THE CYBERSECURITY INDUSTRY
IN THE
GREATER WASHINGTON REGION

A Report Accompanying the Release of the
TandemNSI Cybersecurity Industry List

October 18, 2016

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I.   INTRODUCTION

Over the last two years Amplifier Advisors and TandemNSI have been actively engaged in growing the Greater Washington Region's innovation community.[1] In a recently completed project – *Building Entrepreneurial Innovation in the Greater Washington Region* – we specifically identified the cybersecurity industry as an industry that should be the basis of future regional growth. Our conclusion was based upon specific data that showed a dynamic entrepreneurial culture, a high level of government spending, some venture capital activity, a regional concentration of potential larger private buyers and some existing company creation programs.[2]

Amplifier Advisors is an innovation technology consulting company that was established in 2011 to provide advice to government and private clients on how to bridge the gap between entrepreneurs and innovation challenges. Its customers include federal, state and local governments and agencies, universities, businesses and not for profits. It is led by Jonathan Aberman, a well-known figure in the Greater Washington Region's innovation community.

TandemNSI is a community project of Amplifier Advisors that since 2014 has been operated for the benefit of government agencies and the agile innovators and entrepreneurs that seek to work with them. In its short life, TandemNSI has grown to have more than 5,000 member companies and innovators and a social media reach of more than 200,000 people. TandemNSI's industrial focus includes cybersecurity and other advanced technology areas such as artificial intelligence and robotics. A broad range of federal agencies have used TandemNSI to reach innovators in the Greater Washington Region, Boston, Seattle, San Francisco, Silicon Valley and San Diego.

As our work has progressed, it is clear that the Greater Washington Region's political and business leaders agree with us that growing the cybersecurity industry is an important opportunity. However, it also became clear that while many people talk about the great opportunity that cybersecurity presents, there was no single, publicly available list of the cybersecurity firms operating in the Greater Washington Region.

We believe that in order to grow the cybersecurity industry as a region, all the stakeholders need to work from the same publicly available baseline information. Once we share an understanding of what already exists, we can build on our strengths and shore up our

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[1]For this Report the term "Greater Washington Region" is constituted by the states of Maryland and Virginia and the District of Columbia.
[22] For a copy of this earlier report see http://2030roadmap.com/wp-content/uploads/2016/04/2030-Group-Report-Final.pdf

weaknesses. We can establish growth models and goals, test them against real metrics, and measure our success and progress.

Creating this information consensus was our goal in preparing and making publicly available the *TandemNSI Cybersecurity Industry List* ("TandemNSI List"). As explained below, the list reflects extensive research in public sources and assistance from various organizations, all supplemented, improved and validated by members of our large and growing network of people who are active in the region's cybersecurity industry.

Set forth below are certain observations we have gained from the creation of the TandemNSI List. We hope that in total this information will serve our region's innovation community and allow all of us to continue to work together to further develop the Greater Washington Region's leadership in the cybersecurity industry.

II. BUILDING THE TANDEMNSI CYBERSECURITY INDUSTRY LIST

A. DEFINING "CYBERSECURITY" AND "CYBERSECURITY INDUSTRY"

Through our work we sometimes find that there is confusion over the terms "cybersecurity" and "cybersecurity industry." In our preparation of the TandemNSI List, we needed to settle upon definitions to inform our data gathering and presentation.

We used the following definitions to define cybersecurity and the cybersecurity industry:

"Cybersecurity" is an inclusive term for the technologies, processes and practices designed and employed to protect networks, computers, programs and data from attack, damage or unauthorized access.

The "cybersecurity industry" describes collectively the business activities that focus on providing products, services, or solutions (a combination of services and products) that have one or more of the following capabilities:

- Protecting existing software and functionality

- Protecting information and ensuring its accuracy and integrity

- Protecting information technology networks (equipment such as computers, servers, mobile devices, Internet-appliances and related infrastructure)

- Disaster recovery – ensuring rapid restoration of information technology networks, information, software and functionality after a man-made or natural disruption

- End-user education and compliance

We have purposely excluded service providers and consultants who provide support to businesses engaged in the cybersecurity industry, as well as actors in other important economic sectors, such as real estate, talent development and intellectual property creation. These are all important parts of an economic development strategy. But our focus in preparing the TandemNSI List is to include only the firms that provide cybersecurity products, services or solutions.

It is clear to us that the cybersecurity industry touches many opportunities for technological innovation and new businesses. Cybersecurity employs a broad range of inputs that include computer hardware (and related internet-connected appliances such as routers and physical devices that provide monitoring), sensors, data sciences and analysis, machine learning and artificial intelligence. As protecting data and cyber infrastructure becomes more difficult and more important, cybersecurity needs drive development in these adjacent fields, which in turn make hacking easier and drive the need for more sophisticated cybersecurity solutions. This circle, whether vicious or virtuous, creates many varied commercial opportunities.

The cybersecurity industry cuts horizontally across a broad range of industries that have an active presence in in the Greater Washington Region, including healthcare, hospitality, national security, federal and government, and banking and finance.

B.   OUR METHODOLOGY

The Amplifier Advisors team took an inclusive approach to gathering data for the TandemNSI List. We started with a census of the members of the TandemNSI community. Our outreach activities on behalf of various national security agencies have consistently shown an engaged and growing community of cybersecurity innovators. Many of the businesses in the TandemNSI List are engaged members of the TandemNSI community.

Our next step was to gather information from publicly available sources, such as the Federal Procurement Data System.[3] Since proximity to the federal government provides many of our region's businesses with customer revenue, we deduced that by following revenue from

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[3] https://www.fpds.gov/fpdsng_cms/index.php/en/

existing government contracts we could identify additional cybersecurity businesses in the Greater Washington Region.

We then moved on to finding companies that had not received government funding. We reached out to various economic development organizations for assistance and input; we then added to our data set the cybersecurity businesses that they identified to us.

Next, we added appropriate businesses that were included on various publicly available lists. Among the lists we referenced were the Inc. 5000[4], Fast 50[5] and Cyber 500[6]. We also reviewed venture capital investment information from PricewaterhouseCoopers, Pitchbook and AngelList to identify regional cybersecurity businesses that received external growth capital. We reviewed local accelerators and incubators participant lists and existing publicly-available cybersecurity industry listings.

As a final step, we gathered input from key cybersecurity industry participants who are in regular contact with the entrepreneurs and innovators who are active in the Greater Washington Region's cybersecurity industry. A list of these individuals is attached to this report.

The resulting data set was then further reviewed by us to ensure that each candidate for listing met the following criteria:

- The business was in active operation in the Greater Washington Region

- The business provides cybersecurity services, products or solutions

- The business name tracked to an owner, to avoid double counting of operating business divisions or tradenames

- The business had a working website address

This methodology identified businesses for which cybersecurity was only one of a broader range of offerings, as well as businesses for which cybersecurity was their only business. The location of a business's headquarters did not matter, so long as the four criteria above were satisfied and operated in the Greater Washington Region.

These businesses were further categorized into groupings to identify their core line of business. We used the following information as guidelines for categorization:

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[4] http://www.inc.com/inc5000
[5] https://washingtontechnology.com/fast50lists/fast-50-lists/2016.aspx
[6] http://cybersecurityventures.com/cybersecurity-500/

Category	Definition
Products	The company primarily produces cybersecurity products.
Services	The company primarily provides cybersecurity services.
Solutions	The company provides cybersecurity services, but also sells products. These could be resellers operating as consultants or product manufacturers who also provide support and analytics with their products.
IT Firm – Cyber Services	The company is primarily an information technology ("IT") firm, but one of their many offerings are cybersecurity services.
IT Firm – Cyber Solutions	The company is primarily an IT firm, but one of their many offerings are cybersecurity services and products.
Global IT Firm – Cyber Services	The company is a global IT firm with a presence in the region. One of their many offerings are cybersecurity services.
Global IT Firm – Cyber Solutions	The company is a global IT firm with a presence in the region. One of their many offerings are cybersecurity services and products.
Consulting Firm – Cyber Services	This is a company that does more than just IT. They might provide program management capabilities, engineering services, and more, but one of their many offerings are cybersecurity services.
Consulting Firm – Cyber Solutions	This is a company that does more than just IT. They might provide program management capabilities, engineering services, and more, but one of their many offerings are cybersecurity services and products.
Sensor Security Firm	These companies work with technologies such as Personal Identification Verification (PIV) and biometric scanning to better integrate information security with advanced credentialing.
Other	These are alliances, educational entities, non-profits and collaborative work spaces providing services and training to cybersecurity professionals in the region.

The next section of this Report provides insights as to the businesses on the TandemNSI Cybersecurity Industry List.

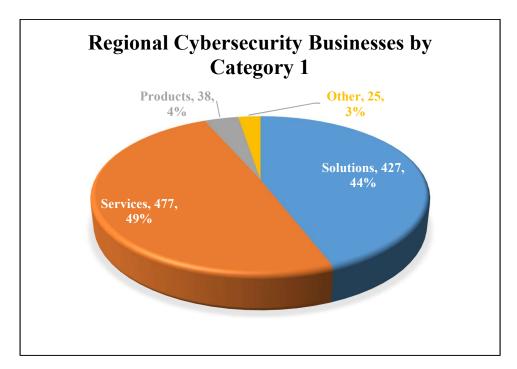## C.   COMPOSITION OF THE TANDEMNSI CYBERSECURITY INDUSTRY LIST

As of the date of this Report, we have identified 967 cybersecurity businesses operating in the Greater Washington Region. Most of them offer services and solutions. Product-oriented cybersecurity companies are a small percentage of the overall number of businesses.

The distinction between product companies, on the one hand, and service and solution companies on the other is important. Generally, businesses provide a service, a product, or a combination -- a solution. Service businesses can be innovative and unique, but their ability to scale up and grow rapidly is limited by how quickly they can hire and train new people. A business with an innovative product, on the other hand, is often able to grow more rapidly
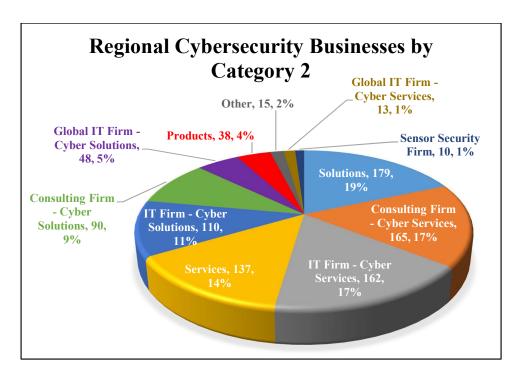
because adding production capacity can generally be done quickly. Intellectual property rights protecting products and processes– particularly patents and trade secrets – can provide a high barrier to entry by competitors. A solution-based business's growth potential lies somewhere between that of product businesses and service businesses because the need for trained service providers can be a drag on the product portion of the business. How much of a drag depends on the relative proportions of service and product that go into the solution. It can be difficult to coordinate the growth of the two components. Of the three types of innovation-based businesses, product companies tend to grow fastest.

Policy makers seeking to create high growth businesses are often drawn to product-based innovation businesses, as are venture capitalists and customers. For example, the Department of Defense, through its Defense Innovation Unit Experimental (DIUx) initiative, is actively seeking technology product-based innovations in Silicon Valley, Boston and Austin.
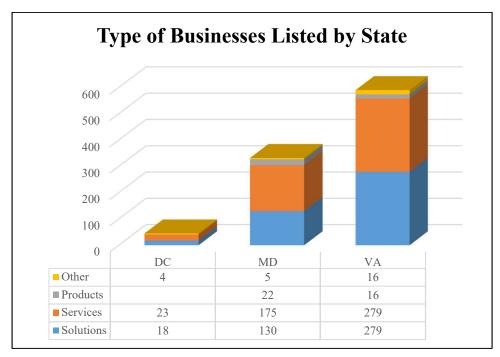
The Greater Washington Region's cybersecurity industry is primarily service and solution based. Throughout the region, product businesses are only 4% of all identified cybersecurity businesses, with services being the largest percentage (49%) and solutions (44%) closely following of all businesses.

Regional Cybersecurity Businesses by Category 1

- Products, 38, 4%
- Other, 25, 3%
- Solutions, 427, 44%
- Services, 477, 49%

A further breakdown of the services and solutions businesses provides some illustration of types of services and solutions offered to customers:

Regional Cybersecurity Businesses by Category 2

- Global IT Firm - Cyber Services, 13, 1%
- Other, 15, 2%
- Products, 38, 4%
- Global IT Firm - Cyber Solutions, 48, 5%
- Sensor Security Firm, 10, 1%
- Consulting Firm - Cyber Solutions, 90, 9%
- IT Firm - Cyber Solutions, 110, 11%
- Solutions, 179, 19%
- Consulting Firm - Cyber Services, 165, 17%
- Services, 137, 14%
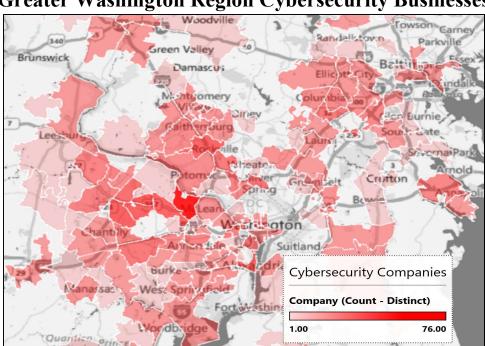- IT Firm - Cyber Services, 162, 17%

The composition of cybersecurity businesses in Maryland, Virginia and Washington, DC varies. The largest number of businesses are located in Virginia. However, Maryland has the largest number of cybersecurity product businesses.

Type of Businesses Listed by State

	DC	MD	VA
■ Other	4	5	16
■ Products		22	16
■ Services	23	175	279
■ Solutions	18	130	279

Cybersecurity businesses are not distributed evenly across the Greater Washington Region; businesses tend to cluster in certain communities. The clustering phenomenon in itself is

not surprising: businesses generally tend to cluster in close proximity to the workforce and customers that will support their business growth. Clustering of innovation-based companies, such as cybersecurity businesses, is a broadly seen phenomenon around the United States and internationally.

The following chart shows the locations of the cybersecurity clusters in the Greater Washington Region:

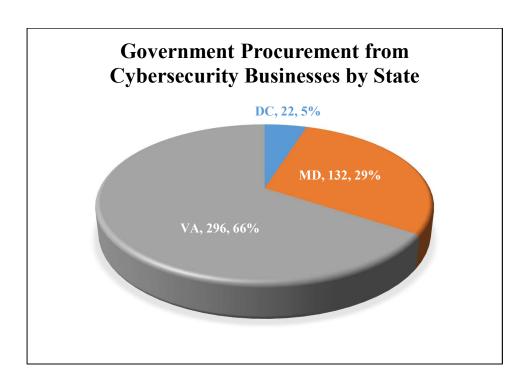## Greater Washington Region Cybersecurity Businesses

There is a dramatic difference between the clustering of service-based and product-based cybersecurity businesses. Service-based businesses are clustered in portions of the Greater Washington Region that have been seen as traditional homes for the government contracting industry, such as Fairfax County, Virginia and Montgomery County, Maryland.

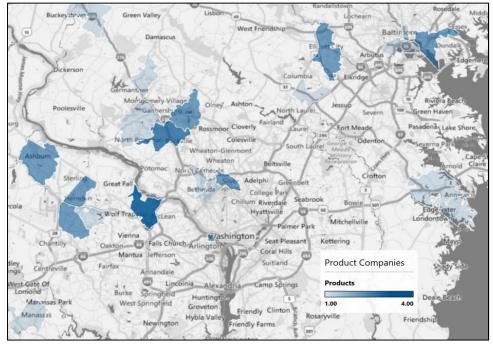# Greater Washington Region Service Cybersecurity Businesses

Our business census showed that nearly half (47%) of all of the cybersecurity businesses identified derived at least some revenue from federal procurement.[7] And a majority of these businesses were located in Virginia:

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[7] This Report identifies those businesses that were specifically identified as receiving government purchases for cybersecurity related activities. Our research suggests that it is very likely that additional businesses received money for cybersecurity activities, but were subcontractors and therefore in indirect contact with the government. Moreover, this Report does not address the revenue split (government v. private) on a per business level.
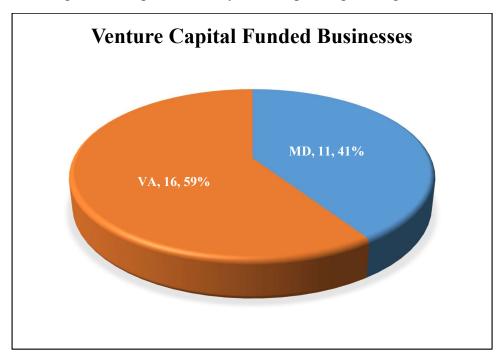
Government Procurement from Cybersecurity Businesses by State

DC, 22, 5%

MD, 132, 29%

VA, 296, 66%

The distribution of product-based cybersecurity businesses showed a much greater concentration than service-based businesses:

Greater Washington Region Product Cybersecurity Businesses

Product Companies

Products

1.00   4.00

Perhaps not surprisingly, the overall lack of product-based cybersecurity companies limits overall levels of venture capital investment. From January 2015 to June 2016, 27 of the identified businesses on the TandemNSI List received venture capital, with 16 Virginia-based companies receiving venture capital and Maryland companies gathering the rest.

Venture Capital Funded Businesses

Notwithstanding the relatively small number of cybersecurity businesses that received venture capital, the Greater Washington Region's cybersecurity businesses were well represented on national listings.

For example, 46 companies, or 5% of our region's cybersecurity businesses, appear on the Inc. 5000 list of fastest growing private businesses nation-wide.[8] One of the most well-known cybersecurity ranking lists, the Cyber 500[9], includes 58 companies, or 6% of the Greater Washington Region's cybersecurity businesses, on its list.

III. CONCLUSION

Our conclusion is that the TandemNSI Cybersecurity Industry List shows that there is an active cybersecurity industry in the Greater Washington Region. However, it also shows clearly how much service and solution-based businesses predominate. For those that believe that product-based cybersecurity businesses must be grown, there is now a baseline to use in assessing efforts to date and the efforts to come.

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[8] http://www.inc.com/inc5000
[9] http://cybersecurityventures.com/cybersecurity-500/

By publishing the TandemNSI List online, we are providing those businesses who are not on the list with an opportunity to tell us. And, an opportunity for all of us to have a true sense of the Greater Washington Region's cybersecurity industry.

Our intention is for the TandemNSI List to be an evergreen resource for all of us in the Greater Washington Region. We thank all who have contributed to the work that was done to create the baseline we have provided, and we look forward to being part of the continued growth of an important industry.

Appendix A
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