Written Testimony of Sarah Djamshidi to the United States Senate

"The Role of Small Business in Strengthening Cybersecurity Efforts in the United States."

Senate Committee on Small Business and Entrepreneurship

Laurel, MD Field Hearing
Senator Benjamin L. Cardin, Maryland

July 25, 2011

On behalf of
Chesapeake Innovation Center
www.cic-tech.org

Sarah Djamshidi
Executive Director
Chesapeake Innovation Center
175 Admiral Cochrane Drive
Annapolis, MD 21401
Tel 410.224.2030
Cell 410.212.4150
Fax 410.224.4201
sdjamshidi@cic-tech.org
www.cic-tech.org

My name is Sarah Djamshidi. I am the Executive Director of the Chesapeake Innovation Center ("CIC"). Senator Cardin, thank you for holding this very important hearing on the role of small business in cybersecurity and for offering us the opportunity to discuss the small business issues. I am honored to submit written and verbal testimony to you and this esteemed subcommittee.

CIC is a unique business incubator and accelerator designed to serve as the direct connection between major users of technology and the early-stage technology companies that are leading the way in innovation. Whether we're scouting for breakthroughs or vetting and supporting the companies behind them, we make it our business to stay in the know. That's why we are able to bring the expert guidance, tangible value and increased efficiencies that accelerate progress on both sides of the innovation equation.

CIC, formed in 2003 and located in Anne Arundel County, has served as the nation's first business accelerator for homeland, national and cyber security areas. CIC has focused on the intelligence community. In addition, CIC has played a key role in fostering innovation in support of homeland and cybersecurity efforts with strong ties to the national security stakeholders, working with more than 50 emerging technology businesses in the State of Maryland and more than 170 emerging technology businesses from around the country and the globe. CIC is a program of the Anne Arundel Economic Development Corporation ("AAEDC"). AAEDC is the designated organization for supporting economic development and growth for the Anne Arundel County.

CIC has enjoyed significant success since 2003. As examples of our success, CIC member companies have raised more than $100 million in private capital and more than $300 million in government contracts. In addition, PharmAthene (AMEX:PIP), one of CIC's graduate companies went public.

Background and Rationale for CIC's Unique Programs

Today we live in a highly digitized world. Social networking and instant messaging accounts are exploding. By the end of 2010, The Radicati Group projects that there will be 2.2 billion social network accounts worldwide, and currently, 2.4 billion instant messaging accounts. By 2014, they project that there will be over 3.7 billion social networking accounts and over 3.5 billion instant messaging accounts. In 1996, there were 16 million Internet users worldwide. Today, there are more than 1.8 billion Internet users across the globe. In 2009, there were a total of 90 trillion e-mails sent. And in 2010, around 247 billion e-mails sent every day. Of those 247 billion e-mails, 200 billion were spam. The digitized world has brought on a lot of good things (Kindel, ipad, facebook, etc..), but it also poses tremendous vulnerabilities, our data must be protected.

On Thursday, July 14, 2011, the Pentagon revealed that in the spring it suffered one of its largest losses ever of sensitive data in a cyber attack by a foreign government. William Lynn, the deputy secretary of defense, indicated that 24,000 files containing Pentagon data were stolen from a defense industry computer network in a single intrusion in March. This combined with cyber attacks on Estonia and cyber attacks during the 2008 Georgian incursion have served to increase awareness that cybersecurity is not just about protecting computers, but also has implications for U.S. national security and economic well-being. As a result, cybersecurity has climbed to the top of the list, making it one of the key concerns facing our digital society. As we all agree, in today's digital age, individuals, and nations are increasingly capable of applying "cyber warfare" techniques against both public and private computer-based systems (from military systems to private power grids, banks, hospitals, air-traffic control systems, etc…). Currently, the DoD computers alone receive about 6 million attempted penetrations every day! These attacks are extremely difficult to trace back to their sources; and, at the same time, are becoming increasingly sophisticated in their tools and techniques. In addition, it is important to note that more than 90 percent of government critical infrastructure is built and supported by the private sector and more than 80 percent of the logistics are transported by private companies. Mission-critical systems are designed, built and often maintained by defense contractors. Thus, the government relies on private-sector networks and capabilities. Where do small businesses come in? Within the private sector the majority of the cyber technologies to protect our nation and critical infrastructure are built by small businesses.

Today, most cyber work is manual and preformed by individuals. Since there is a significant shortage of qualified cyber experts, the task of protecting our nation becomes a daunting task. In addition*, the one consistent theme is that the cyber defenses commonly used today are simply not effective against most forms of advanced cyber attacks*. Increasingly, the government agencies require advice, assistance, coordination and products to support the operational planning and execution and technology development required to assure superiority for the war fighter in the cyber domain.

Innovative small businesses can hold the key to success in this new era and public-private partnership organizations such as CIC (in partnership with county, state and federal agencies) can in-turn support them. It is important to note here that currently, there are no effective processes or mechanism by which small businesses can present their innovative cyber technologies to the market. CIC, along with its partners in the region is attempting to build such bridge.

As we know, technical innovations are a key catalyst for economic growth, and advancement in national security, public safety and healthcare. In most parts of the Washington, DC region, including Maryland, a significant gap exists between entrepreneurs creating viable early stage companies and a viable small business capable of brining technology-based products to the market place. This gap exists for a number of reasons:

    (1) Professional and educated workforce;

(2) An inadequate amount of seed and early stage funding for technology and product development, as well as for start up and working capital;

(3) Many technology entrepreneurs are not sufficiently educated in business related topics.

AAEDC and CIC have closely examined many of these obstacles, and have developed a comprehensive plan to accelerate the growth of the technology companies, via unique programs, here in Anne Arundel County and in the surrounding region.

This plan encompasses four components: (1) hands-on support and access to funding and government opportunities; (2)Education and support for a more robust workforce (3) strategic relationships between private and public sector in support of innovation in the area of cybersecurity; (4)entrepreneurship culture building.

CIC's Hands-on Support Approach and Benefits

Hands-on assistance and support in addition to access to government and funding opportunities are paramount in building a successful ecosystem where new innovative cyber tools and methods are born, supported and eventually deployed. The CIC program selectively admits 2-4 new startups per year pursuant to a thorough criteria. During a typical three-year acceleration and incubation period, CIC applies a rigorous company-building process to help advance the growth of the emerging technologies companies into viable, well managed, properly funded ventures. CIC mentors and marshals resources in partnership with AAEDC, Anne Arundel County, the educational institutions, venture capitalists and other resources from around the region to assist its member companies with (1)business planning and market analysis, (2)capital formation, (3)access to government opportunities and business development, (4) marketing and PR. CIC helps keep its portfolio companies on track to commercialization through weekly status meetings and consistent hands-on participation.

A summary of the benefits of working with the CIC include:

- **CIC Resource Network** – small businesses can expand their business-building network through CIC's contacts within the region, including leading corporations and institutions, technical expertise, staffing pools, professional services and other valuable sources of business assistance. Within the Washington, D.C. and mid-Atlantic region are numerous defense contractors and integrators who may have an interest to work with the CIC member companies and CIC will make introductions as appropriate.

- **Peer-to-Peer Program** – small businesses who are members of CIC can benefit from participating in the CIC's diverse and collaborative community of early stage companies all focused on the National Security marketplace. Share resources and contacts with other like-minded entrepreneurs and leverage the CIC's unique synergy dynamic.

- **Coaching and Mentoring –** CIC member companies receive one-on-one assistance from experienced entrepreneurs and technical experts within the CIC Community. The CIC

Management Team becomes part of the small business founding team and marshals its extensive resource network to help drive fulfillment of mutually established business objectives.

Entrepreneurial ventures depend on new inventions. One way to track the propensity to invent is through patent filings. A study released by the U.S. Small Business Administration's Office of Advocacy shows that 40 percent of the companies that issued at least 15 patents over a five-year period were small businesses. This and other studies show that small businesses are more likely to develop emerging technologies than their larger counterparts. **Thus, small firms are actively engaged in the cutting-edge technologies that will shape the nation's future growth.** Early stage commercial technologies are more than willing to implement Intelligence community-specific features because it opens a new market for them. However, they quite often do not have the market understanding to do so. Through our expertise and historical work at the Chesapeake Innovation Center (CIC), we have found that fine-tuning capabilities in emerging commercial technologies reduces risk, cost and time-to-market by orders of magnitude compared to conventional technology development methods. We believe that it's easier to leverage a technology to meet agency requirements than build it from scratch. Cyber Stakeholders will benefit from our finger-on-the-pulse approach to identifying relevant emerging technologies, as well as from our in-depth knowledge of intel and cyber community requirements.

- **Investor Prep and Network – Small Businesses** who are members of CIC receive iterative feedback by the CIC Management Team on how to effectively prepare for and present to investors, and gain introductions to our quickly expanding network of equity investors inclined to invest in ventures around innovative technologies.

- **Direct Partner Channels & Business Development**– Through its growing list of Partners, the CIC is able to create direct access for its members to decision makers within select leading organizations in the National Security Sector. Our customer network includes NSA, DHS through preferential mentor-protégé relationship, Boeing, Northrop Grumman, and ARINC. In addition, we have dedicated business development resources to assist CIC member companies in reaching government customers.

- **Marketing and PR Leverage** – The CIC has established itself as the nation's premier technology accelerator for National/Homeland and Cyber Security.   CIC has established relationships with various regional and national members of media and press. As appropriate for each venture, these relationships can be leveraged to provide exposure for the CIC portfolio companies.

Education and Support for a More Robust Workforce
<u>Augmentation of Cyber Workforce & Job Creation – Developing Tomorrow's Cyber Warriors</u>

CIC has leveraged its close link to the Cyber Stakeholders at Fort George G. Meade and works closely with AAEDC, Anne Arundel Community College ("AACC"), Anne Arundel Workforce Development Corporation ("AAWDC") to educate the next generation of cyber workforce and other educational institutions in the State of Maryland. Innovation and entrepreneurship will be crucial to the nation's economic revival and competitiveness in a global marketplace. A 2008 update by Zoltan Acs, to David Birch's seminal research of the 1980s and 1990s on **"gazelles" which are fast-growing, high-impact firms (classically defined as a company growing at an annual rate of 20% or more), found that these firms account for almost all of the growth in private sector employment and revenue in the economy.** With respect to job creation, since the mid-1990s, small businesses have generally created 60 to 80 percent of the net new employment.   **As one-third of US workers are employed by the small business sector, CIC will focus on the cyber training needs for small businesses, empowering them to maintain and to hire a more educated workforce.** To that end, in partnership with AAEDC, CIC can assist small businesses with workforce training. Through the AAEDC Workforce Training Partnership, eligible companies can gain the critical skills upgrades or technical training for employees that will improve overall productivity and competitiveness. An established and successful relationship with Anne Arundel Community College and the Center for Workforce Solutions as well as other training providers, helps AAEDC accomplish this training. Training can occur at the workplace, or the Anne Arundel Community College campus in Arnold, or at specialized labs at Arundel Mills and the Glen Burnie Town Center.   In addition, CIC actively introduces its members and other small businesses to the Pathways to Cyber security Careers which was funded by a $4.9 million Community-Based Job Training grant to Anne Arundel Workforce Development Corporation, Anne Arundel Community College and their partners over a period of three years for the Pathways to Cybersecurity Careers Consortium initiative. This project will address the challenges of a lack of adequate pool of skilled cyber workers, the shortage of laboratory facilities to support cyber training, a lack of training in flexible modalities, and barriers to learning for under-served populations.

Strategic relationships between private and public sector in support of innovation in the area of cybersecurity

Attraction of "best-of-Breed" Technology Companies to the Sate of MD

CIC's leadership, know-how, unique set of business assistance offerings and connection has provided a great attraction tool in bringing best-of breed technology companies to the State of Maryland. This will in-turn lead to the attraction of some of these emerging technology companies to close proximity of Cyber Stakeholders and growth/job creation for the State of Maryland. CIC's proprietary and established attraction screening program, *TechBridge,* has

screened, vetted and attracted viable emerging technology businesses to the State of Maryland. Through TechBridge, hundreds of companies have been screened throughout the nation and more than <u>170</u> companies have come to Anne Arundel County, MD, to present their capabilities to the defense system integrators and federal agencies such as NSA. To date, 48% of companies participating in the TechBridge program have been from across the country.

Entrepreneurship Culture Building

CIC has developed a number of programs to foster entrepreneurship culture in the region. One of these programs is the Business-to-Government (B2G) CEO Roundtable. This program is designed to bring CEOs, and company founders of emerging technology companies currently serving the federal government (or those who would like to expand their business to the public sector) together for a dynamic exchange of information and dialogue on the issues that are currently facing small businesses. This group gathers in a board-room setting and engages in a dynamic conversation with great speakers (former government executives, great entrepreneurs, and business experts with deep experience in building hyper growth companies), all focused on tackling real issues facing most small businesses in the market.

Results & Examples

The CIC programs has enjoyed significant success since 2003: (1) over 40 companies have been successfully accelerated and incubated; (2) over $300 million in government contracts have been secured by CIC firms; (3) over $100 million in private capital has flowed into CIC companies; (4) CIC has brought more than 170 high tech small firms to the region and has showcased their technologies to the government agencies and system integrators; and (5) CIC firms have been acquired and one company, PharmAthene, serving the homeland security market, has gone public. PharmAthene, a biodefense company, together with its subsidiaries, engages in the development and commercialization of medical countermeasures against biological and chemical weapons.

In addition, current CIC firms continue to thrive as well. For example, Inovex Information Systems, a promising Veteran Owned Small Business (VOSB) company serving Fort Meade customers, became a member of the CIC in 2009 with 13 employees. Today, they have almost quadrupled their revenues and currently employ more than 43 highly skilled workers. Among other cutting-edge services, they provide cyber support to their customers at Fort Meade.

Recommendations

1. Increase the amount and types of funding available to small businesses to continue innovation, create jobs and secure our nation;
2. Increase the amount of support that is available to small businesses. Support public-private partnerships as one of the successful mechanisms.
3. Better collaboration between Federal, State, Counties, academic institutions, funding agencies, venture capitalists, the private sector, and different members of the entrepreneurial community to better foster innovation in this key area, Cyber security. Today, it seems that our efforts are fragmented.