

Reform & the U.S. Patent System: Big Stakes for Small Business

By Michael J. Tavilla, Steve DelBianco

"The patent system added the fuel of interest to the fire of genius."
- Abraham Lincoln

Introduction

The patent system has always been important to small firms and entrepreneurs on the cutting edge of technological innovation. Now more than ever, patents enhance the ability of small firms to raise capital for research and development and enable them to protect their inventions from larger competitors. Unfortunately, there are significant issues confronting the U.S. Patent Office that are creating obstacles for small firms that rely so heavily on intellectual property protection. The result has been that not enough small businesses are taking advantage of the system because of a misperception that patents are unnecessary for their business, and a patent process which is in need of thoughtful reform.

SMALL, NIMBLE FIRMS ARE CRITICAL TO THE INNOVATION ECONOMY

According to the US Small Business Administration (SBA), small businesses:

- Represent 99.7 percent of all employers
- Employ half of all private sector employees
- Generated 60% to 80% of net new jobs over the last decade
- Employ 39% of high-tech workers such as scientists, engineers, and others employed in the information technology (IT) sector.

Moreover, the last decade has been very productive for highly-innovative small firms; they increased their presence among the nation's most innovative firms from 33% to 40%.ⁱ

In addition:

- **Small firms are an attractive destination for elite inventors.** Small firms are increasingly offering the working environment where the best inventors have the latitude and opportunity to innovate and invent. A recent study indicates that the share of so-called "highly productive inventors" at large firms fell from 72% to 69% since the mid-1990s, while their presence at small firms increased from 12% to 16%.ⁱⁱ
- **Large and small firms rely heavily on small firm technology.** Large firms rely significantly upon small firm patents in the high-technology sector. For example, 41% of patents in the field of biotechnology are held by small firms. In addition, 66% of the citations from large biotechnology company patents go to small firms, indicating that small biotech companies are referenced more than would be expected just by their numerical share of patents.

PATENTS ARE CRITICAL TO THE SUCCESS OF SMALL INNOVATORS

Intellectual property protection-- especially patents -- helps innovators to safely demonstrate the value of their ideas to investors who provide crucial venture capital funding. Without the vital protections that patents provide, ideas and inventions could be stolen during the initial funding stages, before a new product even makes it to market.

Firms that seek and obtain patents have a high impact.

According to a recent study, small firms own nearly 25% of all corporate patents.ⁱⁱⁱ Capable of specificity and focus in research and development, these small, entrepreneurial firms are intense, adept, and hungry innovators that produce high-impact, advanced technologies. For example, only one-third of the top 1,000 most patenting U.S. firms are small firms, but in the biotech industry, small firms produce one-quarter of patents and account for 71% of the patenting firms. Patents are an invaluable tool to spur investment and innovation. Consider that:

- Small firms produce more highly-cited patents than large firms, on average. Small firm patents are twice as likely as large firm patents to be among the top 1% of most-cited patents. That is, small firm patents are on average more technically important than large firm patents.
- Small patenting firms produce 13-14 times more patents per employee, as compared to large patenting firms.
- Small firm innovation is twice as likely to be closely linked to scientific research, as compared to large firm innovation. Big businesses just can't match the pace of entrepreneurs in leading-edge technology research.

MANY SMALL FIRMS DON'T USE PATENTS AS MUCH AS THEY SHOULD.

Too many small entrepreneurs and "garage inventors" don't understand the complexities and value of the patent system, and therefore don't take advantage of all of its benefits. For example, Stan Weston, inventor of the G.I. Joe Action Figure, was offered \$100,000 up front or just \$50,000 with a one percent royalty once sales exceeded \$7 million. Rather than obtain a patent (which Hasbro later did), Weston chose the \$100,000 option -- and lost out on an estimated \$20 million in royalties over the next 30 years, mainly because he failed to realize the advantages of patent licensing.^{iv}

Among small businesses, a lack of awareness and understanding feeds some common misconceptions about the patent process:

- ***"I don't understand how the patent system can help me."*** Many small inventors are simply unaware of the patent system and the role patents should play in their business strategies. Others rely on the use of more informal types of intellectual property protection, such as trade secrets and copyrights that simply don't suffice in the modern business environment – especially for software and high-technology products. For example, copyrights only protect the underlying code of software, not the innovative ideas behind it. As a result, copyrights might allow larger competitors to co-opt a smaller firm's product, reverse-engineer its features, and then beat the smaller firm to market by leveraging their superior market muscle.
- ***"I'm making my business a target for a patent infringement suit by seeking a patent."*** Not true. Well-written patents applications with carefully-worded claims actually afford more protection from infringement lawsuits, as compared to those who haven't even applied for a patent.
- ***"Patents take too long to be granted, why bother?"*** To be sure, the USPTO has a self-admitted pendency problem, where increasing volume and an existing backlog means patents aren't reviewed nearly as fast as the speed of business. Yet, even when a patent is pending, the applicant has an important asset. A "patent pending" helps firms to demonstrate the value and feasibility of their invention and business model, thereby attracting critical venture capital funding to get the business up and running. In addition, so called "inchoate rights" allow a company certain "bragging rights" and make assertions about competitive and first-mover advantages in press releases and marketing materials.

- **“I can’t afford to get a patent.”** A rule of thumb is that legal costs to apply and secure a patent are around \$30,000 – plus the inventor/applicant’s time to prepare documents and work with patent attorneys. That’s a big number for many sole proprietors and lone inventors, but this amount is surprising to many entrepreneurs who had the impression that patent filing costs much, much more. What’s more, the patent costs are typically a small fraction of the total costs to conceive and develop a technical invention. When the invention has true economic potential, small businesses ought to actually be saying, “I can’t afford *not* to get a patent.”

Case-in-point: Ad Systems

“Our software consulting firm earned most of our revenue building customized billing and accounting applications for a single industry –advertising agencies. But our projects were all based on billable hours, and we wanted to do a better job leveraging our code base and domain expertise. So for a full year, we plowed most of our profits into building a proprietary application that we could license to ad agencies. Over a year, this product consumed nearly a million dollars in salaries for a designer, project manager, and several developers, plus travel and collateral expenses for the initial marketing campaign.”

“Within a year of completing the product, we were once again investing in software development, this time to port the product to additional platforms. While we eventually sold our copyrighted code for \$100,000, we could have realized a far greater return on our investment if we had obtained patents for our unique design features and workflow paradigms. And while patenting could have cost us an additional \$30,000, that represents only 3 percent of our original investment. Thing is, we just had no concept of how the patent process worked, or how patents would have improved our return on investment.”

—Rene Adam, President

- **“I can’t afford to defend my patent in court.”** Among small firms that do understand the value of protecting their IP, many are discouraged by fears of costly patent litigation. However, firms should consider patent insurance policies that can stop a big firm from steamrolling a smaller firm with expensive litigation. Patent insurance has four main benefits for small firms: 1) deters infringement because it gives financial power to more aggressively protect a patent; 2) reduces pressure on the patent holder to settle because of mounting legal expenses; 3) encourages investors by reducing their risk; and 4) eases licensing because prospective licensees feel more secure.^v

In general, more facts -- and less fear -- will go a long way to help small firms make an informed decision about pursuing IP protection.

THE PATENT SYSTEM IS GOOD FOR SMALL FIRMS, BUT IT COULD BE GREAT.

Patents have proven their value as a great equalizer between firms large and small, and have helped small firms to bootstrap with licensing revenue generated from their innovations. But it’s not as easy as it could be for small firms. Three issues hinder small firms from taking full advantage of the patent system:

1. Quality.

An explosion in workload demands driven by patent-seekers created pressure on the USPTO to grant more patents, more quickly. But increasing workload without increasing the skills or quantity of patent examiners has led to an inevitable decline in patent quality. Specious patents were granted, including some that claimed a patent for merely putting an ordinary business function online. For example, online travel leader Orbitz endured patent harassment stemming from their use of an “interstitial page” – a “system at work” Web page that is shown to users while the system searches for fares.

2. Pendency.

In fiscal year 1994, only 201,554 patent applications were filed with the USPTO. A decade later in fiscal year 2004, there were 376,810 applications filed, causing the office to fall far short of its goal of an 18-month average patent turnaround time.^{vi} As a result, average pendency -- the period from application to grant – currently stands at over 26 months. And for the computer software industry, average patent pendency currently stands at over 40 months – far too long to

satisfy an industry with such a short innovation cycle, especially for small firms that depend upon quick returns on patented products.^{vii}

3. Cost.

For those who seek patents, fees and related costs of preparing a patent application are generally estimated to exceed \$30,000. And once granted, the costs of defending intellectual property rights and maintaining a patent can sometimes be “prohibitive.”^{viii}

SOME PROPOSED “REMEDIES” THREATEN TO DO MORE HARM THAN GOOD.

The patent system is clearly ailing yet some have proposed alarmist, knee-jerk reactions that would likely cause more harm than good. These proposals include:

- **Abolishing the patent system.** Critics of intellectual property rights have seized the opportunity to cite patent system problems to justify their cries to abolish the current patent system altogether. However, even with today’s problems, the patent system provides invaluable protections for innovators who push the envelope of technology and new ideas. Without it, new and novel ideas could be usurped by others before the actual inventor could see a return on an investment – an investment that could be in the millions of dollars. As a result, the incentive to innovate, especially for small firms where investment dollars are scarce, would be irreparably diminished.
- **Legislating against business method patents.** “Business method patent” has become a dirty word in patent circles and has been cited as evidence that the system is in desperate need of reform. Some critics have called for the elimination of patents for all business methods, citing problems with certain e-commerce method patents. But under the current patent system, patents should never be granted for merely transporting a routine offline business process to the online realm. The existing patent system can work for business methods if and only when the “*non obvious*” and “*new*” standards are rigorously applied. This way, patents aren’t awarded for claims such as online implementations of calculating currency conversions or shipping rates.
- **Legislating that computer software cannot be patented.** Computer software resides in the intangible realm of bits and bytes, but it’s still an invention that deserves patent protection. A substantial investment of hundreds of thousands or even millions of dollars may go into a software development cycle at a high-tech firm. Patents enable small firms to simultaneously protect the innovations they’ve invested in and allow sharing of code with technology partners. Patents are emerging as the most effective tool for small firms to protect and leverage their software inventions with industry heavyweights like Microsoft, Oracle, and IBM.

TARGETED REFORMS CAN HELP SMALL BUSINESS ACCESS THE PATENT SYSTEM

Several patent reforms would bolster the value of patents for small firms, spur innovation, and would benefit the business community as a whole. They include:

- **Ending fee diversion and hiring more patent examiners with better qualifications.** Patents are a necessity to protect the value of new, useful ideas. As a result, inventors are left no choice but to pay the fees and obtain them. But the system is overwhelmed and the PTO doesn’t have financial or human resources to adequately do the job. Worse, Congress recognized the patent system as a reliable revenue source and began lifting a portion of USPTO fees to subsidize general spending. Essentially, the USPTO became a federal government profit center. Unfortunately, since not enough of this revenue stayed “in-house,” the USPTO failed to hire enough patent examiners nor did it make use of new technology to work the backlog and speed quality patents out the door.
- **Fostering an environment where more efficient and comprehensive “prior art” searches are the norm.** The body of work that may precede an invention is a critical tool in evaluating patent applications. In the case of high-technology, however, libraries of prior art are disjointed and the body of work has a shorter history. The Software Patent Institute is compiling a reliable and comprehensive body of software-related prior art, and will make it available to patent examiners.

Projects such as this should be encouraged and welcomed by USPTO. In addition, current policy prevents other parties who may have evidence of prior art from submitting that documentation except for a tiny two-month window two months from the date the application is published. Allowing a larger window of opportunity for submissions would provide patent examiners critical information where their body of considered prior art might be scant.

- **Ensuring granted patents are ‘quality’ patents.** The USPTO works hard to get patents right the first time, but the current reexamination procedures are not working well enough for small business. The existing procedures are rarely used because companies are forced to choose between proceedings that block evidence from future court use, or simply skip the USPTO altogether and hold their evidence for use in future litigation. Congress should modify the *estoppel* provision to enable 3rd parties to submit evidence in reexamination procedures while preserving their ability to present evidence in future litigation. In addition to fixing re-examination, Congress should create a post-grant opposition period that will allow challenges for a limited time, while including safeguards to avoid harassment, delay and undue legal expenses.

CONCLUSION

Small firms are critical to American economic growth and innovation, and the patent system is critical to their success. As industry and government leaders look for ways to solidify American leadership in the innovation economy, educating entrepreneurs about the patent system and reforming the system to make it more small-business friendly should be at the top of any list. A more efficient and more accessible patent system that strengthens the small business backbone of our economy will undoubtedly lead to a stronger, more successful America.

About the Authors:

Michael J. Tavilla is Research Director for the Association for Competitive Technology (ACT), a Washington-based, national education and advocacy group for the technology industry. Prior to joining ACT, Michael was the Senior Research Associate on the Internet Policy & Regulation Research Team at Forrester Research in Cambridge, Massachusetts.

Steve DeBianco is Vice President for Public Policy at the Association for Competitive Technology (ACT) and executive director of the NetChoice coalition. Prior to joining ACT, Steve was founder and president of a software consulting firm that grew to several U.S. locations before being acquired.

ENDNOTES

ⁱ Highly innovative small firms are those with more than 15 US patents granted in the five years 1998-2003. From the report titled “Small Firms and Technology: Acquisitions, Inventor Movement, and Technology Transfer” report to the US Small Business Administration (SBA), prepared by CHI Research Inc., January 2004.

ⁱⁱ “Highly productive inventors” are defined as inventors who had a combined total portfolio of at least 10 patents. As defined in the report titled “Small Serial Innovators: The Small Firm Contribution To Technical Change,” report to the US Small Business Administration (SBA), prepared by CHI Research Inc., February 27, 2003.

ⁱⁱⁱ “Small Serial Innovators: The Small Firm Contribution To Technical Change,” report to the US Small Business Administration (SBA), prepared by CHI Research Inc., February 27, 2003.

^{iv} [Entrepreneur's Start-Ups magazine, February 2002](#)

^v Burdick, Bruce E., “*Patent Insurance: Is It Worth It?*” 2002.

^{vi} USPTO

^{vii} [United States Patent and Trademark Office, Performance and Accountability Report Fiscal Year 2004 \(http://www.uspto.gov/web/offices/com/annual/2004/060404_table4.html\)](http://www.uspto.gov/web/offices/com/annual/2004/060404_table4.html)

^{viii} Ibid.