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Testimony before the House Committee on Small Business

“The Impact of Intellectual Property on Entrepreneurship and Job Creation”

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Chairwoman Velazquez, Ranking Member Graves, and distinguished members of the Committee: My name is Peter Carnes, and I would like to thank you for holding this important hearing on the role intellectual property plays in driving innovation and creating economic growth and, most importantly, new jobs.

I am the chief executive officer of Traffax, Inc., a transportation monitoring equipment startup in College Park, Maryland. A May 2008 winner in the University of Maryland's Maryland Technology Enterprise Institute business plan competition, Traffax designs equipment and systems to measure the flow of traffic, both vehicle and pedestrian, based on technology that detects and monitors electronic signals from consumer electronic devices. The Traffax technology is accurate, inexpensive to deploy, and operates while protecting individual privacy, overcoming some disadvantages found in existing systems. While we are based in the U.S., traffic is a global problem and Traffax equipment is also in use in Canada, England, Australia and Brazil. We have seven employees, plus sales agents domestically and overseas, and have plans to expand further.

We started Traffax to commercialize technology developed at the University of Maryland, in recognition of the fact that ideas—and the realization of those ideas as useful products or services—are a high-value opportunity to drive economic revitalization. As a result, our company's very existence is predicated on ideas. Those ideas were protected through a combination of patents and copyrights, and that intellectual property (IP) created the opportunity to build a business.

In today's global world, innovation serves as a linchpin for creating future jobs, solutions to modern problems, and maintaining technological leadership. The lifeblood of any small, high-technology enterprise is the intellectual property (IP) that it creates. In other words, the short-term viability, the long-term profitability, or the eventual initial public offering or sale of a small company all depend upon its ability to develop, acquire, protect, and apply innovative ideas and concepts.

Lessons Learned: Integrating an IP Culture Into All Stages of the Innovation Process

Entrepreneurs have many motivators but from a financial perspective, there are really only three positive outcomes resulting from starting a company: You build a business and leave it to your kids, you have your company acquired, or you take your company public through an IPO. Most of the time your kids don't want the company, and the number of companies who make it to IPO is infinitesimal compared to the number of companies started. That leaves acquisition, which requires you to have something worth acquiring. For many generations that was land, or inventory, or client lists. But for today's innovative new businesses, oftentimes the only asset of value is intellectual property.

Through decades of startups and consulting, I have seen that companies who manage their IP in a systematic way are often the companies who get funding from VCs more quickly, and have a more successful exit strategy. These companies look at their IP not as just a single idea, but as a package of trademarks, copyrighted software, patents and even the non-disclosure agreements employees sign. They build into employment agreements profit sharing for employees who generate valuable IP, and they manage their contracts with customers to make sure that rights to end products are clearly defined.

Companies who manage their IP holistically also make it less attractive for big companies to free-ride on their ideas, and keep their customers from taking ideas and replicating them in-house.

As innovators, our job is to solve a problem, to change things, to create new possibilities. We have the wonderful opportunity to fail, and with each iteration we learn and improve until we refine the product until it solves the problem - or we hit a dead-end.

So the innovation model is high risk, and the only thing that makes it worth doing is the possibility of high reward. Without IP, it is very difficult to get that reward before competitors crop up to dilute the value of the innovation. Traffax is facing this dilemma today – our competitors now claim to have the same functionality we invented, and in some cases they probably can, all because they have read our patent application.

IP as America's Way Forward

America's technological leadership is not an accident. America's IT giants are built on the back of our robust IP system, and the entire economy is reaping the benefits.

According to a 2007 report by the Information Technology & Innovation Foundation, IT adds \$2 trillion dollars annually to the US economy, and "is responsible for nearly all of the pickup in economic growth over the last decade."

IT drives the economy, but it also requires fuel of its own—intellectual property. Most of the leading companies driving IT innovation are less than 30 years old. Small companies like mine work in the hope that we can become one of those companies. Entrepreneurs often risk everything for this possibility – we mortgage our homes, quit our jobs, and generally make our families very nervous. And the people we hire risk quite a lot to become part of this effort as well, often forgoing higher salaries they could be earning in larger, more established companies. IP protection makes it possible for the risks pay off if and when our products become successful.

And the use of IP to drive America forward isn't just about copyrighted software for desktop computers or patents for a Traffax monitor, it's going to be key for deriving the maximum benefit from the next wave of green technology products. Regardless of anyone's opinion on climate change, the success of the Prius, solar roofing tiles and sales of new wind turbines make it clear that there is a market for energy efficient products with a smaller carbon footprint. America is dedicating significant intellectual firepower to inventing these products domestically, but the reality is that the market will be global. Ensuring that American companies are paid for these new inventions becomes critical to the continued development of new products, and the hiring of more researchers, engineers, sales people and marketing teams – all high paying jobs that will help grow the economy.

In the IT industry, there's a concept regarding a product's value chain known as the "smiling curve." It is a U-shaped curve where the highest value of a product is at each

end and the lowest at the bottom dip. According to this model, the majority of a product's value goes to firms that research and develop a product on the one end, and that market and sell the product on the other end. The bottom dip represents the least amount of value, which is the production and assembly of the product.

Successful U.S. companies such as Apple are often innovative creators and marketers of products, but they outsource the production to overseas companies. Doing so maximizes value and allows innovators to reap the highest economic rewards, but they are also exposed to the greatest risk because their ideas are most vulnerable to theft. This is why intellectual property protections and enforcement are so important to IT companies.

Roadblocks to Building a Culture of IP

There are three big roadblocks facing small companies that wish to bring innovative new ideas to market using the IP system: The time it takes the USPTO to process a patent, the uncertainty of IP protection in overseas markets, and the paucity of loan options available because banks and the Small Business Administration (SBA) does not know how to value IP or treat angel investors correctly.

USPTO Delay

Many small, innovative businesses pay some attention to IP – they pour their scarce resources into the front end, but because the process takes so long, they fail to pay to maintain their patents, or give up part of the way through. I have been with several companies that haven't been able to make their IP worth much – not because the IP was worthless, but because they just ran out of steam.

It takes so long to achieve patent protection that it is hard to “stay the course.” Right now the patent office publishes a patent application 18 months after filing, but the average wait until the patent is granted is 40 months. Most technology entrepreneurs are doing everything they can to survive for 40 months, much less waiting around to see if they got their patent.

Global devaluation of IP

Piracy reduces your potential world market – companies don't bother to explore expansion into some countries because they know protection is unlikely. Ironically globalization expands available market but can harm your ability to realize its potential. Before the Internet, entrepreneurs often would calculate that we could get into a new market and sell a significant number of units before the technology was copied. We had a chance to establish market leadership in spite of the inability to protect our IP legally. Nowadays the copying begins before our first product hits the shores.

The big problem today with the Internet world is that copyright has been devalued – it is the unfortunate reality of the web culture that says “if its on the web it must be free”. Years ago, building a brand often came from the creation of thoughtful analysis or specific information. In today's age of cut and paste, the moment I put my ideas on the web, they are no longer mine at all. Competitors either outright copy the prose, or just re-word the thought and the value of that new idea is diluted. It used to be that when you had an idea, you had some opportunity to travel down the learning curve, and gain the first mover effect. Today, the individual with the most resources can step in and usurp the market, without coming up with the idea. Most small businesses don't have the resources to enforce IP rights, especially on copyright.

Having been in the “pure” software business, I can tell you that selling software only is going to get harder. The speed at which software is copied, and the willingness of overseas users to steal, makes it ever harder to build products that have a multiplier effect (i.e. I write it once and then sell many copies). Instead, software developers are doing more custom software development or work for hire, where they are only paid by the hour – this is a fine way to make a living, but it almost never leads to breakthrough innovation.

The other major focus for software developers is to create software that is only expressed on a particular physical product. At Traffax, our hardware is totally dependent on the software that implements our patented inventions. This is also seen in the medical device field. Great strides are being made on new medical tools by marrying cutting edge

software with hardware. And we even see it in the consumer space; thousands of developers are flocking to the iPhone and other platforms because the security of their software is bounded on just that physical device. Copying is more difficult and of limited value.

SBA Loans and IP valuation

We explored SBA loans at Traffax, but we found that banks have almost no ability, and no interest, in granting loans to companies that have few tangible assets. Innovation companies don't buy buildings, they don't buy furniture, they don't buy trucks, they may not even buy computers. Instead they pay wages for engineers, they hire software developers, they build and destructively test prototypes – none of which is a tangible asset that a bank can attach if you fail.

A further complication of the SBA loan is the practice of holding all owners individually liable for the debt. This means that each person is wholly responsible if other signers cannot help repay the debt. If I have an angel investor who has money (by definition, an angel investor has to have money), he or she may only have 10% ownership of the company, but he or she will end up being 100% liable for the debt. This is a big mismatch between potential reward and level of risk. In practical terms it means that my investors are uninterested in using SBA loans.

Solutions

Give the Patent Office the Budget it Needs

The US patent office continues to suffer under a crushing backlog of patent applications, and new examiners need to be trained in the kinds of technology that will lead the nation forward. Innovative businesses are being held up at the starting line while they wait for more than forty months to find out if their innovative new idea has received a patent. Simply put, stalled applications because of inadequate resources will delay the development of new technologies and the creation of new private sector jobs. One of the best ways to help small IT companies is to give the USPTO the budget it needs to

eradicate the shameful backlog of pending patent applications – there are over a million pending patent applications, 500,000 of which have not even had a preliminary review.

Technology innovation is a virtuous cycle that repays investments exponentially – but it often takes IP protection to get the funding to develop that innovation fully. There is no reason that the USPTO should have budget problems since its entire budget comes from application fees. In times like these, we should be promoting growth, not shackling the information economy with uncertainty and delay.

Help Protect Our IP Globally

It is a truism that we are in a global economy. Free trade in IT is incredibly important to innovative companies. One of the side-effects of globalism is the incredible amount of uncertainty about how much protection we can count on for our IP. It is not just those countries that fail to protect our IP and allow piracy that hurt us throughout the world, but uncertainty about the levels of protection even in those countries generally amenable to IP. Currently, there is a lot of focus on those countries with very little IP protection, and those countries do need to take steps to stop the overt theft of our IP. But there should also be some attention paid to the other countries that generally respect IP, to try to encourage similar IP policies globally. This would not just help innovative U.S. companies, but increased certainty around IP protection would help innovative companies everywhere. And that benefits everyone.

Reform SBA Loan Processes

As the U.S. economy depends less on bricks and mortar, and more on information and technology, the SBA processes and rules need to be modernized to keep up with the times. SBA loans need to be more available to the innovative technology companies that will lead our economy into the future. As I mentioned, current policies impose a disproportionate risk/reward profile on angel investors, who are among the few sources of funding for innovative startup companies. One solution would be to have SBA give non-recourse loans to IT companies; innovative companies like Traffax that do not have securable assets, but will need to invest in salaries to hire programmers and engineers.

Chairwoman Velazquez, Ranking Member Graves, and distinguished members of the Committee, the innovation economy is dependent on small business, and small business is dependent on IP. I hope that the committee will continue to focus the spotlight on the contribution small business makes to the future of the U.S., and the way the government can do a better job to encourage our IP based economy. Thank you for your time and consideration on this important topic.