

## **Regional Collaboration for Economic Growth 'Maximizing Hampton Roads Business Assets'**

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### **ABSTRACT**

While a number of organizations exist across Hampton Roads having economic development or business development as primary focus, few have explicitly contrasted economic opportunity against the challenges the region continues to face in promoting business growth. Under the umbrella of the Hampton Roads Innovation Collaborative (HRIC), a new program, the Foundation for Innovation ("Foundation"), initiated in 2018, has taken on the challenge of investigating and categorizing both opportunities and challenges faced by the region's small businesses. Over the course of 3 months in early 2018, the HRIC surveyed, by direct interview with follow-up survey questionnaires, the CEO's of over two dozen small businesses based in Hampton Roads. Focused on understanding the constraints and impediments to small business sustainment and growth within the region's economy, HRIC collected and categorized the concerns and issues expressed by CEO's and their leadership teams. With collected data in hand, research was continued to assess the concerns of small business against the numerous publicly available regional economic and business development studies conducted over the past half-decade. HRIC has developed a report of its investigation; the findings, conclusions, and recommendations are presented for consideration by local business, local governments, and regional economic development organizations. Current initiatives and activities of the Foundation for Innovation program will also be presented.

### **ABOUT THE AUTHORS**

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### BACKGROUND

Many regional economic studies have been conducted over the years, almost all focused on interest in evolving the technology sector and interest in building identified business clusters. Yet there has been little substantive discussion about how to build on a foundation of innovation to propel success, develop Intellectual Property (IP), export that IP to expand the regional economy and provide jobs. A new regional program titled Foundation for Innovation, operating under the umbrella of the Hampton Roads Innovation Collaborative (HRIC), seeks to change the paradigm and organize for success.

The Hampton Roads Innovation Collaborative (HRIC), until September 2015, was known as the Hampton Roads Technology Council (HRTC), one of ten technology councils in the Commonwealth of Virginia<sup>1</sup>. HRTC was formed in the late 1990s as a 501(c)6 non-profit solely focused on advancing the technology business in the Hampton Roads region.

In its early days, HRTC was focused on start-up incubators, an important component of business ecosystems, but eventually realized that incubators were inadequate as a driver of the regional economy. In March 2017, the Virginian-Pilot published an article (Piercell, 2017) analyzing the composition of the various organizations operating in what may be called the economic development domain. Figure 1, adapted from that article, indicates the potential for redundancy and duplication among such organizations.

To HRIC, it was clear that the multiplicity of efforts represented in Figure 1 constrained the ability of the region to have "one voice" addressing regional economic development. And it was clear to HRIC that having that "one voice" had long been recognized by other regions across Virginia. Local government officials in Spotsylvania County, in 2015, recognized that "... collaboration between the five localities in Planning District 16 is the best way to boost economic activity and bring jobs to the area." (Estes, 2015). Tim Baroody, Stafford economic

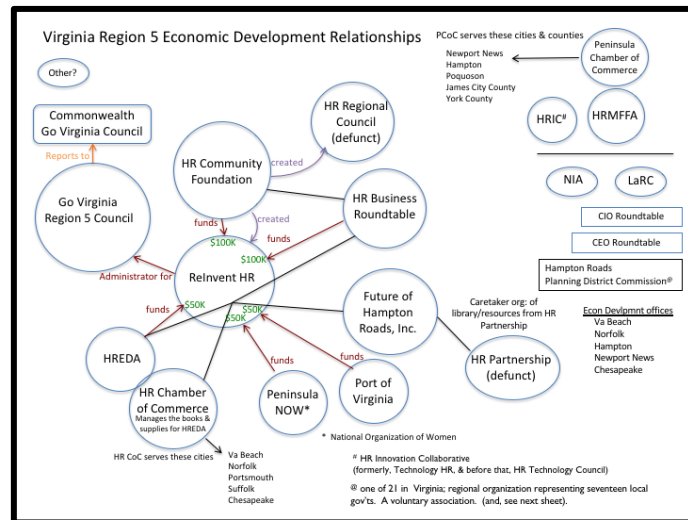


Figure 1. Hampton Roads Economic development Organizations

<sup>1</sup> Charlottesville, Fredericksburg, Hampton Roads, Northern VA, Region 2000, Roanoke-Blacksburg, Richmond, Shenandoah Valley, Southern Piedmont, Southwest VA. On the web: <https://www.cit.org/who-we-are/technology-councils/>

development director, "... said the region needs to "tell a regional story" because Fredericksburg's localities are more attractive together, with 6,000 businesses, ample acreage and many interstate interchanges" (Ibid). HRIC conducted a series of reviews of regional studies ("Regional economic studies", see References) in search of insight into what HRIC might contribute to regional economic development. From those reviews and from discussions with many businesses in the region, HRIC embarked on a different path. Beginning in February 2018, a new organization, the Foundation for Innovation (Ffi, "Foundation") was formed under the umbrella of HRIC, with an objective to develop a sustained effort to establish a High Technology Innovation Corridor that extends from the Virginia Beach oceanfront through the Peninsula and beyond. Included in the Foundation's stated goals were developing incentives and business case justification supporting technology and business expansion across the region.

## THE HAMPTON ROADS REGION

Hampton Roads, also known as "Coastal Virginia", is the landing point for the first English Settlers in America. The name itself is of British origin – the term in the days of sailing ships meant "safe harbor" for vessels anchoring near shore. The region is a place of many firsts:

- The nation's "first region" – the historic Triangle of Jamestown, Colonial Williamsburg, and Yorktown.
- Colonial Williamsburg - Virginia's first capital.
- Home to the world's largest naval base, Naval Station, Norfolk, 1<sup>st</sup> in use in 1917.
- NASA Langley Research Center, opened in 1918, where America's first astronauts trained.
- The Chesapeake Bay/Bridge Tunnel considered at its opening in 1964 to be "One of the Seven Engineering Wonders of the Modern World".

Today, the region is home to 1.7 million people. Of significance to the region's economy, Virginia Beach is the landing site for terahertz bandwidth transatlantic fiber cables connecting Europe to the U.S. digital highway infrastructure, and The Port of Virginia offers the deepest obstruction-free shipping channel on the East Coast, soon to be further dredged to a 55-foot depth, the only U.S. East Coast port with Congressional authorization to attain this navigation depth.

The U.S. Census Bureau defines the region's Metropolitan Statistical Area (MSA) as comprised of 16 county-level jurisdictions— nine independent cities and five counties in Virginia, and two counties in North Carolina. Formally, it is the "Virginia Beach–Norfolk–Newport News, VA–NC Metro Area" MSA, ranked #37 out of 383 MSAs in the country. In comparison, the Richmond MSA<sup>2</sup>, home to 1.3 million people, is ranked #44. If combined, the resulting MSA would encompass 3 million people, with a combined MSA region ranking #19 of the 383 MSAs.

## CHARACTERIZING THE BUSINESS ENVIRONMENT

To establish a baseline from which to operate, HRIC developed and conducted a 30-question business environment survey to obtain input from regional businesses on their views concerning regional opportunities and constraints. Focusing primarily on small business, Ffi leaders conducted nearly 2 dozen interviews with small business leaders to add to knowledge gleaned through survey responses. Conducted in spring 2018, the interviews yielded a surprising wealth of data. The balance of this paper summarizes the findings and recommendations of this effort, in the context of Hampton Roads' regional assets.

### Foundation business environment survey

The Foundation's business environment survey addressed a number of areas important to regional economic growth. Companies participating in the survey (and follow-up interviews) represented a number of technology domains, as shown in Table 1. Interviewees were in almost all cases the company CEO and immediate senior staff.

The following items/issues were specifically addressed:

- business awareness of availability of a qualified workforce to support business
- business assessment and awareness of the quality of regional educational programs

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<sup>2</sup> Richmond, Petersburg, Hopewell, and Colonial Heights, and adjacent counties.

- business degree of participation in regional programs promoting STEM education
- business awareness of city-region-state level programs, offices, and initiatives designed to support business
- business engagement with military service members exiting military commitments and entering the civilian workforce, in particular degree to which business actively recruit ex-military as employees
- business assessment of the focus of regional economic development organizations and city governments towards supporting business needs.
- business interest in regional-level government sponsored business development support.
- business opinions concerning funding opportunities, inter-company collaboration, government restraints on business expansion (e.g., taxation)

**Table 1. technical domains surveyed companies**

Augmented Reality
Cyber Security
Unmanned Systems
Web and App Design
Professional Services
Digital Marketing
Modeling & Simulation
Software Programming
DevOps

**Survey findings**

There was surprising commonality in the responses of business owners. Responding companies ranged in size from very small startups to mid-size small businesses. Common themes emerged from analysis of collected data:

Business owners feel the region is focused only on start-ups and large companies. They see little support for mid-tier businesses.

Most companies have marginal awareness of regional business development/support ecosystem components, and when they are aware, they feel that they don't apply to their needs. Owners expressed a real need for a working and connected ecosystem and the right programs to support business growth. In practical terms, business owners do not have the time and resources to investigate and take advantage of offerings from the many economic development offices and programs in the region – they are not connected, require differing levels of effort and commitment, and not all are set up to support individual small businesses. The common theme reported was that there is no regional “one stop shop” to connect with to enable business owners gain information on existing support programs, contract opportunities, or emerging changes in regulations, policies and services availability. The example often cited was lack of visibility into the emerging development of the Transatlantic fiber cable connectivity and what opportunities might exist for small business to take advantage of this significant new regional development.

Concerning customers and markets, most company CEO's have few commercial customers within the region because of a lack of customer leads and difficulty in connecting with the area's larger firms. There are few large firm company headquarters in Hampton Roads with which to connect; even regional headquarters and specific large company divisions located in the region offer few opportunities for interaction leading to new business contracts or learning of new product/service growth possibilities. For the businesses interviewed, the result has been that markets are sought outside Hampton Roads, where demand for products and services is found.

City government and Commonwealth level programs to help businesses grow are seen as insufficient. Old Dominion University (ODU) is viewed as the one institution doing the best job at trying to help the small business community. However, owners also expressed the view that ODU is not knitted into a regional business ecosystem as much as it could be.

Local government contracting was the reported exception; interviewed companies feel opportunities exist and are made known to area businesses. The caveat to this is that the scale of government purchasing in the region is small, and not large enough to sustain small business growth.

Concerning overall economic and business conditions in the region, survey participants were in general agreement that:

- the presence of many military installations and Federal funding for them has carried the region for decades. While a reliable pillar of the regional economy, it has contributed to a de-prioritization of the need to grow non-defense technology business in the region. Owners view: business expansion is hit/miss, and not robustly supported.

- Workforce readiness is reasonably good, especially with exiting military, but the technology skills needed in the workforce require more nimble action by academia, with private sector assistance.
- both port and logistics supply chains are doing well, although not of direct concern to small business.
- regional tourism and the services industries are doing well.

One other belief common among regional business owners arose frequently in discussions: Although there have been repeated efforts in the past, by various economic development organizations, to promote and grow small business, none have had much impact or staying power. Owners are aware of various attempts at creation of a Comprehensive Economic Development Plan but believe execution and results have been lacking. The common comment on regional economic planning was that implementation action is where we tend to falter as a region.

## **CONSTRAINTS ON REGIONAL GROWTH**

From the Foundation's perspective, beyond the concerns of individual businesses, there are conditions and attitudes that have posed significant constraints on regional economic growth in general. Four are listed here:

### **#1: Silo Mentality**

The lack of regional cooperation, typically referred to as a 'silo mentality'. The Commonwealth is a Dillon's Rule State; "A rule of judicial interpretation that a municipality may exercise only those powers expressly conferred by statute, necessarily or fairly implied by the expressed power in the statute, or essential and not merely convenient." (Duhaime Law, 2019). In practice, this has translated into Virginia cities acting in the best interests of the city, to the detriment of regional cooperation. Because much of economic development resourcing must come from actions of the state legislature, each city is motivated to argue for city-centric resourcing, and not regionally productive resourcing. That makes sense to a large degree, from a city's perspective, but may also open the door to less collaboration in the region than what could be beneficial to all regional citizens.

There is also geographic 'siloing': cities and counties on the Peninsula, and those on the South Side, are separated by the James River, which can be difficult to navigate from both business and transportation viewpoints. There is work underway to improve the road transportation, widening lanes and bridges, and progress in planning what's called a "Third Crossing", expanding the primary Hampton Roads Bridge Tunnel and doubling the capacity of the High-Rise Bridge across Route 64 in Chesapeake.

### **#2: Complacency**

The region's economy is based on its military presence (primarily Navy), the Port of VA, Tourism, and Maritime Ship Building and Repair, typically described as the four pillars of the region's economy. Some 40% of the region's economy is based on defense spending, but sequestration, beginning in 2013, was a wakeup call to the region to diversify the regional economy. However, after six years of sequestration-limited defense funding, it is arguable that Hampton Roads, as a region, has not generated effective action to diversify the economy or to develop economic development strategies, plans, and resourcing to diversify the regional economy.

### **#3: Brain Drain**

Regional job, education, and business statistics clearly show outward migration of competent, qualified workforce candidates. While the region has some great schools and some excellent technical training programs, young people are moving from Hampton Roads to other regions within Virginia and beyond, where desirable jobs can be found. There must be jobs to attract students, but there must also be graduates that employers can hire.

### **#4: Sea Level Rise**

The documented record of ongoing Sea Level Rise and land subsidence is impacting cities in Hampton Roads. This deters companies considering relocation to the Region, and local flooding issues consume scarce resources directed towards mitigation efforts. A variety of solutions have been suggested, and some experimental efforts at flooding mitigation have been conducted – but to date a regionally coordinated plan to address this issue has been lacking, and the region has not 'made the case' to the state legislature, or Federal departments, to secure robust levels of funding to combat sea level rise. Of particular importance are the effects of sea level rise on Norfolk Naval Base and its potential future impact to the regional economy. Hampton Roads must anticipate and address these threats to ensure the Navy's comfort in staying in the region.

These four issues are only a subset of issues constraining economic growth across the region. The Foundation believes these four are top level issues that *must* be addressed at regional and state levels as they are fundamental to positioning Hampton Roads for robust economic expansion. While some actions are in progress in each of these areas, it appears that lack of notable success may just be that a foundation of effective regional collaboration across government, industry, and geographic boundaries has never been established. It is the belief of the Foundation, supported by survey results, that long-term scalable innovation and technology growth is to some significant degree dependent on regional collaboration to address the four issues listed here.

## CREATING AN INNOVATION ECONOMY

Gary Markovits (Markovits, 2017), in a February 2017 presentation to the Government-University-Industry Research Roundtable (GUIRR) of the National Academies of Science, presented an argument that “that the ecosystem supporting the innovation economy can be thought of as a collection of networks of networks, in which, creative people from government, academia, and industry engage in the tacit-explicit dialogue to generate new knowledge and skills.” His presentation also provided evidence that “...to thrive in the innovation economy we need to develop an additional comprehensive and coherent set of policies and programs at all four levels: individual, group, organization, and region.” His arguments are supported by the 2015 report to the U.S. Department of Commerce Economic Development Administration, addressing innovation in modeling, simulation, analysis, and high-performance computing:

“Ninety-seven percent of U.S. manufacturing firms — more than a quarter-million of them — have fewer than 500 employees. While most U.S. manufacturers are small, they play a large role in U.S. innovation. Of high patenting firms, small firms in the United States produce 16 times more patents per employee than large patenting businesses. Their patents are twice as likely to be technologically important, making their innovations more leading edge. Small firms tend to specialize in high technology, high growth industries such as biotechnology, pharmaceuticals, IT, and semiconductors. Large firms increasingly depend on small firms for new ideas and new technologies. They invest in start-ups, acquire small innovative companies, and partner with small firms to develop new products.” (Council on Competitiveness, 2015).

### What can we do about it?

It is the belief of the Foundation that Hampton Roads has in place much of the infrastructure necessary to support an “innovation economy” as just described, but that the component pieces of that infrastructure – pieces at the “...four levels: individual, group, organization, and region” – are far from connected to the degree necessary to encourage, promote, and drive regional economic growth and job creation. Much analysis has been conducted on growth opportunities in Hampton Roads (see References), but the “collection of networks of networks” as described by Markovits does not exist within Hampton Roads. Yet there are number of business domains within the region positioned to grow, given sufficient collaborative support, among them the domains, or business clusters, listed here: Advanced Manufacturing, Cyber Security, Data Analytics, Modeling and Simulation, Unmanned/Autonomous Systems, Aerospace, Life Sciences, Business Services, and Water Technologies.

Given belief in the idea of an Innovation Economy, the regional challenge then becomes, what needs to be created, accomplished, and/or supported to drive the regional economy? The remaining sections of this paper address Foundation observations, recommendations, and actions to engage government, academia, and industry in collaborative action to create a regional “innovation economy”. These observations and recommendations are organized into three focus areas: Regional Collaboration, Regional Planning, and Business Support Activity. Three objectives are captured within these focus areas:

1. Expansion and coordination of incubator and accelerator activity across business clusters.
2. Creating a pro-technology and regulatory/tax-friendly business environment encompassing all of Hampton Roads to promote technology adoption and technology company growth.
3. Creation of an “innovation economy”, by attitude and actions, to create new consumer and commercial product ideas for patent research and development, expansion of regional IP resident within the region, all to promote market expansion and job growth.

## RECOMMENDATIONS FOR REGIONAL GROWTH

### Regional Collaboration

The Foundation believes that only by truly establishing a connected foundation for business and technology innovation will Hampton Roads be able to develop the processes and methodologies leading to strong regional growth. There are many ways to define an “innovation economy”, but once a sustainable structure is in place, innovation is greatly enabled. A generic model of such a structure is provided in Figure 2, taken from the 2016 report of the Council on Competitiveness (Council on Competitiveness, 2016). The recommendations of this paper can in general be ‘mapped’ to the structure shown, but scaled to the Hampton Roads region.

A necessary first step is to create an environment of true collaboration and cooperation among government, industry, and academia, with ‘one voice’ outreach to the state legislature, as needed, due to the Dillon’s Rule constraints on regional initiatives. In today’s existing environment, the region’s cities compete with one another for business. What is needed is creation of a foundational program – a set of agreed-to guidelines – that every city and municipality within the MSA can accept as the basis for collaboration.

The overriding objective is to create jobs, and to retain both school graduates and Federal employees (military or civilian) entering the workforce. Just as important is fostering an environment in which corporations can thrive regardless of geographic location within the region.

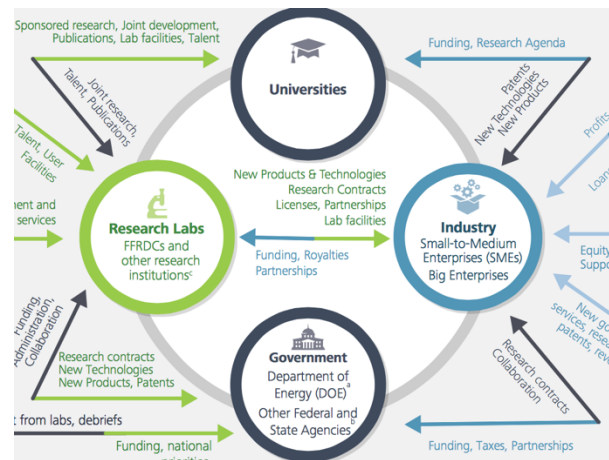


Figure 2. New Innovation Ecosystem

### Regional Planning

While there are a number of economic development plans independently created by individual cities and regional boards and foundations, there is no existing *regional* economic development plan or strategy for coordinating business support, marketing campaigns, city government actions, and such important activities as CEO and CIO roundtable meetings that address regional issues.

The Foundation’s belief is that creation of a Regional Innovation Board is needed and is essential to moving towards creation of an integrated innovation economy. A Regional Innovation Board would serve to coordinate and leverage the business programs and incentives of individual cities, take into consideration the concerns of Federal agencies and facilities in the region, and enable active cooperation to develop coordinated requests to Commonwealth, Federal, and other resources for funding to support regional growth. Done properly, a regional board would potentially incentivize the participation of both industry and academia. Candidate coordination vectors include, in addition to economic development, transportation infrastructure, environmental planning (sea level rise (constraint #4 above) and wetlands restoration), regional energy planning, and regional utilization of digital networks for commerce, academia, and government.

From its research over the past year, the Foundation believes the standing agenda of a regional innovation board should include the following elements:

- Evolving plans for promotion of regional collaboration and coordination for the technology sector to evolve and grow.
- Organized approach to helping ALL regional tech sector companies (new, existing) grow.
- The creation of, and sustainment of, a collaborative coordination agent to “keep it all connected and cohesive”. In practice, this might be a regional oversight board.
- A standing Advisory Council to create, or contribute to, *regional* strategy, tactics, measurements.
- A centralized ‘Business Services’ offering designed to support development of Intellectual Property and Patents.
- A centralized information exchange maintaining current Technology Transfer opportunities.

- A mechanism or office to connect businesses with existing Academic & Workforce Development programs and opportunities.

### **Business Support Activity**

The Foundation believes that the regional Chambers of Commerce, and other organizations identified in Figure 1, can be excellent partners to address the needs of business and to help facilitate regional program advancement. HRIC and the Foundation for Innovation intend to work, on an ongoing basis, with regional Chambers, academic institutions, and Federal facilities representatives, to promote gathering and exchange of information that can help each of these types of organizations keep abreast of current business, workforce, and regional issues. Foundation activities envisioned to provide support to businesses:

- Creation of a set of regional “asset maps” of the region, providing listings of companies, technology clusters (such as in existing business incubators and accelerators, and in the region’s Federal research facilities (NASA Langley Research Center as a primary example).
- Creation of an ‘office of technology exchange’, to foster cross-industry/cross-discipline discussion of IP, R&D, and Product Development and Commercialization opportunities. Activities under consideration for this office could include coordination of regional “**Inventathon**” events to stimulate technology innovation and creation of product IP, facilitating “Idea prototyping” with a partner like 757 Makerspace, and facilitating connection of suppliers, vendors, and customers to identify subcontracted manufacturing opportunities across Hampton Roads.
- Creation, working with city governments, regional businesses, and academic institutions, of branding and messaging campaigns carrying a regional “open for business” message beyond the region.

### **SPECIFIC ACTION RECOMMENDATIONS**

In researching the business environment and developing the recommendations of this paper, the Foundation finds opportunity to emphasize a few specific technology and economic development thrusts, listed below. Each overlaps to some degree with the technical domains listed in Table 1. Survey respondents indicated the belief that Hampton Roads leaders and businesses are betting on key identified clusters, including the four “pillars” mentioned previously - Federal and military presence, the Port of Virginia, Tourism, and Maritime Ship Building and Repair. These domain clusters are strengths within the region. With that in mind, there “may” yet be new cluster opportunities to focus on:

**Big Data Centers.** With the arrival of the new transatlantic cable landings in Virginia Beach, the region becomes a major ‘hot spot’ of digital connectivity (the ‘Marea’ fiber line carries 160 terabits per second, about 16 million times the bandwidth of a typical home internet connection). This is a tremendous enabling technology, and windfall, for regional business, *if* businesses can connect to the infrastructure. And the bandwidth capability should be attractive to financial and insurance services firms, for both operations and cyber security. Chuck Robbins, CEO CISCO, in a recent interview stated “... cyber security is going to be nothing but machine learning and AI running in the network, because no one has a perimeter anymore.” (CNBC, 2019). The implication is great and growing need for bandwidth – implying that the primary objective of a Regional Innovation Board would be twofold: to develop a regional strategy and plan to enable business and academic connection to this infrastructure and to create a national advertising and marketing campaign to attract digitally intensive businesses to Hampton Roads. This work should incorporate and leverage previous and ongoing efforts such as the Hampton Roads Planning District Commission 2017 GO Virginia proposal (HRPDC, 2017) for “... the creation of a fully integrated regional fiber optic network that connects employment areas, higher education facilities, research institutions, and municipal facilities throughout the region.”

**Technology Transfer (government to industry; industry/academia to government; cross-industry).** Focused, regionally coordinated research to provide a technology transfer marketplace (again, striving for a ‘one stop shop’ business service) should be pursued with the objective of making visible to all interested companies and institutions the availability of technology transfer programs and opportunities. NASA Langley Research Center, Jefferson Lab, the National Institute of Aerospace, and other research facilities each maintain technology outreach and technology transfer programs in a number of areas, among them avionics, high altitude flight, Unmanned Aerial Systems and materials science.



**Workforce Development.** Excellent efforts exist in the region. Yet there is need to expand support and resourcing of workforce development. Regional corporations, and CEOs of surveyed companies report continuing need to recruit staff from beyond the region (Richmond, Northern Virginia and beyond). In view of this, the Foundation sees need to consider, with a regional, cross-industry, and cross-disciplinary focus, development of activities and programs as listed here, to leverage the number of existing, but not coordinated, activities already ongoing across the region. The high level objective here is to mitigate the various ‘geographic silos’ that now exist.

- Continuous feed of “current needs” to academia, and continue to expose students to career path opportunities in Technology and Innovation
- Tighten the gaps between academic offered job-readiness and real-world job-ready requirements.
- Conduct ‘Technology and Innovation Events’, i.e., regional "Industry Days" at which commercial and government customers can see relevant regional technology capabilities.
- Establish Virtual Learning Environment with corporations exposing students to case study scenarios.
- Stage competitions for possible internship or company hiring pipeline populations.
- Establish High Tech Boot Camps for Improved Skills-Based Employment. The concept here is to establish High Tech Boot Camps (centralized at an area college, serving multiple employers) at which graduate temporary interns are paid minimum wage while going through a few week’s course. This course would bring them up from academia to commercial requirements including Work Skills. This program would also allow potential employers to “test drive” the interns prior to making a job offer.

### **Regional Funding**

The existing GO Virginia program is one mechanism in place to benefit Region 5 (Hampton Roads region MSA), but there is need to fund activity by other methods as well. Federal and State Grants are an option and should be pursued on a regionally coordinated basis. Actions to obtain funding to support regional branding and marketing initiatives should be part of this effort. Federal SBIR and STTR funding is of significant benefit to companies who engage in pursuing such contract work; what has been missing, and is needed, is support to small businesses lacking the resources to devote to researching and applying for such contracts.

There is also need for regional collaboration to assess and explore opportunities for Venture Capital funding (such as 757 Angels and Virginia’s CIT), with an objective to establish a regional opportunities available service to which small business can subscribe. Survey respondents generally reported that application, administrative, and compliance requirement for existing programs present too high a barrier to be of interest.

### **Regional Foundation for Innovation Pilot Program**

The Hampton Roads Innovation Collaborative (HRIC) has been in discussions with the Peninsula Chamber of Commerce for several months. The Peninsula is interested in piloting a program with HRIC to better establish an innovation and technology series of programs for technology business and job growth. As an enabling funding strategy, HRIC is interested in leveraging the Chamber’s non-profit status to pursue Federal and State Grants (beyond the GO Virginia funding program) to support launch of a pilot program. Initial funding would be modest, as the Foundation will build for results and scalability throughout the region. The objective of the pilot program is to uncover and explore new consumer and commercial product ideas, R&D opportunities, and to identify, working with industry, government, and academia, prospects for development of new Intellectual Property, new manufacturing methods (e.g., additive manufacturing innovation), and new cross-industry/cross-discipline collaboration opportunities. A focus of this effort will be to find larger companies that will engage regional small business to explore and implement subcontracting opportunities, from manufacturing of prototypes through completion of marketable product development.

### **ACKNOWLEDGEMENTS**

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## **Regional reporting**

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