

Venture Capital – The Buck Stops Where?

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By extending the duration and grounds for patent re-examination, weakening the grace period and the overall patent system, the 2010 Patent Reform Act threatens venture capital investment in American innovation.

VENTURE CAPITAL INVESTMENT AND PATENT PROTECTION: VITAL TO INNOVATION

All technology companies are working toward the same goal—to translate brilliant ideas into commercially viable products. Ideas on a blackboard are useless; ideas only mean something when an investor and an entrepreneur join together to take the risk to turn ideas into product. For products that require high fixed-cost startup investments, that blackboard-to-commercialization translation only happens when some barrier to entry against competitors exists, so that profits can last long enough to recover the up-front investments. Our founding fathers recognized this and put it in our constitution: Article I, Section 8 reads “Congress shall have power . . . to promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries.” Thus, the patent system.

In 2008, venture capital-backed companies employed more than 12 million people and generated nearly \$3 trillion in revenue.¹ Respectively, these figures accounted for 11% of private sector employment and represented the equivalent of 21% of U.S. GDP during that same year. Venture-backed companies outperformed the overall economy in terms of creating jobs and increasing revenue, and the venture capital industry continues to grow entire new industries nearly from scratch. The VC community is the primary source of funding for emerging life sciences, technology, and alternative energy companies. In 2007 alone, VCs committed \$25.9 billion toward innovative companies in these areas. If one adds in the companies that were *formed* with venture capital investment and have since graduated to the public capital markets, about a quarter of all economic activity in the United States exists because entrepreneurs and new companies were able to show investors that they were a better bet than established “blue chip” companies.

Because small companies do not have “legislative affairs” staffs, the vast majority are completely unaware of the existence of Patent Reform—let alone its provisions. They lack the financial wherewithal to lobby their views on Capitol Hill. The members of Congress and staffers who would enact this legislation have barely sought the perspectives of inventors, entrepreneurs or venture capitalists in the past few years, so it is not surprising that the current “compromise” bills are compromises among big companies that fail to reflect effects on small ones. Their interests—and therefore mine—are about to be buried. Tomorrow’s companies—the companies that don’t exist yet, who would depend on the patent system to come into existence—by definition have no

representation or lobbying voice at all. That fact was my strongest motivation to take on this issue.

HOW PATENTS FUEL AMERICAN INNOVATION

Patents are not about technology. Patents are about investment, and getting innovative products off the drawing boards and into consumers’ hands. Initial ideas are usually cheap. But turning an idea into a product—proof-of-concept testing, identifying the best chemical compound out of a large genus, engineering, debugging, prototype-to-product engineering, ruggedizing and reliability engineering, testing for “safe and effective,” building a production facility, building a distribution and sales channel, marketing to develop demand—those steps are *expensive*.

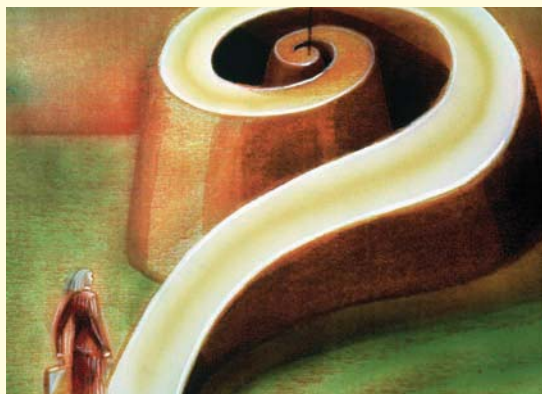
VCs are investors, not gamblers. VCs only invest in companies that can make convincing showings that they have a good likelihood of being profitable, and maintaining that profitability for years. When a new company sets out in a risky new technological direction and the company will require substantial investment to develop its raw ideas into a profitable business and profitability is years in the future, VCs need assurance that the risks carry a reward, that the R&D funding that they provide will generate a return once the company and new product succeed. Nobody wants to invest in “the next big thing” if someone else will run off with the profits!

In most high-dollar venture investments, patents are essential to the company’s and VC’s ability to ensure that success will not be taken away by competitors who free ride on the original company’s R&D. The vibrant VC and startup environment in the United States will continue to exist only if companies that present great technological risk can show a lower competitive risk. Patents provide a little cocoon of protection *against competitors*. That tips the investment decision-maker’s scale just a little from “Let’s do this the safe way” to “Let’s do it the new but potentially-higher-payoff way.” That’s how patents turn ideas into useful products, and create value for entrepreneurs, investors, and for society.

SPECIFIC CONCERNS WITH S.515 AND H.R.1260

Two patent reform bills are currently pending, S.515 in the Senate and H.R.1260 in the House of Representatives. Any patent reform must account for the needs of the small, emerging growth companies that are key components of U.S. economic growth and innovation. While these two bills reflect well-intentioned efforts of the staffers that negotiated them

1. National Venture Capital Association Report, “Venture Impact: The Economic Importance of Venture Capital-Backed Companies to the U.S. Economy”, p. 2, (2009).



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with the help of representatives of large companies, both are all but certain to have devastating effects on small companies and venture capital investment.

The challenge for Congress is to ensure that policy decisions reflect and account for different industry business models and the business realities of small companies. For example, life sciences companies need to protect the fruits of their research, testing and regulatory approval investments, because many life sciences products can be reverse engineered from the extensive disclosures required for regulatory approval. Policy decisions must maintain small companies' ability to assemble ideas, capital, and productive capacity inter-firm on the same footing as large companies that build their teams intra-firm. Patent Reform must not impose inefficient paperwork demands on a small company's scarce capital or on the time of key people for either acquisition or defense of patents.

Weakening the Filing Grace Period

Unique among world patent systems, the U.S. patent system *reserves* an inventor's "place in line" largely based on facts that arise in the ordinary course of business. Remarkably, the centerpiece of the Patent Reform Act turns that principle on its head: under Patent Reform, ordinary business activities create risks that *destroy* patent rights. Patent Reform proposes to replace our system based on ordinary course of business with a system based on forced patent paperwork and the pointless patent filings that will drain nearly \$1 billion per year from small companies. The incremental patent applications of the proposed "forced-to-file" system will create *no value whatsoever* for business.

"Prior art" constitutes all information that has been made available to the public before certain deadlines measured relative to an application's filing date and the date when an inventor conceived the invention. If an invention has been described in prior art, the Patent Office may not issue a patent.

Currently, U.S. inventors enjoy a very strong one-year grace period: any printed publication, offer for sale, or public use of the invention less than one year before the patent application doesn't count as prior art, so long as the patent applicant can prove a date

of invention from his own files that predates the disclosure by the third party.

Under current law, important new ideas have months or even years to gestate, to be fleshed-out, refined and tested before the patent-or-no-patent decision point. During this time, many inventions prove unworthy and the inventor never wastes the time or money on filing an application. This saves many thousands of dollars during the part of a company's lifetime when those thousands of dollars can mean life or death.

The Patent Reform Act would dramatically weaken this grace period: to overcome disclosures by third parties within the year before filing, the inventor will have to show that the third party's disclosure was derived from the inventor. However, the law gives the inventor no subpoena power to get information from the alleged deriver to make this showing. Even if that information were available, showings of "derivation" are among the most difficult and expensive showings in the patent law, so companies will go to great lengths to avoid the risk of having to show derivation. The unpredictability and expense of Patent Reform's weakened grace period means that no company will be able to rely on it, so every inventor will have to act as if there is no grace period at all.

"Forced-to-file" will have severe consequences on our nation's startups, new businesses and universities. Preparing a written description adequate to meet the requirements of the new Patent Reform grace period will cost thousands of dollars per invention for attorney fees, and many thousands of dollars in time of the company's key personnel, for 50,000 to 100,000 inventions per year. This diversion of capital and of time of key personnel, from running the business to gratuitous legal costs with only speculative business benefit, is not a recipe for a healthy startup ecosystem. Because filing on every new idea will be cost-prohibitive, companies will have to choose which inventions to patent and which to sacrifice. They will have roughly a year's less information than under current law to make those decisions. Earlier decisions will be less accurate decisions, so patent protection will be lost for valuable inventions, and costly applications will be filed for inventions that turn out to be useless. This change will almost certainly lead to

more filings of lesser quality and exacerbate the Patent Office's backlog.

Pendency (the time it takes to receive a patent) has doubled over the last 20 years, while product lifecycles have shortened. "Forced to file" will worsen one of the biggest problems in the patent system. This is not just speculation. When Canada changed to a system very similar to the bill's proposed first-inventor-to-file system in 1989, total patent applications increased by nearly 50% between 1988 and 1990.

The proponents of the change, all either currently at the nation's largest companies, or recently moved to government after a career in large companies, make a number of arguments to show that "forced-to-file" is good for small companies. With all respect for their integrity and experience within the large company environment, their arguments make clear they have no understanding of the differences between how large companies and small companies use the patent system, nor the business reality of a startup's daily struggle to stretch its initial financing to make milestones for the next investment round. In large companies, an inventor can assemble capital, R&D, manufacturing and marketing within the company, without an external disclosure that triggers patent deadlines. In contrast, small companies have to talk to outsiders: investors, potential employees and other outside experts to solve specific business problems. Current law accommodates this; Patent Reform does not.

"Forced-to-file" is an innocuous small change for large companies, but it's a gag order for small companies, making it much harder to assemble the resources the company needs. Large companies have confidentiality agreements with their employees—or at least the power to fire employees that improperly disclose. Large companies therefore face little risk of having to show derivation for unintended disclosures. In contrast, venture capitalists and other potential partners that a small company needs uniformly do not sign confidentiality agreements for initial pitch meetings. Under current law, a "handshake" understanding of confidentiality is sufficient to preserve rights, but under Patent Reform, without the audit trail of a written agreement to show derivation, these "first date" conversations become existential risks to a small company.

Because large companies use international patent systems, "forced-to-file" in the U.S. is an innocuous change; for small companies that want to establish solid businesses in the U.S. before seeking world markets, it's a huge drain of capital and expertise. Big companies generally have in-house patent attorneys embedded with the R&D team so that patent applications can be ready to go on a business schedule; for small companies, outside patent attorneys and their well-known delays will become gating roadblocks that choke many business activities and decisions. Proponents suggest that small companies

can overcome the disadvantages of "forced-to-file" by publishing their best ideas on the internet as they are conceived - but don't identify instances in which their own companies have published patent-quality disclosures of their own most advanced technology plans that would give competitors a year's notice of their own business plans.

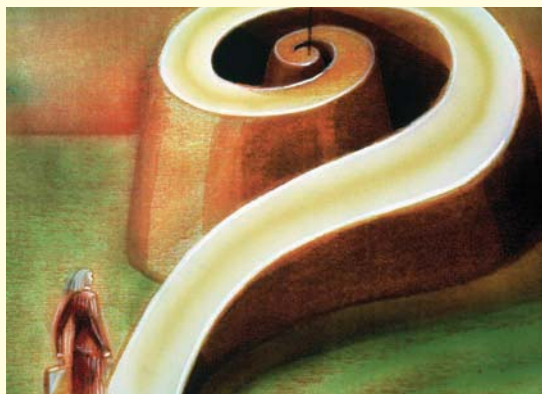
If that were not enough, the weakened grace period dramatically increases the potential profitability of corporate espionage. Given the recent revelations of China's hacking role, and given China's dramatically rising rate of U.S. patent filings, even the largest corporations should be scared of this provision becoming law.

Post-Grant Opposition

The goal of post-grant opposition—invalidating flawed patents—is a noble one. Since 1980, a person who believes a patent should not have issued has had a right to request that the Patent Office "reexamine" the patent and revoke any patent that was improperly granted. In 2002, the right of a third party to request reexamination was expanded, so that the attacker could participate in the process, rather than leaving the Patent Office and patent owner to resolve the issues themselves. S.515 and H.R.1260 propose to expand the rights of third parties to oppose a patent, the March 4, 2010 Senate Managers' Amendment proposes to expand opposers' rights by a little and H.R.1260 proposes to expand them a lot. Many VCs and small companies have expressed concerns about the indefinite uncertainty and substantial costs that an overly-expansive post-grant opposition process would create for small company patent holders and their investors. The Patent Office claims that it takes 28 months for a case to go through the re-exam process, but an outside study found a more typical average is 36 to 52 months unless there is an appeal, in which case it can take five to eight years.

Any expansion of post-grant opposition is detrimental to all venture-backed companies, because those who oppose a patent have opportunities over the entire life of the patent to bring opposition. A cottage industry has grown up around accused infringers who use reexamination simply to drag out infringement litigation and delay any liability for damages, or to weaken the patentee company so that any competitive threat from a technological insurgent is neutralized. This is sometimes called "patent assassination." The delay and uncertainty clouding a patent's validity is detrimental to small companies that need patent certainty to obtain funding. Creating lower-cost and higher-risk avenues to question the validity of patents adds another investment risk to the overall equation that venture capitalists use to make investment decisions. If the process becomes too uncertain, VCs will stop investing.

Any expanded post-grant opposition procedure should allow only a single window with a short,



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predictable duration of no more than nine months. Rounds of venture funding are typically designed to carry a company to meaningful milestones every 18 to 36 months. As a company reaches each milestone, its prospects should become clearer, permitting it to seek a new round of funding from new investors who are less risk tolerant, but who can invest at larger amounts. The mere existence of a challenge to the validity of a key patent—whether eventually successful or not—can create enough appearance of risk to discourage the new round of investors. Meanwhile, existing investors may not have the resources to advance a company to the next stage of development. Continued access to venture funding requires that a company have quiet title to its assets, including its patents, and expanded post-grant opposition will inevitably cloud that title and impair access to capital.

Opposers should be required to identify themselves and all issues regarding patentability and all material information that supports any argument of patent invalidity. If a party elects to oppose a patent, the party should not be permitted to raise a second opposition or court challenge on these or other issues that could have been raised. The proponents of post-grant review argue that they seek “certainty.” The VC community agrees and wonders why both the Senate and House bills leave venture-backed companies exposed to additional cost, time, distraction and uncertainty even after the patentee’s defense of the patent has been successful.

Finally, the process has to conclude expeditiously because the company’s ability to raise capital is crippled until the review proceeding concludes. The Office’s record under existing law is not encouraging. Even though Congress ordered the Patent Office to conduct existing reexaminations “with special dispatch,” the Patent Office took *seven years* to complete its *first* fully contested *inter partes* reexamination under the 2002 law. The Office has given conclusory statements that it can handle a new post-grant opposition system without similar delays, but has not identified process changes and personnel reallocations that will permit it to complete oppositions in a time frame commensurate with business and investment decisions, let alone how

those reallocations will avoid impacting operations throughout the rest of the Office.

Apportionment of Damages

The VC community supports a compromise on the calculation of damages that was reached by the Senate Judiciary Committee in April 2009. This compromise requires a trial court judge to serve as a “gatekeeper” to keep speculative theories and calculations of damages out of court, in order to pull in outlier runaway jury cases. The current damages system, in which the full impact of a patented feature on a product is considered, is an appropriate one. For decades, courts have refined damages calculations to properly reflect the value of patented components. The system works and only needs judicial oversight to make sure it works more reliably. However, H.R. 1260 has a proposal for “apportionment of damages” which limits damages to only the patented feature. This proposal does not recognize that in a competitive environment, the sale and value of a whole product is often dependent upon the presence of a patented improvement. The apportionment concept would ask a trial court to subtract the value of the prior art and attempt to value the improvement in isolation—a logical impossibility where the improvement is a slightly different shape for a component, or a reordering of steps in a process or similar improvement that has no meaning or value outside its context. For example, how much of the iPhone’s value should be ascribed to the touch-sensitive glass after the rest of the phone is removed?

Estimating value in the context of the entire device is difficult but tractable; the question in isolation is meaningless. The damage apportionment concept is particularly troubling, for example, to medical device companies whose discrete improvements to a product may shift the sale of the entire system to the inventor of that improvement. This shift occurred in the case of the addition of “motion tolerance” to pulse oximeter systems and, to some extent, when “rapid exchange” capability was added to angioplasty balloons.

Arbitrarily denying courts the ability to base computations on the entire market reality, for example, where an improvement drives market demand for an entire

product, will lead to equally arbitrary results as judges grope for the hypothetical price of a feature that is only sold as a component of a larger assembly or are otherwise barred from considering the totality of a market. Consideration of a non-exclusive license to make the determination is just as unacceptable because it effectively uses a standard of compulsory licensing as a measure for damages when a company may need to maintain exclusive control for strategic reasons. This is an area of “reform” that is best left alone.

We must also be careful not to enact reforms that would allow large companies to infringe small company’s patents for a small cost. Penalties for infringement must be substantial enough to serve as a deterrent to large entities.

STRENGTHEN PATENT EXAMINATION EFFICIENCY AND QUALITY

Patent value is not measurable only by lawsuits and settlements. Along with encouraging investment in product R&D, patents improve our economy by discouraging copying and thereby preventing over-investment in undifferentiated competitors. During the internet bubble this occurred in many sectors, most memorably the optical switch market. The crash of 2000-2001 was a result of over-investment in many “me-too” technology companies. This misallocation of resources could have been prevented by limiting market entry. Patents—when examined and issued promptly—do that in an efficient and neutral way, but long pendency robs the markets of most of the patent systems’ value to prevent these capital misallocations.

Improving patent quality means approving more good patents and denying more of the bad ones. It also means good patents must issue in a reasonable time, not the four, seven and ten years that we often see today. The shortest path to these twin goals is to give the Patent Office resources it needs to hire and retain more qualified examiners and to give them the time they need to make correct decisions on each patent application. The Patent Office must be allowed to keep its patent filing fees. It is commonly agreed that the Patent Office is the weak link in the U.S. patent system and that the main impetus for Patent Reform would dissolve if the Patent Office did its job well; yet the bill treats the symptoms and does nothing to treat the illness of fee diversion from patent applicant fees to the U.S. Treasury. Until this fundamental problem is fixed, most other changes are likely to make things worse instead of better.

Eric Severeid, the great CBS journalist of the mid 20th Century, noted that “Most problems begin as solutions.” Patent Reform—depending on the provisions enacted—may rank up there with Sarbanes-Oxley, deregulation of Savings & Loans (the S&L crisis cost taxpayers \$200B in the 1990’s) and a host of other notorious wounds self-inflicted when well-intentioned legislators act without considering enough facts, or the

economic incentives their proposals create. The law of unintended consequences has not been repealed.

THE BIGGER PICTURE

The innovation economy ecosystem is very delicate and is currently limping due to many self-inflicted wounds and the general economic malaise. It is not just small companies that are suffering. Many venture funds have been unable to raise new funds and are winding down. Others are investing overseas in search of better return. It is often the case that societies do not realize what their source of strength is until they lose it, and we are already on the road to doing so. The venture market has always ebbed and flowed, but there have been a number of changes in the past decade that may lead to a long-term structural decline. Patent Reform threatens to be yet another accelerator of that decline.

The main provisions of Patent Reform are uniformly adverse to small companies, and consequently to venture capital. The U.S. has the most innovative economy in the world, yet this bill threatens to materially harm it to solve “problems” that are not really problems. As I noted in the opening paragraphs of this article, the economics of new company formation and investment are orders of magnitude larger than the patent litigation concerns driving Patent Reform, and probably more sensitive, in that small changes in legal input may lead to large changes in behavior and economic output. Why has the effect on those economic segments not been fully considered and weighed?

If a company were to lobby for a change in laws that benefited that company at the expense of its larger community—for example if it wanted to pollute more—we would consider it unethical. Yet that is precisely what Patent Reform’s advocates seek.

Today, the main proponents of Patent Reform are large companies: the large IT companies in the Coalition for Patent Fairness and the large pharma and large manufacturing companies in the 21st Century Coalition. From the perspective of the large IT segment in particular, the whole patent system could go away with no harm to them. Patents are certainly important to other large companies, but they would survive with a weakened patent system, on the strength of their market power, assembled resources and the like. But small company innovation and investment lives and dies by a strong patent system. Small companies are generating the overwhelming majority of new high-paying American jobs, and many large companies rely on buying small companies or licensing innovations from them to stay competitive. The major provisions of Patent Reform directly impair the innovation ecosystem and I urge Congress not to adopt the weak “forced-to-file” grace period, a post-grant review that raises existential uncertainty for small companies, or a damages provision that ensures small companies a fair return for their risky investments. ■