 2007. Available at: <http://www.americanventuremagazine.com/news.php?newsid=2288>

²¹ “Angel Market Grows 10 Percent in 2006,” Center for Venture Research, Whittemore School of Business & Economics, University of New Hampshire, March 19, 2007. Available at: http://wsbe.unh.edu/Centers_CVR/2006pressrelease.cfm

²² “Venture Impact: The Economic Importance of Venture Backed Companies to the U.S. Economy”, Content First LLC and the National Venture Capital Association, 2007. Available at: http://www.nvca.org/pdf/NVCA_VC07.pdf

²³ “Venture Capital Investing Hits \$25.5 Billion in 2006,” *ibid* at note 20.

²⁴ Lerner, Josh and Samuel Kortum, “Assessing the Contribution of Venture Capital to Innovation,” *Rand Journal of Economics*, 31 (Winter 2000) pp. 674-692.

²⁵ CHI Research, Inc., “Small Serial Innovators: The Small Firm Contribution to Technical Change,” Prepared for the U.S. Small Business Administration, Office of Adequacy, February 27, 2003, p. 11

²⁶ *Ibid*, p. 3.

²⁷ Taskforce on the Future of American Innovation, “Measuring the Moment: Innovation, National Security, and Economic Competitiveness: Benchmarks of our Innovation Future II,” November 2006. Available at: http://futureofinnovation.org/PDF/BII-FINAL-HighRes-11-14-06_nocover.pdf

Misplaced Blame

Patents which enable innovation are not to blame for its decline. Proponents of the argument, that patents are the problem, demonize the USPTO for poor patent quality complaining that patent litigation is out of control. Simply stated, these arguments are not supported by the facts. Patent quality is actually on the rise. Recently, the Commissioner of the USPTO, Jon Dudas, said, “The number of patents approved has dropped from an historical high of 72 percent in 2000, declining to about 54 percent now. Contrary to conventional wisdom ... we're actually at a record low of approvals.”²⁸ Furthermore, the PTO's tracking of error rates is reported to be at or near a 20 year low. Notwithstanding this fact, many practitioners recognize that patent examination perfection is an impossible and inappropriate virtue. Professors Joseph F and Robert P. Merges observed, “Commentators have stated repeatedly that the optimal error rate at the USPTO is not zero, for at least two reasons. First, perfect screening would be immensely costly, so we might rationally tolerate a few bad patents. Second, mistakenly issued patents are not necessarily enforced; there are safety valves, notably litigation.”²⁹ The article goes on to examine the merits of various “safety valves”, and noted that some, including Professor Mark Lemley³⁰, have suggested that litigation itself may be society's most efficient way to deal with problematic patents.

In addition to dealing with patent validity, patent litigation is also necessary to enforce patent rights because patent rights are by their nature self-enforcing. Accordingly, the holder of the patent, rather than the government, has the burden to enforce the patent's rights and litigation is sometimes the only means. But despite litigation's inevitable role and its potential for abuse by holders and non-holders of patents alike, statistically, patent litigation is far from out of control. Patent litigation has generally increased in recent years along a trend line tracking the corresponding increase in patent issuances, but the number of lawsuits filed in 2005 (2,720) actually dropped by 10% from the number filed in 2004. Comparing to the 143,806 patents issued in 2005, the ratio of lawsuits filed per patent issued is only 1.8 per 100. Furthermore the success rate of plaintiffs (35%) dropped 5% from 2004 and the average damages award (\$5.3 million) dropped 83%(!) from the prior year.³¹ Some commentators suggest that we focus too much attention on patent litigation,³² and these statistics and circumstances hardly represent the scope of a problem that should drive calls for wholesale change to our patent system.

The Push for “Patent Reform”

Nevertheless, calls for Congress to do just that are feverously advanced. Some are advocating an urgent timetable despite the fact that the U.S. Supreme Court is contemporaneously examining a series of patent related cases, having heard eight in the past three years alone.³³ A recently released report from the Congressional Research Service said, “[T]he Court has shown, over the past three terms, an increased willingness to hear cases that raise patent law issues. The Supreme Court Justices' apparent new found interest in patent cases perhaps stems from a recognition of the growing importance of intellectual property to the nation's information-based economy, as well as a need to correct perceived errors in lower

²⁸ Cutler, Joyce, “PTO's Dudas Says It Is ‘Wrong’ to Call U.S. Patent System Broken,” *BNA Patent, Trademark & Copyright Law Daily*, March 1, 2007.

²⁹ Farrell, Joseph and Merges, Robert, “Incentives to Challenge and Defend Patents: Why Litigation Won't Reliably Fix Patent Office Errors and Why Administrative Patent Review Might Help,” *Berkeley Technology Law Journal* 19, Issue 3, Spring 2004.

³⁰ Citing Lemley, Mark A., “Rational Ignorance at the Patent Office,” 95 *Nw.U.L.Rev.*, 1495, 1497 (2001).

³¹ PricewaterhouseCoopers LLP, “2007 Patent and Trademark Damages Study.” Available at: <http://www.pwc.com/extweb/pwcpublishations.nsf/docid/cb9df7557a7e45088525729500564c55>

³² Lemley, Mark A., “Re-conceiving Patents in the Age of Venture Capital,” 4 *J. Small & Emerging Bus. L.* 137, 145 (2000).

³³ For a summary of recent cases, see: Yeh, Brian, “CRS Report for Congress: An Overview of Recent U.S. Supreme Court Jurisprudence in Patent Law,” Congressional Research Service, March 16, 2007.

courts' interpretation and application of patent law.”³⁴ With the Supreme Court in action at such an unprecedented level, one would question the need and ability of our democratic process to achieve appropriate and comprehensive reform while critical components are under such active judicial review and revision.

Others are advancing an agenda in the name of international “harmonization”³⁵, suggesting that the United States needs to fall into alignment with rest of the world’s intellectual property laws. The U.S. is the world’s most innovative economy and therefore generates many patents. It is also the center of the world’s creative economy and thus generates many copyright protected works. Does it make sense to internationally harmonize copyright law? Of course not. America’s creative content community would strongly object, and wisely so. Why then would the world’s strongest innovation system rush to harmonize its patent laws with those of less innovative nations? Former Federal Reserve Chairman Alan Greenspan would seem to agree. At a speech at Stanford University in 2004, he said, “Rationalizing the differences between intellectual property rights as defined and enforced in the United States and those of our trading partners has emerged as a seminal issue in our trade negotiations.”³⁶ Distinguishing negotiation from harmonization, it would seem then that that calls from industry for international harmonization are more likely convenient justifications for policy changes consistent with their other objectives.

Most aggressively, a coalition of the nation’s largest technology companies is calling for reform to the United States’ intellectual property laws to address the “nature of abusive patent litigation.” Self-coined the “Coalition for Patent Fairness” (the “CPF”), this group is calling for the most ambitious reform to the nation’s patent system since 1952—often in the name of killing “patent trolls”—abuse litigants who hold patents and do little else but extract nuisance value out of settlements. In a white paper supporting S.3818, the Patent Reform Act of 2006, the CPF cites a series of anecdotes about abusive litigation tactics taken by patent holders, and then proceeds to argue that an “innovation tax” is levied on American innovation, diverting fees from research and development, deterring innovation, and hurting the economy.³⁷ While no one will argue that litigation abuse is justified for any party, the logic of their arguments is flawed.

The CPF cites an historic increase in patent issuances as prima facie evidence of bad patents being issued. As previously mentioned, the USPTO’s error rate is (perhaps appropriately) not perfect. However, it is possible, even probable, that increases in patent issuance actually result from our nation’s collective rise in inventiveness. Indeed, many CPF member companies hold our nation’s largest patent portfolios, and companies often use the size of their portfolios as demonstration of their own inventiveness. It is inconsistent to apply the opposite logic to our national patent portfolio. Second, the CPF cites a long-term trend of increasing litigation as prima facie evidence of “abusive” litigation. Yet, it is equally possible that a long-term increase in patent litigation would logically result from such a long-term increase in patent issuances. Our nation has also seen a dramatic spike of late in copyright infringement litigation action. Most recognize that this spike is due to enforcement actions by the Recording Industry Association to curtail copyright infringement from illegal file sharing and music downloads. So, isn’t it similarly possible that an increasing trend line in patent litigation could also be due to an increase in patent infringement? Interestingly, while many in our nation have generally

³⁴ Ibid, summary page.

³⁵ See e.g., written Testimony of Marshall C. Phelps, Jr., Corporate Vice President and Deputy General Counsel for Intellectual Property, Microsoft Corporation, “Patent Harmonization and Other Issues,” Before the Subcommittee on Intellectual Property, Committee on the Judiciary, United States Senate, July 26, 2005. Available at: <http://www.microsoft.com/presspass/exec/mphelps/07-26-05PatentTestimony.msp>

³⁶ Greenspan, Alan, “Intellectual Property Rights,” Remarks at Stanford Institute for Economic Policy Research Economic Summit, Stanford, CA, February 27, 2004.

³⁷ Coalition for Patent Fairness, “The Case for Reform.” Available at: http://www.patentfairness.org/CPF_White%20paper%20v3.pdf

accepted the argument that copyright infringement is wrong and ought to be curtailed, the potential scope of patent infringement so far seems to be far removed from the patent reform dialogue. Movies and music may attract more of the public's attention, but no one would assert that maintaining national superiority in creative content is more strategically important than protecting our world technology leadership.

Looking a little deeper, the CPF argument appears instead to suffer from several classic errors in logic. First, in confusing observation with causation, evidence suggests that that while the decrease in large firm R&D coincided with an aggregate increase of patenting, the actual *cause* of large firm R&D decline is likely not patent litigation, but a self imposed change in priorities. Viewed objectively, the recent increase in patenting was likely caused by a slew of separate factors including: an accelerating understanding of science and technology, software patentability, expanding university tech-transfer activity incentivized by Bayh-Dole, improved innovation tools and equipment, more efficient communication and collaboration partnerships, and more small firms and university spin-outs entering the technology marketplace. Even worse, the CPF argument may have the causative effects reversed. While the CPF argues that an increase in patent issuances and litigation may have caused a decrease in large company R&D spending, it is equally plausible that the causality is the other way around. A decrease in R&D spending by large firms may have caused an increase in patent issuances (to universities and small firms who fill the void, for example) which may have resulted in an increase in patent infringement by the very large firms who claim the exact opposite effect.

As if that is not bad enough, the CPF argument is also problematic in its scope. The CPF argument cites instances of extraordinary (but largely isolated) damage awards, anecdotal instances of assertion campaigns by aggressive patent holders, and increases in the cost of litigation actions, but it conspicuously avoids placing any perspective on the scope of the problem. In fact, companies who are members of the CPF recorded over \$820 billion in revenue in 2006 and possess an aggregate market capitalization of over \$1.2 trillion. Meanwhile, by multiplying the annual number of total lawsuits filed (2,720) by the average rate of cases where infringement is found (35%) by the average judgment (\$5.3 million) (each as cited in the PricewaterhouseCoopers litigation survey³⁸), one may see, as a rough estimate, that the aggregate of all intellectual property infringement judgments is just over \$5 billion annually. Even if one assumes that 100% of all IP infringement judgments were levied against the 50 or so members of the CPF (a gross over-generalization to be sure), we are still talking about IP litigation judgments amounting to a mere six-tenths of one percent of their annual sales. And while \$5 billion is more than pocket change by anyone's counting, as a percentage of sales, six-tenths of one percent is far closer to a rounding error than a punitive "tax on innovation"!

We respect the CPF members, for they make up some of the nation's largest and best technology manufacturing companies -- some of whom are our customers. But we have a fundamental disagreement on this issue. Although small companies like us cannot match the resources of the CPF to pay for expensive economic research to investigate and measure factors of correlation and causation in the innovation economy, through an objective analysis of the facts and basic reason, we can identify what seem to be obvious logical flaws and suspect reasoning. We can ask Congress for a closer, more careful examination before we rush to make wholesale changes to our patent laws on the basis of one group's theories. Significantly, it would seem that those advocating wholesale change to our system, not the rest of the patent community, must bear the burden of proof. In its most recent 2007 Report to Congress, the Congressional Research Service suggested that this burden has been far from met (and may even be impossible without far more study): "When analyzing the validity of these competing views, it is important to note the lack of rigorous analytical methods available for studying the effect of the patent law upon the U.S. economy as a whole. The relationship between innovation and patent rights remains poorly understood. As a result, current economic and policy tools do not allow us to calibrate the patent

³⁸ Ibid at note 31.

system precisely in order to produce an optimal level of investment in innovation. Thus, each of the arguments for and against the patent system remains open to challenge by those who are unpersuaded by their internal logic.”³⁹

The Proposals for “Patent Reform”

Nevertheless, the CPF supports a number of proposed changes to the nation’s patent laws necessary to “level the playing field.” Putting aside the irony of this appeal from a coalition of Goliath-sized firms, the advocated changes would indeed change the rules of the game. Here is a sampling:

1. Changing the award of a patent from the first party to invent to the first party to file and pay for a patent application (“First-to-File”);
2. Permitting third-parties to participate in the examination of a pending patent application by submitting prior art it deems relevant to a patent examiner (“3rd Party Examination”).
3. Establishment of an open-ended, parallel tracked, administrative procedure in which a accused infringer may seek to declare a previously issued patent invalid (“Post-Grant Review”);
4. Repeal of the statute (271(f)) which prohibits offshore manufacture of infringing products as means to circumvent U.S. intellectual property law (“271(f)”);
5. Significant narrowing the judicial venues (especially fast-track jurisdictions) to which patent holders may seek relief (“Venue”);
6. Modification to the method for calculating damages for patent infringement such that a rigid formula assessing relative quantity or proportion of contribution is used rather than an assessment of market or relative value of the infringed technology’s contribution to an infringing product (“Apportionment”);
7. Significant narrowing of the circumstances in which a convicted infringer is liable for punitive damages (“Willfulness”).

In sum, these proposed changes would have the net effect of making patents:

- Harder and more expensive to get (First-to-File, 3rd Party Exam, Post-Grant Review);
- Less certain and harder to rely upon after issuance (Post-Grant Review);
- Harder and more expensive to enforce (Venue);
- Easier to circumvent (271(f)); and
- Less costly to infringe (Apportionment and Willfulness).

As would be expected, the seven proposals all benefit the large, well resourced, integrated technology manufacturing firm which comprises most of the CPF membership.

Curtailing the Mystery of (Intellectual) Capital

The Impact of Patent Reform on Innovation

³⁹ Schacht, Wendy and Thomas, John, “CRS Report for Congress—Patent Reform: Innovation Issues,” Congressional Research Service, October 16, 2006.

Examining the net effect of the patent reform proposals in light of the six-factor de Soto blueprint, one can logically project a dramatically negative impact by these proposals on our nation's intellectual property regime:

1. Inventions are captured, properly recorded, and protected in the form of patents.
 - First-to-File, 3rd Party Exam, Post-Grant Review would make patents harder and more expensive to get.
 - Post-Grant Review would make patents less certain and more difficult to rely upon after issuance.
2. The patent recording system is integrated in one national system.
 - Harmonization seeks alignment with one international system, but without any integration or coordinated planning.
3. People are held accountable to respect patents, honor contracts, and obey intellectual property law.
 - Venue makes patents harder and more expensive to enforce.
 - 271(f) makes patents easier to circumvent.
 - Apportionment and Willfulness makes patents less costly to infringe.
4. Patent rights can be split up, combined and licensed in numerous creative and capital enhancing ways.
 - With less certainty due to Post-Grant Review, patents are more difficult to split up, combine and license.
5. Innovators and inventors use patents to create a whole infrastructure of connected ideas.
 - With less certainty due to Post-Grant Review, patents are less able to use patents to connect and exchange ideas.
6. Patent ownership and assignments are continually tracked and recorded by the United States Patent and Trademark Office.
 - Harmonization seeks alignment with one international system, but without any integration or coordinated planning.

Every factor in the de Soto framework is negatively affected by the patent reform proposals. Were similarly dramatic proposals made in the real property market, one would expect economists like de Soto to loudly question the timing and justification of such an effort. And for a system that has delivered our nation to its place as the world's innovation leader, can Congress similarly justify the risk required to make these wholesale changes to our patent system?

The Impact of Patent Reform on Small Firms

In addition to the negative impact patent reform would have on innovation in general, certain of the proposed changes would have an especially disproportionate adverse impact on small firms whose welfare is entrusted to the care of this Committee:

1. First-to-File: Particularly for universities, independent inventors and the companies they form, the "race to the courthouse" advantages the well resourced over the "true" inventor. It will limit the free exchange of ideas within academia, force instead a culture of fear and a clutching of notebooks to one's chest for fear that an invention will be chased to the patent office, and limit the opportunities for entrepreneurs to explore new ideas with university professors in open and creative ways.

2. Post-Grant Review. By adopting a parallel procedure in which a defendant may challenge the validity of an issued patent at any time, a small firm will be severely hampered in its ability to make business plans based upon the validity of a patent. Furthermore, angel and venture capital investors will be forced to entertain an entirely new risk in making an investment decision, reducing the amount of risk capital available for small firms, and further exacerbate the flight of capital to other private equity investment classes.
3. Apportionment. By adopting a rigid formula that calculates contribution of an invention to an end product based upon the relative *quantity* of contribution rather than the relative *quality* of contribution, apportionment eliminates any regard for the possibility that a small firm's technical contribution may be rewarded for a disproportionate contribution to the aggregate value of an end product.

Each of these three reforms would have severely impacted AmberWave had the legislation as proposed been the law at the time of AmberWave's founding. With a first-to-file regime, the patents that AmberWave licensed from MIT may not have been awarded to MIT, but to some other entity that beat MIT to the courthouse for the rights to its invention.

Regarding a Post-Grant Review regime, commentators suggest that such a system would have a highly detrimental effect on patent pendency (time to issuance) and be extremely expensive to undertake⁴⁰. Both effects would be crippling to an infant firm -- short on both time and money. Worse, however, under some Post-Grant Review proposals, a patent owner will never hold "clear and quiet title" to a patent right because a proposed infringer would be able to challenge the validity of the patent at any time after being accused of infringement.⁴¹ In an essay entitled "Intellectual Property – The Basis for Venture Capital Investment, Mario Cardullo of the U.S. International Trade Commission said, "One of the most important issues evaluated by venture capitalists is the security of intellectual property. Normally, a strong patent position is desired and the issues of ownership of intellectual property need to be well understood, particularly where the inventor is doing the research at a university or other research institution. The venture capitalist must also consider all the potential costs associated with patents and their protection."⁴² Fred Wainwright of Dartmouth's Center for Private Equity and Entrepreneurship advised investors, "One thing is certain about any business plan: it will be wrong. Projections and teams will change. Competitors will surge forward and fade."⁴³ But he continued, "Patents or licensing agreements are important, as the company must be able to create a strategically defensible position." Venture capital investing is risky enough. But, not unlike mortgage lenders faced with investing in an unclear property title, without certainty in the patent "title," AmberWave's venture capital investors may never have taken their own investment risk.

With Apportionment, AmberWave's contribution to the semiconductor industry would be valued at a fraction of the actual contribution made by our technology. This is because strained silicon is a relatively low-cost technology when compared to the complexity of modifying the rest of the semiconductor chip, however it delivers significant performance enhancement to the chip itself. Low cost is hardly a disadvantage; it is one of its key selling points. In fact, some of the most significant inventions

⁴⁰ Frank, Stephen J., "Patent Reform Cacophony," *IEEE Spectrum*, December 2005. Available at: <http://spectrum.ieee.org/dec05/2349>

⁴¹ Frank, Stephen J., "Reinventing Invention: Will Patent Reform Stifle Innovation?," *The Journal of New England Technology*, September 19-25, 2005. Available at: www.goodwinprocter.com/getfile.aspx?filepath=/Files/publications/frank_s_09_05.pdf

⁴² Cardullo, Mario, "Intellectual Property—The Basis for Venture Capital Investment." Available at: http://www.wipo.int/sme/en/documents/venture_capital_investments.htm

⁴³ Wainwright, Fred, "Riding on Angel's Wings," *The Financial Times*, August 15, 2003. Available at: http://mba.tuck.dartmouth.edu/pecenter/research/article_angel.html

are inventive precisely because of their simplicity or low cost (consider Edison's filament, for example). And, some of the smallest inventions are important precisely because of their importance to a large, complicated system (consider O-rings and the space shuttle, for example). This is why, when computing a reasonable royalty to award an aggrieved patent holder from a convicted infringer, it is currently settled law that as many as fifteen factors⁴⁴ are considered. Apportionment—comparing solely the relative size or quantity of the infringed and patented technology's contribution to the whole end product—is only one of the fifteen Georgia-Pacific factors a jury is instructed to consider in awarding a reasonable royalty⁴⁵.

The proposed changes would codify the single apportionment factor as the law of the land, which would significantly devalue the contribution of technologies such as AmberWave's for one of the very reasons that they are so valuable. The proposed changes would ignore the other fourteen factors that the courts have been using to value patents, each of which have and should be relevant for a judge or jury. Further compounding matters, in the 2006 research paper generally used in support of this argument, Professors Lemley and Shapiro discuss the nature of this issue in patent reform debates.⁴⁶ Despite an extensively researched paper, the researchers fail to cite a single actual instance where the Georgia-Pacific fifteen factors have resulted in a miscarriage of justice. Instead, they invent a hypothetical example of a patent for an intermittent windshield wiper, and cite it as support for why damages should not be apportioned on the basis of the value of the car. Of course, when left to invent egregious circumstances, one can find plenty of support for one's argument. But, while memorable, when compared to real-life impact that apportionment would have on appropriately valuing real-world technologies such as AmberWave's strained silicon, the hypothetical argument against apportionment is unpersuasive.

In short, patent reform's proposed changes may well serve to eradicate the vaunted "patent troll", but they would also have crippled the legitimate and future-looking AmberWave business model in its cradle and, if passed, will dramatically alter the opportunities for future AmberWaves for the worse. With increased risk and uncertainty imposed, university technology transfer will constrict, entrepreneurship will slow, and venture capital investment will be encouraged to look elsewhere for lower risk investment opportunities. This will be the true source of "innovative discontent." And while America's inventive spirit will persevere, if a marketplace for innovation is to continue, new market experts and alternative sources of risk capital will be required to assess and accommodate the increase patent risk, adding cost and complexity to the already challenged headwaters of innovation.

The Real Purpose of Patent Reform

Why then is "big tech", who professes to be interested in strong protection for intellectual property, pursuing this agenda? Why argue for a legislative effort that they say targets litigation reform and "patent trolls" but harms all patent holders? My belief is that there are at least three possible reasons.

First, large firms and small firms use patents differently. In an essay entitled "How to Keep Others From Ripping Off Your Ideas," Professor Sid Winter is described contrasting the use of patents for new industries to that of incumbent firms. "[P]atents can be effective for inventions related to the early development of new technology-based industries...[b]ut big corporations accumulate large portfolios of patents and then use them as bargaining chips. By accumulating these patents, big companies are essentially buying a kind of technological protection, making sure they have something to take to the

⁴⁴ Georgia-Pacific Corp. v. United States Plywood Corp, 318 F. Supp 1120 (S.D.N.Y 1970).

⁴⁵ See, e.g., Pincus, Laura, "The Computation of Damages in Patent Infringement Actions," *Harvard Journal of Law & Technology*, Vol. 5, Fall Issue, 1991.

⁴⁶ Lemley, Mark A. and Shapiro, Carl, "Patent Holdup and Royalty Stacking" (July 12, 2006). Stanford Law and Economics Olin Working Paper No. 324 Available at SSRN: <http://ssrn.com/abstract=923468>

table if somebody challenges them.”⁴⁷ Thus, one can see that the relative strength or weakness of a single patent is of extremely high importance to a small firm – similar to an individual landowner’s homestead. But in contrast to a large firm, the relative strength or weakness of a single patent is of far lesser concern – similar to a real estate investment fund manager’s relative concern for the value of a single holding in his or her portfolio. Therefore, large firms have, by now, accumulated strength in numbers, and a measured weakening in an individual patent’s protection will have little aggregate impact on the general purpose of a large firm’s patent portfolio. Small firms, by contrast, rely on a small number of very specific patents that each specifically protects the essential components of the small firm’s technology offering. A diminishment in the strength of these patents has an extraordinary and disproportionate impact on a small firm patent owner.

Second, large firms by definition enjoy an advantage of scope and scale in the marketplace. While the prior analysis estimated the CPF’s “benefit” is mitigation of a “one-sixth of one percent innovation tax,” this hardly seems worth their aggregate effort. Instead, some have suggested that the proposed patent changes would actually result in a net increase in litigation and litigation related expenses. For instance, because apportionment would require juries to ignore market-based factors, it would encourage infringers to pursue litigation rather than agree to the patent holder’s standard licensing terms because a jury would be instructed in a manner that would award a below-market royalty. In addition, apportionment would necessitate additional expert testimony, also increasing the cost of litigation. Post-Grant Review contemplates an adversarial, quasi-judicial process with many of the features and costs of court-based litigation. This would impose a third, expensive layer of administrative invalidity litigation on top of the existing administrative reexamination procedures (which are much narrower in scope) and already expensive court-based litigation. In fact, one might be led to believe that the entire purpose behind certain patent “reform” proposal is actually to drive up the cost of intellectual property ownership. In questioning the wisdom of assuming litigation ensures a fair outcome, Professor Merges said “The facts strongly indicate that, by spending more, a party can increase its chance of winning. If the plaintiff’s chance of winning did not depend on its expenditures, plaintiffs would not spend so much and the same is true for defendants. Litigation provides many opportunities to spend more in ways that increase one’s chance of winning, and the higher the stakes, the more of those spending opportunities will be worthwhile.”⁴⁸ When one recognizes that the CPF membership holds over \$215 billion in cash in their collective treasuries, adding \$145 billion in operating cash flow each year, the proportionate benefits to the well-resourced would be well understood.

Furthermore, large firms are most often multinational firms, and therefore, repeal of Section 271(f) is of particular benefit to their multinational business models. According to an article written by Bruce Lehman, the former Commissioner of the USPTO, “Section 271(f) was enacted specifically to close a gap in the existing patent law identified by the Supreme Court in *Deepsouth Packing Co. v. The Laitram Corp.* (1972). In *Deepsouth*, the Court held that §271(a)’s proscription against the unauthorized making of a patented invention within the United States did not extend to the export of the constituent parts for assembly abroad. . . . The Court declined to broaden the interpretation of the patent statute. According to the legislative history, §271(f) was then enacted [by Congress] as part of the Patent Law Amendments of 1984 to “prevent copiers from avoiding U.S. patents by supplying components of a patented product in this country so that the assembly of the components may be completed abroad.”⁴⁹ Lehman wrote that Rep. Robert Kastenmeier (D-Wis.), who chaired the House Judiciary Committee’s intellectual property panel, said in October 1984 that “the bill provides that a product’s patent cannot be avoided through the manufacture of component parts within the United States for assembly outside the

⁴⁷ “How to Keep Others From Ripping Off Your Ideas,” *Knowledge@Wharton*, August 30, 2000. Available at: <http://knowledge.wharton.upenn.edu/createpdf.cfm?articleid=240>

⁴⁸ *Ibid* at note 29.

⁴⁹ Lehman, Bruce, et al., “Overseas Stretch,” *Legal Times*, July 11, 2005, pp. 2-3. Available at: <http://www.akingump.com/docs/publication/772.pdf>

United States.”⁵⁰ The offshoring of U.S. manufacturing is a well documented trend. Just this week, Intel reported that it is making plans to open a \$2.5 billion semiconductor fabrication facility in Dalian, China.⁵¹ While the CPF claims that 271(f) repeal is designed to slow the trend towards offshoring, common sense and legislative history suggests just the opposite may be the case. And, when one considers the critical importance that American technology leadership (and, in particular, state-of-the-art microprocessors) hold to our national security, one suggests that a far closer review of 271(f) repeal is warranted.⁵²

Finally, large firms are also, by definition, incumbents in the marketplace. Called by Peter Drucker “one of the two greatest economists of this century,”⁵³ Joseph Schumpeter in 1942 described the essential feature of capitalism as a “perennial gale of creative destruction.” Dr. David J. Bryce, Assistant Professor of Organizational Leadership and Strategy at Brigham Young University, described Schumpeter’s view: “Economic progress delivers the rising standard of living enjoyed by the US and much of the world. New goods and services, new technologies, new methods of production, and new forms of organization are repeatedly introduced and adopted, leading to a continual refreshing and upgrading of the status quo. Creative destruction is the norm of well-functioning capitalist society, not the exception. It revolutionizes the economic structure from within, incessantly destroying the old one, incessantly creating a new one.”⁵⁴

In the innovation economy, even the smallest firms have the capacity to be disruptive. That is because, as Michael Porter explained, “Close linkages with buyers, suppliers, and other institutions contribute importantly not only to the efficiency but to the rate of improvement and innovation. While extensive vertical integration (for example, in-house productions of parts, services or training) may have once been the norm, a more dynamic environment can render vertical integration inefficient, ineffective and inflexible.”⁵⁵ Therefore, by leveraging the twin powers of information technology and intellectual property, small firms today can establish close linkages with buyers, supplier and other institutions in what Harvard Business School Professor Clayton Christiansen called a “value network.”⁵⁶ They can collaborate with other specialty firms and service providers, they can access capital from a variety of angel and venture capital sources, they can access new research from universities, they can reach their suppliers and customers more directly, and they can communicate, translate and exchange ideas among them all -- with confidence that their ideas retain their value and can be transferred and protected by strong patents.⁵⁷ They can do so more effectively than large firms, and it is through this advantage that small, disruptive firms can unseat incumbents. These linkages rely upon strong patents and strong patent enforcement.

These robust networks create powerful regional clusters that drive employment and economic growth in local economies—the Silicon Valley and New England⁵⁸ regions being most notable. And these networked growth engines are the aspiration of countless of regional economic development agencies,

⁵⁰ Ibid, p. 3.

⁵¹ Dean, Jason, “China Clears Intel Chip Plant, Marking a Potential Milestone,” *The Wall Street Journal*, March 14, 2007, p. A4. Available at:

http://online.wsj.com/article/SB117377461012135302.html?mod=technology_main_whats_news

⁵² “Report of the Defense Science Board Task Force,” Office of the Under Secretary of Defense For Acquisition, Technology, and Logistics, February 2005

⁵³ Drucker, Peter, “Modern Prophets: Schumpeter and Keynes?” Available at:

http://www.peterdrucker.at/en/texts/p_drucker_proph_en.pdf

⁵⁴ Bryce, David J., “The Role of IP Protection in Economic Progress”, 2007 (unpublished paper)

⁵⁵ Porter, Michael, “Clusters and Competition”, *On Competition*, (Boston: Harvard Business School Publishing, 1998)

⁵⁶ Christiansen, Clayton, *The Innovator’s Dilemma*, (New York, HarperBusiness, 2000)

⁵⁷ See, e.g., Kieff, F. Scott, “Coordination, Property, and Intellectual Property: An Unconventional Approach to Anticompetitive Effects and Downstream Access,” 56 *Emory L.J.* 327 2006.

⁵⁸ Ibid at note 14.

technology development centers, and municipalities.⁵⁹ A next-door example of the importance of this effort to our New Hampshire neighbor, the Dartmouth Regional Technology Center in Lebanon, New Hampshire is attached to my testimony.

But Professor F. Scott Kieff, in his article on intellectual property coordination also warned, “[Just as] stronger [patent] enforcement can facilitate the good type of coordination that increases competition and access, such as coordination among entrepreneurs, inventors, and venture capitalists to facilitate commercialization of new ideas. [P]aradoxically, the reforms urged by IP critics can end up facilitating the different, bad type of coordination that decreases competition and access. This bad effect is the coordination among large, established businesses to keep out competitors.”⁶⁰

Sixty years ago, Schumpeter articulated a similar concern. He said that if market-based incumbents become big and powerful enough, they would be motivated to clog the flow of threatening change that might end of their incumbency. “By wielding power first in the market, and then in the halls of Congress, powerful firms would strike at the institutional structures that stood in the way of further extension of their power.”⁶¹ Patents are precisely the institutional structure that stands in the way of big firm power. “By seeking to sustain their own survival in this way, those few firms would, Schumpeter argued, undermine the whole of the capitalist system. In the end, if such dynamics were allowed to persist, capitalism would fail and be replaced by a kind of socialism in its wake.”⁶²

And, in eerily similar fashion, Hernando de Soto concluded his chapter on the mystery of capital on a similarly dour note. He laments the fact that despite the wonderful successes brought by the real property system, Western society risks losing its blueprint for prosperity. He observes, “Once the vast machine of capitalism was firmly in place and its masters were busy creating wealth, the question of how it all came into being lost its urgency. Like people living in the rich and fertile delta of a long river, the advocates of capitalism had no pressing need to explore upstream for the source of their prosperity....everyone forgot that the reason for the delta’s rich life lay far upriver, in its unexplored headwaters. Widely accessible legal property systems are the silt from upriver that permits modern capital to flourish.”⁶³

Whether by the strategic design of incumbents or a failing institutional memory, Kieff, Schumpeter and de Soto each raise a discomfiting prophecy for us all.

Preserving the Mystery of (Intellectual) Capital

Last April, Gerald F. Masoudi⁶⁴ of the Dept. of Justice’s Antitrust Division, made a compelling presentation in which he too identified innovation and our nation’s “dynamic efficiency” as the key engines of our economic growth. He dismissed the utility of “static efficiency” in which companies’ innovative efforts are concentrated on incremental adjustment to existing products in favor of “dynamic efficiency, a growth driver that refers to technology gains that result from entirely new ways of doing business.”⁶⁵ Expressly referencing the teaching of Schumpeter, Masoudi credited creative destruction as “competition from the new commodity, the new technology, the new source of supply, the new

⁵⁹ See, e.g., Marceau, Jean, “Why Can’t We All Have a Silicon Valley”, Australian Review of Public Affairs, December 15, 2005. Available at: <http://www.australianreview.net/digest/2005/12/marceau.html>

⁶⁰ Kieff at p. 329.

⁶¹ Bryce at p. 2.

⁶² Ibid.

⁶³ de Soto at p. 67

⁶⁴ G. Masoudi, “Intellectual Property and Competition: Four Principles for Encouraging Innovation,” Digital Americas 2006 Meeting, Intellectual Property and Innovation in the Digital World, Sao Paulo, Brazil, April 11, 2006. Available at <http://www.usdoj.gov/atr/public/speeches/215645.htm>

⁶⁵ Masoudi, p. 14

organization . . . which commands a decisive cost or quality advantage and which strikes not at the margins of the profits and the outputs of the existing firms but at their foundations and their very lives.”⁶⁶ Instead of bowing to the wishes of the incumbents, these new commodities, new technologies, new sources of supply, and new organizations ought to be precisely the focus our nation’s intellectual property law. Mr. Masoudi concluded by describing the essential elements of pro-growth, intellectual property competition:

1. Predictable, enforceable property rights; and
2. Participation in the innovation process through licensing and collaboration as a means to maximize confidence and creativity.

Mr. Masoudi’s points clearly echo the guidance of de Soto and Schumpeter, and they guide my appeal for your support of an intellectual property regime with the following features:

- A system that supports the USPTO and keeps America’s patent law largely in tact;
- A system that focuses on increasing patent quality, certainty, and efficiency;
- A system that encourages respect for patents and discourages patent infringement;
- A system that rewards invention, not incumbency;
- A system that protects our technology future, not our past.

In particular, I ask your support for the following:

- Continued full funding and a permanent end to fee diversion at the USPTO;
- Support for reforms and programs at the PTO that continue to increase patent quality, examiner experience and examiner retention;
- A close look at international economic and national security implications which would result from revisions to Section 271(f);
- General restraint in the face of calls for wholesale patent reform measures;
- Opposition to First to File, Post-Grant Review, and Apportionment provisions.

With this, you would preserve de Soto’s blueprint for prosperity for our nation’s future through the mystery of capital and property rights. You would assist in preserving an intellectual property regime that addresses the needs of small firms and the ecosystem in which universities, angel and venture capitalists, and small firms operate. These constituents, and this ecosystem, are those who need the strong protection of patents the most.

And even more importantly, you would help preserve the dynamic efficiency of our nation. In “The Competitive Advantage of Nations”, Michael Porter said, “A nation’s competitiveness depends on the capacity of its industry to innovate and upgrade. Government’s proper role is as a catalyst and challenger; it is to encourage – or even push – companies to raise their aspirations and move to higher levels of competitive performance, even though this process may be inherently unpleasant and

⁶⁶ J. Schumpeter, *Capitalism, Socialism and Democracy*, 84 (1942), cited in Masoudi, p. 14

difficult...Policies that convey static, short-term cost advantages but that unconsciously undermine innovation and dynamism represent the most common and most profound error in government industrial policy.⁶⁷

I ask your help in making sure our nation's interests in innovation and the economic dynamism that comes from small firms and strong patent protection are preserved.

Thank you for your time and the invitation to participate with you today. I look forward to working with the Committee in any way that I can be helpful.

⁶⁷ Porter, Michael, "The Competitive Advantage of Nations", *On Competition*, (Boston: Harvard Business School Publishing, 1998)

March 2007

An Innovation Alliance* White Paper

Everyone involved in patent reform acknowledges the strategic importance of the nation's innovation ecosystem and the vital role played by our constitutionally created and congressionally codified patent system. Everyone favors constructive reform, and no member of the patent community wants to harm U.S. innovation's critical dynamic. But differences abound among the various sectors in the U.S. patent community over the best way to ensure the system's continued contribution to U.S. economic leadership. Even within the IT sector, there are deep divisions concerning the right formula for successful reform. Vertically integrated manufacturers and distributors of IT products and services are pushing patent reforms designed to lessen the risk and impact of infringement litigation. In contrast, smaller firms and other IT specialists fear that measures of this type would diminish the enforceability and value of all patents and disproportionately disadvantage patent holders that license their innovations for subsequent downstream utilization.

The innovation ecosystem is inhabited by many different operating models, each of which is designed to maximize efficient economic performance and all of which are critical to the innovation value chain. As Congress considers major structural changes to our patent system, it is important to keep in mind that tomorrow's innovation is at stake. Our innovative ecosystem will continue to yield new and improved technologies only if its many and varied components are allowed to operate economically. Those who choose or are required to license their inventive efforts are no less important than those who manufacture and sell their products to the public. Collectively, they all play a collaborative part in our nation's innovation, and none of them should be sacrificed.

* * *

Introduction: Certain Patent Reform Proposals Would Undermine American Innovation

The Innovation Alliance supports patent reforms that would improve patent quality without diminishing patent rights and the strength of the U.S. patent system. Our country's history is replete with examples of technological pioneers that cultivated and developed new ideas and worked hard to become global market leaders. The future growth of our economy will rely upon that same drive and inspiration in the many small businesses and independent inventors that comprise much of today's innovative economy. What unites us all is a passion for new ideas and confidence that we will ultimately reap the rewards of our investments in innovation.

Economic growth depends upon the continued strength and reliability of the U.S. patent system, which has recognized and protected the rights of inventors for more than two centuries. Our country's Founders understood that property rights are as essential to the fruits of the mind as they are to the fruits of the land. Just as a deed creates legal incentives to cultivate and improve a plot of land, patent rights create incentives to invest in the development and commercialization of an idea. Patent certainty and reliability enables the collaborative

* The Innovation Alliance is a coalition of established and emerging U.S. technology companies that believe any changes to the U.S. patent laws should be narrowly focused on improving patent quality, enhancing certainty, and preserving market-based valuations of patents. Innovation Alliance members agree that patent reform measures should not disadvantage emerging, pro-innovation, patent-dependent businesses and their surrounding ecosystem.

development and funding required to nurture basic research through its upstream refinement to its downstream commercialization for the public benefit. That same certainty enables others to confidently invent around, or incrementally improve, published, patented technology. Thriving innovation is the key to a sound economy. It benefits the public while enhancing our nation's security and economic leadership.

As patents become more significant to U.S. industry, congressional interest in the operation of our nation's patent system has increased. As the United States becomes a high-technology, knowledge-based economy,¹ the commercial and social significance of patents is at a premium. An increasing recognition of the value and importance of patents to our nation's economy has nevertheless been accompanied by calls for significant reforms to the current system, many of which are aimed at addressing perceived deficiencies in the operation of the patent regime. While experts differ on whether major alterations in existing law are in fact necessary, both houses of Congress are expected to consider legislation in 2007 that would overhaul the U.S. patent system and implement the most sweeping reforms since the nineteenth century.²

With so much at stake, The Innovation Alliance must call attention to, and express deep concerns with, certain proposed measures that would significantly weaken the foundation of our patent system, which is respected and emulated around the world. Legislation aimed at so-called trolls should not be allowed to inflict "collateral damage" on other legitimate patentees whose public purpose or private sector business models require patent reliability and enforceability. Since patent reform was first introduced in Congress, the U.S. Supreme Court has become deeply engaged in its own adjustments to the U.S. patent system. Decisions made recently, and oral arguments and bench responses in other pending cases, suggest that more significant adjustments may be coming shortly. Prudence in pursuit of fairness suggests that Congress examine the impact of these recent substantive changes before congressional rebalancing begins.

Of particular concern are (i) fundamental changes to the well-established principles used to calculate damage awards; (ii) the addition of a costly new post-grant opposition system that would undermine a patent's enforceability potentially throughout its life; and (iii) undue restrictions on continuation practice that would prematurely truncate the patent prosecution process. As explained more fully below, these drastic structural reforms would combine to destabilize America's incentive-based system of innovation and encourage a weakening of patent rights worldwide.

The proposed mandatory "*apportionment*" test would eliminate the deference given market-based royalties and other relevant factors when calculating damages and instead encourage juries to value patents based on an artificial and arbitrary parsing among patented and non-patented product components. In addition, previous House and Senate versions of apportionment would require a jury to substitute its judgment for that of the USPTO in determining which parts of the patented invention are "inventive" and thus relevant to the damages award. In effect, this would result in a legal and logical conundrum where features of a valid and thus inventive patent claim could be deemed non-inventive and de facto invalid for purposes of a damages calculation. There is simply no justification for such a radical departure

¹ CRS, Report to Congress, *Patent Reform: Innovation Issues*, January 17, 2007.

² CRS, Report to Congress, *Patent Reform: Innovation Issues*, January 17, 2007

from existing principles of patent law and market economics. Under existing case law, courts already have discretion to “apportion” damages where appropriate, but rightly calculate a reasonable royalty according to a broad range of factors that may impact the patent’s market value, including existence of a licensing history. Any other standard would potentially undervalue patents and encourage and reward infringers. Moreover, to the extent that apportionment is deemed appropriate, a jury rightly looks to the value of the entire invention since all claims at issue have been found valid and thus inventive. When coupled with the Supreme Court’s recent *eBay* decision,³ which significantly limits a patentee’s right to enjoin ongoing infringement, the proposed mandatory apportionment rule would eviscerate the remedies that have driven patent-based innovation for more than two centuries. In doing so, this measure would encourage infringers and even existing licensees to reject negotiated, market-based royalties in pursuit of a more favorable jury award, thus increasing the prevalence, cost and uncertainty of litigation.

A second area of concern that threatens the strength and stability of our patent regime is the proposed “post-grant opposition” system, which would subject patent owners to an additional layer of administrative litigation on top of existing administrative and judicial processes for challenging a patent’s validity. Although characterized as a check on patent quality and a means of reducing patent litigation, a post-grant opposition system is unlikely to accomplish either goal. Post-grant review would encompass a quasi-judicial proceeding with judges, experts, discovery, cross-examination and other costly aspects of litigation. However, it would lack the many safeguards of existing judicial and administrative reexamination procedures that protect patent owners against unwarranted, duplicative and abusive post-grant challenges. As a result, the proposed post-grant opposition system would encourage patent litigation and significantly increase the costs, delays and uncertainty of patent ownership. Moreover, the threat of expansive opposition litigation would significantly undermine a patent’s value and enforceability if such procedures were available throughout a patent’s life, as contemplated by the so-called “second window.”

Additionally, this surge in complex post-grant proceedings will further strain an already over-burdened and under-funded USPTO staff. With a portfolio of some 400,000 patent applications per year, the USPTO is struggling to perform its core examination functions, as evidenced by application pendency periods of 30-40 months. Unless coupled with significant additional resources, a post-grant system will inevitably divert funding from the examination corps, potentially resulting in even greater delays and, most importantly, diminished patent quality. To guard against these negative effects, we urge Congress to consider improvements to the existing post-grant system of *inter partes* reexamination in lieu of a new, duplicative and potentially burdensome administrative review process. Should Congress ultimately decide to supplement or replace *inter partes* reexamination with an opposition process, we ask that it do so only after the USPTO has demonstrated that it can effectively perform its core examination responsibilities. Even at that point, it is imperative that Congress provide USPTO with the additional resources necessary to manage the significant demands of a new quasi-judicial opposition process.

We also ask that Congress and the USPTO refrain from legislative and/or regulatory measures that would drastically alter continued examination practice to the detriment of both

³ *eBay Inc. v. MercExchange*, 547 U.S. ____ (2006).

patent applicants and users. Of particular concern is any measure, whether regulatory or legislative, that would impose severe and unprecedented limitations on continuation practice, a critical and necessary part of the patent examination process. Continuing applications help to define and clarify the proper scope of a patent and its claims, thus ensuring that a patent confers adequate protection, certainty and notice to the public. With increasingly complex technologies, a patent application may require several written communications between the examiner and the applicant before the invention and its relationship to the prior art are clearly understood. This iterative process necessarily results in the filing of one or more continuation applications. Arbitrary quantitative restrictions on continued examination filings, such as those recently proposed by the USPTO, would diminish the clarity of patent claims and prematurely truncate the prosecution process. As a result, the proposal would, contrary to the objectives of patent reform, reduce patent quality, increase administrative appeals and escalate the costs and delays of patent examination. Although some small percentage of applicants may abuse the existing continuation practice, the USPTO's proposed changes would wield a sledgehammer to target a few bad actors and, in the process, harm all inventors. These concerns and others are set forth in comments filed by numerous patentees, both large and small, in opposition to the USPTO's continuation proposal.

**The Innovation Alliance Supports Reforms that
Would Improve Patent Quality without Diminishing Patent Rights**

The Innovation Alliance does not oppose patent reform; however, the necessity and efficacy of each proposed reform must be measured against the overarching goals of motivating and rewarding innovation, increasing patent quality and fairness, and reducing litigation uncertainty and costs. The solution is not to gut the patent rights critical to these and other innovations, but instead to bolster the system with measures that will improve *pre-grant* patent quality.

Patent quality is best achieved by pre-grant measures that provide examiners with the resources, training and information needed to properly assess whether an invention is, in fact, novel, non-obvious and useful. A recent study by the National Research Council also demonstrates that increases in patent examination resources yield important reductions in post-grant litigation, further underscoring the critical importance of such measures.⁴ To its credit, the USPTO has taken several steps in recent years to improve pre-grant quality, including by the hiring of thousands of new examiners and strengthening of its training programs.⁵ The results are promising. In December 2006, the USPTO reported a significant decrease in the patent allowance rate to a record low of 54 percent -- a dramatic drop from the 2000 rate of 70 percent. In addition, the USPTO in 2006 achieved its lowest error rate in 20 years -- 3.5 percent. Of course, to maintain this trend, it is imperative that the USPTO continue to receive the resources necessary to evaluate an escalating number of patent applications. And to that end, what is most needed is legislation to permanently end patent fee diversion. Although we recognize the political considerations that have thwarted past efforts to end this ill-advised practice, patent reform legislation stands little chance of achieving positive and concrete improvements without addressing vital resource issues.

4 Patents in the Knowledge-Based Economy, Wesley M. Cohen and Stephen A. Merrill, Editors, Committee on Intellectual Property Rights in the Knowledge-Based Economy, National Research Council (2003).

5 In addition, the USPTO just announced a revolutionary beta program to identify the most relevant prior art through the use of peer review system. Innovative approaches of this type should be encouraged.

In that same vein, increased USPTO resources will yield quality gains only if examiners have the information and incentives to recognize and reject claims for obvious or non-novel inventions. The Innovation Alliance thus supports measures that would foster an environment of cooperation between patent examiners and applicants and increase the prior art available to examiners. These include, for example, proposals to increase third-party submissions and mandate universal publication of all patent applications. Similarly, clarification of the willfulness standard and inequitable conduct defense would benefit all participants in the patent system, provided that they appropriately balance the interests of patent owners and users and preserve disincentives against infringement. At the same time, the USPTO should reconsider policies that potentially encourage patent examiners to issue questionable patents, including quotas or other benchmarks that tie compensation to the number of applications processed.

Of course, even if we improve the quality of issued patents, disputes will inevitably arise, as in any system of property rights. However, The Innovation Alliance takes issue with exaggerated claims that patent litigation is out of control or inherently unfair to patent users. Having experienced patent litigation as both defendants and plaintiffs, our members share the frustrations of all Americans that litigation is expensive, distracting and time-consuming. At the same time, we are grateful for a strong statutory framework and stable judicial system that protect and enforce the rights of patent holders. Indeed, the strength and stability of America's patent regime have created powerful incentives for entities of all size, structure and focus to collaborate through market-based agreements, helping to fuel a dynamic and prolific innovation ecosystem and decreasing the likelihood and cost of litigation.

The Innovation Alliance has yet to see any credible evidence that patent litigation is any more prevalent or prone to abuse than other high-stakes commercial litigation. Indeed, the Administrative Office of the Courts, the administrative arm of the Federal Judiciary Branch, reported modest increases in patent litigation over the past five years -- i.e., a 12 percent increase in cases filed between 2001 and 2006 -- and an actual decrease in patent cases since the peak year of 2004. This increase is attributable to a range of factors, most notably the growing number of patents issued in recent years and their relative commercial significance to our knowledge-based economy. Significantly, the number of trademark and copyright cases filed throughout this period has consistently exceeded the number of patent cases. A recent study affirms the findings of the Judicial Branch that patent owners have become more judicious in using patents to enforce their IP rights and thus are bringing cases less often.⁶

The Innovation Alliance supports reforms designed to reduce litigation costs and uncertainty. It is, however, a mistake to characterize efforts to weaken the enforceability of legitimate patents as litigation reforms. Not only would such measures undercut the rights of all patent owners to protect a few corporate giants from potential infringement litigation, they would ultimately increase the number of lawsuits by encouraging infringers to seek court-ordered rather than market-based solutions. In contrast, several of the other proposed reforms -- for example, elimination of the best mode requirement -- correctly target subjective aspects of the patent

⁶ PricewaterhouseCoopers, 2007 Patent and Trademark Damages Study found that intellectual property rights remain important but enforcement actions are declining (p.7). The continuation of this trend is subject to change as the Supreme Court's MedImmune decision (*MedImmune, Inc. v. Genentech, Inc.*, 549 U.S. ____ (2007)), may encourage more patent actions and a declining dollar may result in foreign entities attempting to introduce infringing products into the US market (p.11).

system that increase litigation costs, while leaving intact the rights and remedies of legitimate patent owners. Measures of this type would heighten the fairness, predictability and efficiency of patent litigation for all stakeholders.

* * *

**Mandatory Apportionment: Diminishing the Value of
Patent Rights and Discouraging Investments in Innovation**

A hallmark of America’s patent system is the recognition that issued patents are property rights whose infringement merits strong remedies, including the right to prevent future violations and obtain adequate damages for past infringements. These remedies form the foundation of any system of property rights, but are particularly critical to patent owners - especially small and medium-sized innovators - that typically have no other means to protect their inventions. Patents owned by members of The Innovation Alliance represent years of research and billions of dollars in investments. However, once disclosed to the world, as the patent system requires, our innovations can be copied by any competitor. For this bargain to work properly, a patent right must be enforceable and have meaningful remedies associated with that enforcement.

Since the codification of the U.S. patent system, the guarantee of strong remedies has given patent owners the leverage necessary to secure fair royalties from free-riders, including larger, better-financed competitors, and the confidence to share their inventions with the rest of the world. Consider, in contrast, an America without a strong patent system. Most small inventors, which comprise an estimated 40 percent of patent owners, would lack the financial wherewithal to make their vision a reality, and many established companies would reduce investments in research and carefully guard the secrecy of their inventions. Our system of innovation would, in turn, take a giant step backwards, and the American economy would suffer.

Under Section 284 of the Patent Act, the minimum permissible measure of compensatory damages is the “reasonable royalty for the use made of the invention by the infringer, together with interest and costs.” In cases where the patent owner can demonstrate a pattern of negotiated licenses, this market-based “established royalty” rate serves as the *minimum* baseline for damages awarded to the patentee. Any lesser damage award would fail to make the patentee whole and encourage infringement.

In cases lacking an established royalty, courts have long considered a variety of factors to determine the royalty the parties would have agreed to in a hypothetical negotiation. Indeed, in the seminal case *Georgia-Pacific Corp. v. U.S. Plywood Corp.*,⁷ the district court identified 15 factors as potentially relevant to a determination of reasonable royalties. Among these 15 factors is the “portion of the realizable profit that should be credited to the invention as distinguished from non-patented elements” -- the so-called “apportionment” test -- which forms the basis of the previous House and Senate proposal on damages. Other factors include, for example, royalty rates paid by the infringer for licenses to similar patents; the commercial relationship between the licensor and licensee, such as, whether they are competitors in the same territory in the same line of business; the duration of the patent and term of the license; the established profitability of the patented product; and the testimony of qualified experts.

⁷ 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970).

Once the patent is deemed valid and infringed, the court's objective is to give due consideration to all relevant market factors and predict with as much accuracy as possible the royalty the parties would have decided at the negotiating table. However, for this hypothetical negotiation to achieve an equitable outcome, it is imperative that courts retain the discretion and flexibility to determine which subset of the 15 *Georgia-Pacific* factors is relevant to a particular patent, and the relative weight to be given each factor. Of course, this process of using hindsight to replicate a hypothetical negotiation is necessary and appropriate only in the absence of a market-tested royalty rate. Where a pattern of established royalties exist, the market has already spoken, and there is no need to "apportion" the infringed-upon patent or consider other factors. In fact, doing so would encourage juries to substitute their judgment for that of the market -- a result that would violate the spirit and letter of U.S. patent law and weaken the property rights inherent in patented inventions.

It is this aspect of the proposed mandatory apportionment test that is most troubling and most at odds with *Georgia-Pacific* and the thousands of cases that have applied its flexible, market-based approach to damages. Although they differ in their particulars, both the House and Senate bills from the 109th Congress would mandate apportionment of damages in all cases and elevate this one factor above all others, including evidence of a market-established royalty rate.⁸ Such a standard would be extremely harmful, jeopardizing the ability of innovators to sustain a licensing-based business model and cycle of innovation.

By encouraging juries to ignore the full range of relevant factors that impact a patent's market value, a mandatory apportionment test will increase the cost and uncertainty of enforcing patent rights and, in turn, diminish the value of all patents. Among other effects, a patentee will be forced to sue on each and every patent infringed by the product -- as opposed to the subset of patents most relevant to the product -- so that other features of the product will not be used against it in a damages determination. This is especially true for a patentee that owns a large number of patents that cover specific devices or standards. In addition, instead of using the industry standard royalty as the basis for a damages calculation, a jury will be instructed to parse the "realizable value" of the "inventive contribution" of the patents, as distinguished from other features of the device.

What this means in practice is anyone's guess, particularly since the terms "realizable value" and "inventive contribution" have no defined meaning under the Patent Act or case law. Assuming the undefined term "inventive contribution" is intended to mean something other than the patented invention, the apportionment proposal would arguably require a jury to reevaluate a patent claim (after finding it to be valid and enforceable) to determine which portion is truly "inventive." Once again, the jury's judgment would reign supreme, displacing that of the patent examiner and necessitating a costly and time-consuming battle of the experts. Such a standard

⁸ Congressional sponsors of comprehensive patent legislation have yet to introduce their proposed bills for the 110th Congress but have indicated that the new bills will be very similar to proposals introduced and debated during the 109th Congress. Both houses of the 109th Congress considered patent reform bills. With respect to the House of Representatives, H.R. 2795 was originally introduced on April 4, 2005. Titled the "Patent Reform Act of 2005," H.R. 2795 was then subject to a Chairman's Substitute Amendment on July 26, 2005. Efforts in the House of Representatives were complemented by a distinct "Patent Reform Act of 2006," S. 3818, that was introduced in the Senate on August 3, 2006. Although neither of the bills resulted in enacted legislation, they may contribute to further discussion of patent reform in the 110th Congress.

would lead to considerable confusion and complexity and jeopardize the established rights of all U.S. patent owners.

Given the likelihood that mandatory apportionment will produce an artificially low valuation of the patent, potential infringers and even existing licensees will have greater incentives to risk litigation rather pay, or continue paying, the standard licensing fee. No longer will the market be the arbiter of a technology's value; instead, a paid expert and jury will be. Many small innovators will lack the resources to defend their patent rights against abusive tactics of this type. Larger, better-funded companies will have little incentive to pay a fair royalty to a smaller patentee, or even execute a license, knowing that a jury will be forced to parse the value of a little-known or understood patented technologies among "inventive" and non-inventive components. This is precisely the predicament that faces Innovation Alliance members AMBERWAVE and IMMERSION -- two small U.S. companies that recently licensed their technologies to larger, better-funded companies that had, at first, been unwilling to pay a licensing fee.

When coupled with the heightened *eBay* standard for injunctive relief, a mandatory apportionment test would further weaken and destabilize our system of patent rights and jeopardize the very existence of smaller firms with an innovation and licensing based business model. Since *eBay*, courts are increasingly reluctant to award permanent injunctions to patent holders (historically, the first line of defense against infringement), unless the infringement undermines competition for the patentee's product. In cases where a patent holder licenses the right to practice its patented technology to others, but does not practice the technology itself (as is often the case with small inventors that lack the resources and infrastructure to manufacture their innovations), courts have, since *eBay*, shown a greater reluctance to award permanent injunctive relief. As a result, a small inventor will in many cases be forced to permit ongoing use of its patented technology pursuant to a court-imposed compulsory license (without the benefit of important standard non-royalty license terms such as confidentiality) and a jury-dictated royalty. In the post-*eBay* world, it is thus all the more important that Congress preserve the ability of patent holders to obtain adequate damages for patent infringement, as this will be the only viable remedy in many cases. Indeed, now that a post-*eBay* jury may be deciding the royalty rate both for past infringement and future compulsory licenses, it is essential that it retain the discretion to consider all relevant market factors.

To illustrate the point further, consider this real property analogy. Suppose a trespasser decides to take up residence in a property owner's apartment building. Under the *eBay* decision, one's ability to evict (or enjoin, in the case of patents) that convicted trespasser stands in doubt. Now the only question is how much the trespasser will pay in rent (damages). Under the *Georgia-Pacific* standard, a jury would, at a minimum, award the \$500 in monthly rent that the owner currently charges other tenants for comparable apartments. But under the mandatory apportionment test, a jury will be encouraged to ignore existing rents in favor of an artificial process of apportioning the value of one's property. What if the jury decides that the "apportioned" value of the trespasser's apartment is only \$300 per month. Certainly, all other tenants would demand a similar reduction in rent, diminishing significantly the commercial value of the building and the property owner's ability to maintain, improve and finance the property. Patents are no different -- unless supported by strong property rights and remedies, patented technologies will diminish in commercial value, and patent holders will lose access to financing and critical incentives to invest in ongoing innovation.

Of course, proponents argue that mandatory apportionment is necessary to protect against inflated damages in cases where a patent represents a trivial component of a complex system. What they neglect to mention, however, is that *Georgia-Pacific* already permits apportionment in such cases. Under *Georgia-Pacific* factor 13, a jury may take into consideration the “portion of the realizable profit that should be credited to the *invention* as distinguished from non-patented elements” when determining a reasonable royalty rate. Consistent with this decision, the Federal Circuit’s model jury instructions permit consideration of the “portion of the profit that is due to the patented invention, as compared to the portion of the profit due to other factors.” Apportionment, however, is not appropriate in all cases. In particular, courts have long held that the parsing of a patent’s value is sensible only if the patent represents a relatively insignificant and separable part of the overall product. In contrast, where a patent is responsible for all or substantially all of the product’s market value, apportionment is unnecessary and inappropriate.

None of these nuances and complexities are reflected in the proposed mandatory apportionment test, which would primarily protect the interests of large, established firms with a vertically integrated business model, to the detriment of smaller and arguably more innovative firms that rely upon their patents to generate licensing revenue and venture capital financing. The *Georgia-Pacific* factors, in contrast, are technologically neutral and thus accommodate all industries, business models and types of patented inventions, without favoring or disadvantaging the interests of any one sector. Unlike the proposed mandatory apportionment test, the full *Georgia-Pacific* analysis is sufficiently flexible to apply in all situations, resulting in appropriate damage awards for a wide variety of technologies and royalty arrangements.

Furthermore, the law already provides safeguards to prevent excessive damage awards. Patent owners, for example, bear the burden of proving the monetary amount necessary to compensate for acts of infringement and are not eligible to receive remote or speculative damages. There is simply no credible evidence that such safeguards are insufficient to prevent inflated damages, or that the current method of calculating damages is inherently unfair to patent users. Citing this lack of evidence, the ABA Intellectual Property Section has publicly opposed a mandatory apportionment amendment, noting that the proposed language “would have undesirable consequences.”

**Post-Grant Opposition: Jeopardizing Investments in
Pre-Grant Patent Quality, Increasing Litigation Costs and Destabilizing Patent Rights**

The proposed “post-grant” opposition system is, unfortunately, another example of a well-intentioned but ill-conceived measure that could significantly undermine patent rights without any countervailing benefit. The proposed system would create new quasi-judicial procedures within the USPTO for resolving post-issuance challenges to patent validity. Although both the House and Senate versions of post-grant share the worthy goals of improving patent quality and decreasing litigation, each proposal, as drafted in prior bills, could have the opposite effect. Of particular concern is the fact that the USPTO lacks the resources to administer a European-style opposition system, which would require it to oversee the equivalent of a judicial trial to resolve questions of validity. The USPTO is already struggling to manage a growing workload of over 400,000 patent applications per year, resulting in significant backlogs and ever-increasing pendency periods. Without a significant increase in USPTO resources, the introduction of a post-grant system would strain an already over-burdened office, leading to even

further examination delays and potentially diminished patent quality. In Europe, for example, opposition proceedings prolong already lengthy pendency periods by an average of three to five years, significantly curtailing the commercial life of the patent.

Although the previous House and Senate bills attempted to alleviate certain deficiencies of an opposition system -- for example, by requiring completion of the proceeding within 12 to 18 months of its commencement -- they altogether failed to address this fundamental issue of resources. Similarly, each failed to address adequately the inefficiencies, delays and potential abuses that would inevitably result from introducing a new administrative reexamination procedure on top of existing *ex parte* and *inter partes* post-grant processes. Although characterized as a means of reducing patent litigation costs, the proposed post-grant opposition system would merely shift litigation costs to the administrative arena. Moreover, because the opposition process would lack existing safeguards against frivolous or duplicative invalidity challenges, while also increasing the expense and difficulty of defending patent rights, it would significantly increase a patent owner's litigation risks and costs and undermine the enforceability of all patent rights.

Although improvements to existing judicial and administrative reexamination procedures may be warranted, proponents of an expansive post-grant opposition system have yet to explain why a wholly new and potentially duplicative layer of administrative litigation is necessary. Clearly, an opportunity to reexamine questionable patents is an important component of a properly functioning patent system, but such procedures must also strive to preserve the value and enforceability of the vast majority of meritorious patents. In federal court, for example, only accused infringers and licensees have the necessary standing to challenge a patent's validity; and a challenger must prove invalidity by clear and convincing evidence. At the same time, however, the challenger can seek to invalidate the patent on any substantive or procedural ground and invoke the full arsenal of evidentiary tools available at trial. In combination, these factors permit an exhaustive judicial review of questionable patents, but also discourage frivolous litigation.

The current administrative system of *inter partes* reexamination, introduced in 1999, is designed as a relatively quick and low-cost alternative to litigation in cases where invalidity can be established on the basis of published prior art. As its name suggests, reexamination requires the examiner to take a fresh look at a patent claim and, on the basis of prior patents and printed publications, determine whether the claim fails to satisfy the statutory conditions of patentability. A challenger may request reexamination throughout the life of the patent, provided that it demonstrates a substantial new question of patentability. However, because an unsuccessful challenger is generally estopped from asserting invalidity in a subsequent civil trial or *inter partes* proceeding, patentees are effectively shielded from the risk of abusive or duplicative reexamination. As with existing judicial procedures, this system of *inter partes* reexamination attempts to create an effective check on patent quality without diminishing the value and stability of patent rights generally.

In contrast, the proposed post-grant opposition system would combine aspects of a judicial and administrative reexamination process, but eliminate or substantially dilute existing safeguards that have effectively discouraged misuse of the system. In the process, it 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. For example, the proposed opposition process would, unlike existing administrative procedures, allow challengers to demand discovery, hearings, cross-examination and other aspects of litigation that quickly escalate the cost and complexity of defending a patent. At the same time, the proposed opposition system would significantly relax the estoppel effect of an unsuccessful challenge, thus permitting the challenger to "try again" in a subsequent litigation or administrative proceeding and negating an important deterrent against the harassment, waste and delays of redundant proceedings.

Patent owners would bear the brunt of these increased litigation costs, particularly if expansive opposition litigation is permitted for any issue of patentability throughout the life of the patent. In contrast, a competitor or free rider - relieved of robust evidentiary requirements and the risk of estoppel - would have every incentive to seek opposition, regardless of the patent's strength. Such a system would inevitably invite abuse, allowing corporate giants to misuse opposition litigation as a means of blocking patents that frustrate their business interests. Indeed, by stripping a patent holder of the protections that guard against baseless challenges, an open-ended opposition threat would effectively destroy a patent's statutory presumption of validity and cast a permanent cloud over its legitimacy and enforceability. This uncertainty will undoubtedly undermine a patent holder's ability to negotiate fair licensing terms and secure financing. Such a result would be particularly devastating for start-ups and other smaller firms whose very survival is often dependent on early stage venture capital and licensing revenue.

Indeed, if the experience of other countries is any guide, the United States should exercise great caution before introducing a post-grant opposition system. Less than 10 years after adopting such a system, Japan, Korea, Taiwan, and China have all recently abolished post-grant patent 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.

Although proponents of an opposition system contend that existing *inter partes* reexamination procedures are overly restrictive in certain respects, and thus underutilized by challengers, such claims merely argue for improvements to the existing system, not the creation of a costly, duplicative and resource-intensive opposition process. For example, the USPTO has recommended amendments that would extend *inter partes* reexamination procedures to all enforceable patents (eliminating the existing bar on *inter partes* reexamination of patent applications filed before enactment of an *inter partes* process). Incremental and carefully-tailored amendments to the existing *inter partes* process merit serious consideration before wholesale adoption of an expansive new system of administrative litigation. As a result of improvements of this type, the USPTO has experienced a gradual but marked increase in *inter partes* reexamination proceedings since 2000 (i.e., 120% increase in *inter partes* requests from 2004 to 2005). Thus, there is every reason to believe that further incremental improvements to

the *inter partes* system could address any remaining deficiencies and greatly expand usage of existing administrative procedures.

Even if post-grant opposition is ultimately deemed to be a necessary and preferable alternative to *inter partes* reexamination, implementation of a new opposition proceeding should not occur until USPTO has demonstrated its ability to perform core examination functions in a timely manner and is given the resources to manage the significant demands of a new system of administrative litigation. Even at that time, opposition proceedings should be limited to a single window of review (i.e., within 12 months of issuance) to ensure that patent owners enjoy clear title over their inventions throughout the lives of their patents.

Conclusion

Given the critical importance of our patent system to American innovation and economic leadership, it is imperative that patent reforms be carefully tailored to achieve necessary improvements and, in all cases, to promote and protect investments in innovation. The over-arching goal of patent quality is ill-served by measures that would destabilize our current system of patent rights and remedies and, in turn, jeopardize the global leadership of this country's most innovative industries. In this respect, The Innovation Alliance takes issue with certain corporate giants that would weaken patent rights to reduce their own litigation costs and promote their particular business models. No doubt their businesses can survive such a trade-off, but we are far less sanguine about the future prospects of the many thousands of innovative firms that live or die on the strength of their patent portfolios. Moreover, by creating uncertainty as to the validity and enforceability of patent rights, we stand to encourage, not discourage, costly litigation.

If our shared objective is to improve patent quality while preserving incentives to innovate, we should instead pursue reforms that enhance patent examination resources and capabilities within the USPTO and make it harder for questionable patents to survive scrutiny. The USPTO has already taken important steps to achieve these goals, hiring thousands of new examiners, instituting new training programs and committing annually to performance benchmarks. But it needs Congress's support in the form of a predictable flow of resources and hence a permanent end to fee diversion. In addition, Congress should continue to pursue constructive but narrowly tailored reforms that would increase access to prior art and lessen the subjective aspects of litigation. Carefully structured measures of this type would ultimately fortify the health of our patent system without endangering the rights of American's most innovative firms.

In contrast, there is simply no justification for legislation that would artificially constrain damage awards through mandatory apportionment, particularly now that injunctive remedies are increasingly unavailable to patent owners. In the wake of *eBay*, Congress should take pause before adopting unprecedented reforms that would further weaken the entire patent system; favor the interests of large corporations to the detriment of smaller innovators and licensing-based business models; and ultimately jeopardize America's competitive advantage in today's knowledge-based economy. Such measures would serve no other purpose than to protect the interests of large corporations against infringement claims, no matter how meritorious. Similarly, a post-grant opposition system, unless accompanied by adequate resources and safeguards, will subject patent owners to unwarranted delays, costs, uncertainty and harassment,

without offsetting benefits to patent quality. If the United States is to remain the world's leading innovation-based economy, we cannot destabilize and weaken patent rights with measures of this type.

The Innovation Alliance thus urges Congress to eliminate mandatory apportionment from any patent reform package or alternatively to codify all of the *Georgia-Pacific* factors, including the existence of an established royalty rate, as recently proposed by the Intellectual Property Owners Association. Moreover, we ask that Congress consider improvements to the existing *inter partes* reexamination process in lieu of a new post-grant opposition system, and ensure that any such opposition system is coupled with adequate resources and safeguards to prevent abuses and achieve the ultimate goal of improved patent quality.

In closing, we urge Congress to keep in mind the likely domino effect of proposed patent amendments on intellectual property rights worldwide. The U.S. economy has long benefited from the strongest intellectual property laws in the world. America's system of patent rights and remedies is universally recognized as the gold standard, and, as such, it has given us the moral authority and credibility to fight for stronger protection of U.S. innovations in other markets. Maintaining that authority is critical in today's increasingly competitive global economy. America's leadership in this knowledge-based economy is critically dependent upon the ideas and innovations that constitute our most valuable natural resources and our most desirable exports. If the United States weakens patent rights and remedies at home, our ability to press foreign countries to respect American intellectual property will be greatly diminished. Indeed, we will embolden other countries to adopt even more damaging policies that could jeopardize the continued preeminence of America's most productive industries. This is a slippery slope, and we must be careful.



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March 26, 2007

Hon. Paul W. Hodes
United States House of Representatives
506 Cannon House Office Building
Washington, DC 20515

**COMMENTS ON CONGRESSIONAL DELIBERATIONS AND POTENTIAL LEGISLATION
REGARDING PATENT REFORM, THE SO-CALLED “PATENT FAIRNESS” INITIATIVE,
2007**

Dear Congressman Hodes:

As you know from previous conversations and participation by your staff in a Dartmouth conference September, 2006 on the “funding gap” in commercializing early-stage technology innovations, challenges are manifold in moving scientific and technology discoveries from basic science into economic development and social benefit. We continue to examine the elements of greatest challenge in this pathway, and will be in contact in the future regarding initiatives now being examined by our working group.

In the interim, the progress of the patent reform deliberation in Congress prompts me to forward you a few comments regarding the so-called “fairness” or “anti-troll” initiative which has become part of this broader reform process.

The multi-faceted patent revision process contains many changes which appear well-advised and supportive of technology innovation, and have been amply analyzed elsewhere. Those of us involved in the early stages of developing new innovations are becoming increasingly concerned, however, by some of the proposals put forward by the “anti-troll” coalition. It is always a danger to allow one interest group to paint another as opposed to fairness, and that danger appears real in the present instance.

Regrettably, small companies and technology innovators are worried they will not have standing in the current deliberations to make their concerns known to policymakers. As is often the case, small business, individual inventors, and academic research institutions for whom patenting and commercialization are not a core focus of their missions, risk being marginalized by the well-organized and amply-funded campaigns of larger enterprises which tend to be licensees of technologies developed by innovators, or unfortunately at times, users of technologies developed by others without coming to terms on rights to practice.

As larger companies and venture investors have increasingly moved out of the early stage space, preferring to license or buy developed technology rather than invest in early stage development, the importance of enhancing the marketability and profitability of early stage ideas has become all the more critical. This is the key focus of our continuing “Funding Gap” initiative, in which your staff has participated previously. Anything which potentially reduces the enforceability and marketability of patented innovations will only serve to widen the “Gap” and further inhibit the movement of new ideas across it, into the marketplace.

As details and proposals emerge in the coming deliberations, I strongly encourage you to look carefully for evidence that there is a balance of voices at the table, in particular that small business and research institutions are adequately represented and heard. By nature, neither will be as well-organized or rich in resources to engage in the debate.

In addition I encourage you and all involved to search diligently for ways to improve fairness and restrict unfair exploitation of the patent system without impairing the interests of legitimate innovators who need all the help they can get in offering adequate returns to investors and licensees. There is no reason on earth why these objectives need be exclusive of each other, and any attempts by the “anti-troll” movement to merge the two has the risk of appearing opportunistic and self-serving.

If we can be of further help as this discussion develops, of course contact us at any time.

Respectfully yours,

Gregg Fairbrothers
Chair, Dartmouth Regional Technology Center
Convener, Dartmouth Funding Gap Conference and Working Group
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