



VIRGINIA INITIATIVE FOR  
**GROWTH &  
OPPORTUNITY**  
IN EACH REGION

## GO Virginia Region 2

### GO Virginia Region 2 Council Meeting Agenda

**February 1, 2019, 3:00p.m. to 5:00p.m., Greenfield Education and Training Center, 57 S. Center Dr., Daleville, VA**

- 3:00—3:05 Call to Order
- 3:05—3:30 Council Business
  - Council Meeting Minutes
  - Future Meeting Dates: May 7, 10am-12pm; August 2, 10am-12pm; October 22, 3pm-5pm
  - Council Membership Update
  - TEconomy Update
- 3:30—4:45 Projects
  - Review of New Project Applications
  - Project Development and Existing Grantees
- 4:45-4:50 Reference Items
- 4:50—5:00 Public Comment



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## GO Virginia Region 2

### Go Virginia Region 2 Council Meeting Minutes

November 1, 2018

3:00pm-5:00pm

Virginia Western Community College

Natural Science Center

Roanoke, VA 24015

Members in Attendance: Marla Akridge, Ab Boxley, Kenneth Craig, Beverly Dalton, Dr. John Dooley, Watt Foster, William Fralin, Dr. Victor Iannello, Floyd Merryman, Marty Muscatello, Debbie Petrine, John Williamson, Dr. Ray Smoot, Georgeann Snead.

Members Participating Remotely: Dr. Brian Hemphill and John Putney.

Staff in Attendance: Dr. John Provo, Dr. Scott Tate, and Jennifer Morgan.

Public in Attendance: Gail Johnson, Alleghany Highlands Economic Development Corporation; Rich Diddams, Liberty University; Annette Patterson, The Advancement Foundation; Kerstin Plunkett, Virginia Western Community College; Sam English, Valleys Innovation Council; Stephanie Seagle, Virginia Western Community College; Sadie Remington, City of Salem; Jackie Rearick, Liberty University; Deborah Flippo, Draper Aden Associates; Aisha Johnson, City of Roanoke.

Chairman Smoot convened the meeting at 3:05pm.

#### **Council Business**

Chairman Smoot introduced Georgeann Snead to the Council and noted Council vacancies in the Lynchburg, Roanoke Alleghany Highlands, and New River Valley regions due to E.W. Tibbs, Eddie Amos, Patrick Collingnon, and Michael Flemming resigning from the Council.

Chairman Smoot asked the Council to approve minutes from the August Full Council Meeting. Mr. Williamson moved to approve the minutes and Mr. Iannello seconded the motion. All were in favor and none opposed. Mr. Williamson moved to approve the minutes from the September Executive Committee meeting and Chairman Smoot seconded the motion. All were in favor and none opposed.



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Chairman Smoot asked staff to highlight the changes made in the Bylaws. Staff noted that all Council suggestions were made. The Bylaws have approved staggered terms for the Council. Mr. Dooley moved to approve the Bylaws and Mrs. Petrine seconded the motion. All were in favor and none opposed.

Staff presented to Council a document regarding Council liability insurance while engaging in their Council duties due to Council questions.

### **Project Review**

#### **Project One: Expanding the Business Development and Entrepreneurial Ecosystem, The Advancement Foundation**

##### **Council Questions and Discussion:**

Dr. Scott Tate (OED) provided a summary of staff review and expert feedback of the project. Ms. Annette Patterson (Applicant) provided a summary of the project. Reviewer concerns centered around better document the match commitments, the applicant's ability to connect and engage the types of companies and entrepreneurs identified by the project, and the ability to produce the stated project outcomes. Mr. Dooley and Mr. Iannello described their concerns with the definition of outcomes and the ability for the project to create actionable goals. Mr. Fralin asked Ms. Patterson to describe her local match contributions and how revenue would be achieved. Mr. Fralin and Mr. Williamson expressed their concerns centered around the ability of The Advancement Foundation to take on this project. Chairman Smoot asked staff to work with the applicant to make the changes Council discussed to bring the project back before the Council at their next meeting. Mr. Iannello motioned for the Council to table this application until the next meeting. Mr. Williamson seconded the motion and all were in favor and none opposed.

#### **Project Two: Advanced Manufacturing Partnership Lab (AMPL): Connecting Industry and Academic for Innovation, Liberty University**

##### **Council Questions and Discussion:**

Dr. Scott Tate (OED) provided a summary of staff review and expert feedback of the project. Mr. Rich Diddams (Applicant) provided a summary of the project. Staff noted reviewer concerns due to



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lack of required local participation contribution, the similarity of the project in relation to the current GO Virginia funded project with Liberty University in that it is too early to see outcomes from that project, and the absence of a clear strategy to utilize the equipment and facility to grow higher wage jobs. The applicant noted that they did not differentiate the ROI numbers and used the model calculated for their previous project. Council expressed their concerns with the longevity of purchasing the equipment and who would use the machines. Mr. Fralin and Mr. Iannello asked about how the applicant would secure the local participation documentation. Mr. Boxley stated this is one of the more focused projects the Council has heard. He stated the output of the project are the students trained to work on these machines and recommends this project. Mr. Boxley motioned to approve the project with the condition that the applicant receives the 20% cash or substantive in-kind match from the localities. Mr. Iannello seconded the motion. All were in favor and none opposed. Mr. Craig abstained due to his relation with the project.

### **Speaker's Bureau Update**

Mr. Williamson and Mr. Dooley reiterated to the Council the need to speak to local governments across the region about GO Virginia and requesting funds be set aside to support projects in their area. Mr. Dooley asked Council members to sign up to represent GO Virginia in front of their local governments. Mr. Fralin noted that engaging local governments about project match is a proactive approach.

### **Current Project Update**

Staff shared with Council that all current grantees submitted their quarter three reports to staff and DHCD with no issues. A full report will be presented to Council at their next meeting.

### **Teconomy Update**

Mr. Iannello informed Council that Teconomy is a consulting firm hired by the state to work with universities across the state to ensure university research can produce higher paying jobs. Mr. Fralin asked how Teconomy is interfacing with colleges and universities technology transfer centers to support the region.

Staff noted a call for concept papers from the Virginia Research Investment Fund to ensure Council was aware of the ask.



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Staff informed Council there another six to eight possible projects currently being developed with staff.

Chairman Smoot called for public comment and with no public comment heard adjourned the meeting.

Chairman Smoot adjourned the meeting at 5:11pm.



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# Regional Entrepreneurial Assessment Project:

## Final Briefing Report

### Region 2: Roanoke-New River-Lynchburg

December 2018




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- I. Project Overview
- II. Project Key Steps
- III. Framework for Assessment
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- Appendix B: Data Trends on Entrepreneurial Development
- Appendix C: Regional Asset Inventory
- Appendix D: Competitive Benchmarking
- Appendix E: Benchmark Case Study Profiles




## Overview

The purpose of this briefing report is to provide a high-level baseline assessment of entrepreneurial development and identification of potential priority actions in GO Virginia Region 2 – Roanoke-New River- Lynchburg.

TEconomy Partners, LLC was engaged by the GO Virginia Statewide Board to provide each GO Virginia region an independent and objective assessment of its entrepreneurial development position, to facilitate a situational assessment of the region's entrepreneurial ecosystem, and to help identify priority actions with local leaders to help strengthen the ecosystem.

**Setting the Context: Importance of Entrepreneurial Development for Regional Growth**

- In 2017, there were 1,673 surviving traded sector startups formed since 2007 in Region 2
- 11,166 jobs in 2017 were found in these 1,673 surviving startups
- By comparison, over the 2007-2017 period, total traded sector industry employment declined by 9,187 in Region 2.
- So entrepreneurial growth has been a buffer in Region 2 offsetting the overall declines in the region's traded sector industry employment from the heights reached before the Great Recession of 2008-2009.



## Project Work Plan


The work plan for preparing this Region 2 entrepreneurial development assessment involved examining:

- Recent data trends in entrepreneurial development
- Ongoing entrepreneurial activities and stakeholder perspectives
- Competitive position to peer regions nationally


These analyses were then utilized to develop a situational assessment of gaps and weaknesses to address and strengths and opportunities to build upon.

Based on the situational assessment and informed by best practices nationally, a set of potential priority actions has been identified for further development by GO Virginia Region 2 to catalyze the development of a robust innovation ecosystem.

**Overview of Work Plan for GO Virginia's project:**



See Appendix A for listing of Working Group members from Region 9



## Strategic Framework: Focus on Entrepreneurial Development Stages Across Traded Sector

### Stages of Entrepreneurial Development

Entrepreneurship is a process involving an interconnected set of development stages supported by public and private resources and services that generates successful new startup businesses to drive regional economic growth. If a region is underperforming in any stage of entrepreneurial development, then it will not realize its full potential in traded sector industry development.

**Ideation**

*Idea development/ identifying viable business opportunities for market assessment and IP appropriation/ IP creation*

**Commercial Viability**

*Prototyping/ defining, new product development, proof of concept testing, prototype development, and validation/ market testing*

**Market Entry**

*New firms that realize commercial products, and they have marketing, financial, sales, and distribution plans, manufacturing plans, operating supply chains, and generate early revenues*


**Growth & Scalability**

*Establishment of firms that generate operating capital to expand markets, scale manufacturing, to examine their models, to generate new employment, and begin new product development through diverse capital supporting relevant industry leaders*

**Focus on Entrepreneurial Development in Traded Sector Industries**

Of particular importance to GO Virginia is focusing on those new start-ups in traded sector industry activities that serve customers and markets beyond their local communities, and as a result, can drive regional economic growth. It includes industries such as manufacturing; professional, scientific and technical services; information technology; finance and insurance; transportation and warehousing; mining; and agriculture and food processing.

US Cluster Mapping Project describes the critical importance of a strong base of traded industry sectors: *"Traded industry clusters are free to choose their location of operation (unless the location of natural resources drives where they can be) and are highly concentrated in a few regions, tending to only appear in regions that offer specific competitive advantages. Since traded clusters compete in cross-regional markets, they are exposed to competition from other regions...traded clusters are the 'engines' of regional economies; without strong traded clusters it is virtually impossible for a region to reach high levels of overall economic performance."*



## Assessment of Ideation in Region 2

**Overall Assessment:** Startups, patent innovation and talent attraction is lagging in the region despite a strong and growing university research base and increased activities to promote ideation in the region.

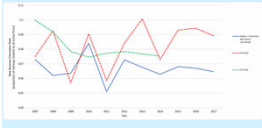
**Strengths and Opportunities:**

- Traded sector startups found in three key hubs within region – Roanoke area with 45% of the startups, Lynchburg with 30% and Blacksburg area with 25%.
- Diversity in startup activities across traded sector industry clusters, including with high relative concentration in life sciences, manufacturing and transportation/distribution/logistics
- University research activity stands out – university R&D per capita well above mid-sized benchmark regions and growing much faster
- Major new academic drivers with creation of VT-Carilion academic medical center, with a strong focus on neurosciences, and Liberty University expansion, including engineering program
- Building blocks of activities to advance ideation found across the region – including COLabs in Roanoke, CoStarters in Lynchburg and VT KnowledgeWorks in Blacksburg – but challenge of how to focus on traded sector activities
- Opportunity to build upon the increased entrepreneurial programming at VT and LU to engage graduate students, post-docs and faculty.


**Gaps and Weaknesses:**

- Lower business formation than mid-sized benchmark regions – 5% new business formation rate in Region 2 compared to 7% for mid-sized benchmark regions
- Number of traded sector startups falling in 2016 (271) and 2017 (247) – stood at more than 300 annually from 2012-2105
- Patent activity lagging – slightly behind mid-sized benchmark regions and declined sharply in Region 2 from 2014-2017 while growing in the benchmark regions and nationally.
- Significant net out-migration of highly educated to other states – nearly 24,000 net emigration from 2012-2017, while mid-sized benchmark regions gained in-migration, on average, of over 2,000.

**Region 2 faces a significant challenge on business formation of traded sector startups**



\*US new business formation rates available to 2014 via US Longitudinal Business Database



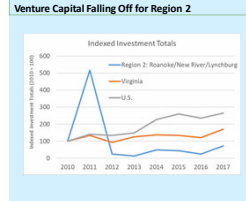
## Assessment of Commercial Viability in Region 2

- Overall Assessment:**  
**Weakness in university research commercialization holds back region's potential despite base of small business innovation in the region**
- Strengths and Opportunities:**
- Significant SBIR/STTR activities – well outpace mid-sized benchmark regions by approximately 10x, with 485 Phase I awards and 238 Phase 2 awards from 2010-2017
  - Creation of RAMP accelerator – focus on high growth potential innovation-led startups, but needs more dedicated source of pre-seed funding
  - Efforts of VT KnowledgeWorks with limited pre-seed funding through a revolving loan fund
  - Presence of the Center for Advanced Research and Engineering – focus on new product development with existing firms, including identifying technology solutions, proof-of-concept and prototyping
- Gaps and Weaknesses:**
- Virginia Tech's technology transfer efforts lagging, especially when compared to national averages, though mainly lagging on licensing efforts compared to mid-sized benchmark regions.
    - Major "re-invention" of technology transfer underway at VT, but the university needs to deal with minimal funding for patenting and proof-of-concept and past history of a lack of business friendliness in timeliness and approaches.

Region	Licenses/Options Executed	Licensing Income	Startups Formed
Virginia Tech	0.78	\$50,711	0.09
U.S.	1.04	\$413,677	0.13

## Assessment of Market Entry in Region 2

- Overall Assessment:**  
**Young firm growth important driver of economic growth in recent years, but lack of venture capital investment holds region back.**
- Strengths and Opportunities:**
- Significance of early stage company activity for growing the region – 58% of Region 2's quarterly employment growth over past five years generated, on average, by firms under five years old compared to 34% for mid-sized benchmark regions
  - Presence of targeted angel and early stage funding in areas of SAAS and life sciences, but not always in line with more engineering focus of region's technology strengths
  - Opportunity from new innovation space developments in the region. New innovation spaces are advancing in the region. One is a planned expansion of the VT Corporate Research Center in Roanoke near the VT Carilion medical complex, with incubator and lab facilities of approximately 100,000 sq ft. Another significant development is the advancement of LU TECH at the 550-acre New London Business & Technology Center in Bedford County, VA, just a short drive from Liberty University's main campus. It will be a home for business and industry partners to Liberty University, with spaces from a single workstation to more than 10,000 sq. ft., innovation programming and access to shared use lab associated with the Center for Advanced Research and Engineering. Finally, the existing 44,000 sq. ft. of incubator space and loan funds managed by the Lynchburg Business Development Centre are under review to better utilize and enhance its offerings.
- Gaps and Weaknesses:**
- Overall levels and growth of risk capital lagging significantly – \$29 million in risk capital for Region 2 over 2014-2017 well behind \$127 million median for mid-sized benchmark regions and Region 2 had a steep decline of 71% from period 2010-13 to period 2014-2017, while mid-sized benchmark regions rose 86%
  - A particular weakness is the low level of earliest forms of risk capital, including pre-seed (accelerator/incubator), angel investor and seed funding – a total of only 22 deals took place from 2010-2017 according to Pitchbook in Region 2 in these earliest forms of risk capital
  - Missing base of serial entrepreneurs to mentor and grow companies, especially those who have gone through formation to scale-up to exit in more deep technology areas



## Assessment of Growth & Scalability in Region 2

- Overall Assessment:**  
**Startup job generation important contributor in traded sector industry cluster transitions taking place in region, with opportunity to do more in emerging growth industries. Still region faces a significant workforce and talent challenge as startups seek to scale up.**
- Strengths and Opportunities:**
- Contribution of startup activity in Region 2 most pronounced in offsetting the decline of traded sector industry clusters.
  - Among emerging growth industries mixed performance – 84% of growth in ICT cluster from startups, but just 47% of growth in Engineering/R&D cluster
  - 189 surviving high growth startups formed since 2007, measured by having greater than 25% growth over lifetime of business, generated sustained growth reaching 3,306 jobs in 2017, with 10 or more high growth companies in nearly every industry cluster.
- Gaps and Weaknesses:**
- Well behind in Inc. 5000 fastest growing companies – Only 2 in region for 2018 compared to 13 on average for mid-sized benchmark region
  - Lagging trends in workforce and top talent – Working age population declining from 2012-2017, including decline in young working age (25-34) population and only small gains in highly educated working age (25-64) population, whereas solid growth realized by mid-sized benchmark regions
  - Lower levels of SBA 7(a) loans supporting growth-oriented small businesses in more traditional-based traded sector industries compared to mid-sized benchmark regions – 1.7 loans per capita in Region 2 compared to 2.7 in mid-sized benchmark regions and \$4 per loan value compared to \$12 in mid-sized benchmark regions
  - General challenge of entrepreneurial culture in region, including not many spinoff companies from existing industry base

Industry Cluster	Economic Development Potential/Opport.	Contribution of Entrepreneurship
Agriculture & Food Processing	Mid-Size/Declining	Very Significant
Business Services	Stable/Declining	Very Significant
Energy, Natural Resources, & Finished Products	Specialized/Declining	Very Significant
Engineering, R&D, Testing & Technical Services	Emerging/Strong	Modest
Financial & Insurance Services	Mid-Size/Declining	Very Significant
Health Care Services	Stable/Current Strength	Modest
Information Technology & Communications Services	Mid-Size/Growing	Significant
Life Sciences	Stable/Declining	Very Significant
Manufacturing	Large & Specialized/Declining	Very Significant
Transportation, Distribution and Logistics	Stable/Declining	Very Significant

## Potential Priority Actions Identified for Entrepreneurial Development in Region 2

- Generate increased ideation and greater activities in commercial viability for traded sector, high-growth oriented businesses, integrated with VT's and LU's technology commercialization efforts
- Advance innovation networks bringing together startups and existing companies focused on advancing commercialization and increasing talent connections
- Address need for more startup risk capital for market entry, including establishing an angel investor network and micro-loan fund
- Concept of a "Regional Entrepreneurial Quarterback"

## Potential Priority Action: Generate increased ideation for traded sector, high-growth businesses

- Rationale:**
- Raising the level of business formation of high-growth potential traded sector businesses is critical for Region 2
  - Need to take better advantage of Region 2's significant and growing university research base for advancing new innovation-led startups
  - Address missing base of serial entrepreneurs to mentor and grow companies
  - Opportunity with re-invention of technology transfer and commercialization at VT and enhanced VT-Carilion and LU research drivers coming to fruition to build a stronger community-wide approach for advancing university-related startups that taps the local entrepreneurial community and create stronger connections of university startups to the region
  - Opportunity to build upon the increased entrepreneurial programming at VT and LU to engage graduate students, post-docs and faculty
  - Opportunity to advance commercialization planning for SBIR companies
- Possible Activities:**
- Advance a regional industry-university collaborative for innovation and commercialization to engage seasoned entrepreneurs and technology domain experts from industry to help vet university disclosures, inform needed proof-of-concept projects to validate commercial viability and form or mentor startup teams with university faculty and graduate students
  - Establish an ongoing regional capacity to offer an ideation program for potential entrepreneurs similar to SBIR's Innovation Commercialization Assistance Program, building upon lean startup models, that leverages the expertise and resources of VT, LU, Western CC and other university & college business schools to create the trainers and counselors from within the region
  - Sponsor entrepreneurs-in-residence fellows in targeted sectors relevant to Region 2 to work with identified regional entrepreneurial startup teams, both from university and broader community, that successfully complete initial phases of ideation program and demonstrate high-growth potential
- Illustrative Best Practice Examples:**
- **Chattanooga, TN:** The Venture Assessment Program designed to help entrepreneurs investigate product/market fit of a new business concept through a five week program of workshops and individual feedback and direction with follow-on recommendations on next steps needed to advance business concept
  - **Raleigh-Durham:** Blackstone Entrepreneurs Network North Carolina that provides expert venture coaching through a veteran group of EIRs
  - **Colorado:** Innovation Center for the Rockies, initially established by Boulder County, cover nearly a decade worked closely with the state's public research universities to bring expert teams of entrepreneurs and technology domain experts to assess and advance university technology transfer. From 2005-2015, beyond the ongoing review of disclosures, it worked with 80 university research teams to commercialize technologies and its experts were directly involved in the startup of 8 new companies, raising \$75 m in private capital and creating over 400 jobs. Now integrated into Inosphere, a technology incubator with facilities across Colorado, including Fort Collins, Boulder, Denver, and South Denver/Castle Rock

## Potential Priority Action: Advance innovation networks to bring together startups and existing companies focused on advancing commercialization and increasing talent connections

- Rationale:**
- Many traditional traded sector industry clusters declining and emerging clusters either under-performing national growth (ICT, life sciences) or not having strong contributions from startup activity (engineering/R&D)
  - Build upon the unique needs found across the diversity of traded sector industry clusters in the region
  - Possibly organize around statewide domain areas which have an existing or emerging presence in Region 2, such as:
    - Cybersecurity
    - Autonomous Systems
    - Life Sciences
  - Need to address talent retention in the region not just for entrepreneurial talent, but for scaling up startup and existing businesses
  - Strengthen regional capabilities in working with startup and existing businesses in commercial viability of new product development, tapping both university applied research capabilities and CAER
- Possible Activities:**
- Facilitate bringing together entrepreneurs and innovation-oriented existing businesses from around the region in specific industry clusters to form an industry innovation network.
  - Among networking activities could be:
    - Technology and market intelligence workshops
    - Peer to peer networks across CEOs, CTOs
    - Investor forums/pitch competitions
  - Matching entrepreneurial startups with domain area experts from existing companies and possibly holding accelerator cohorts
  - Establish a talent outreach program that supports experiential learning projects and internships with students in relevant courses/degree programs through collaborations with faculty
  - Offer innovation vouchers for identified high-growth potential startups completing ideation programs to address commercial viability, including through use of senior design projects with universities and tapping CAER and university applied research capabilities.
- Illustrative Best Practice Examples:**
- **Chattanooga, TN:** Focused on targeted industry innovation networks through ongoing accelerator programming including ultra-high bandwidth business applications, consumer goods, outdoor recreation and food/beverage.
  - **Greenville, AL:** Focused on regional opportunity with strong presence of foreign auto makers to establish International Center for Automotive Research that represents significant public/private partnership and involves a Center for Emerging Technologies. Plus, strong focus on entrepreneurial program efforts.
  - **Greenville, SC:** Set Martin Biotech a 40,000 sq ft wet lab incubator with a strong track record of successful startups
  - **Raleigh-Durham:** NCBioTech Center, a long-established resource supporting growth of life sciences with a historical focus on the Raleigh-Durham region. Has formed interest groups in specialized life sciences areas to pursue new opportunities and collaborative efforts, which has led to spin-off resources such as in forest biotechnology.

### Potential Priority Action: Address need for more startup risk capital for early- stage market entry by traded sector

**Rationale:**

- Overall levels and growth of risk capital lagging significantly in Region 2, including in the earliest forms of risk capital, including pre-seed (accelerator/incubator), angel investor and seed funding
- Existing ideation efforts lack follow-on funding to successfully launch companies in the region

**Possible Activities:**

- Create a micro-loan fund for startups involved in more traditional traded sector activities, such as manufacturing. An example found in Virginia is the Staunton Creative Community Fund that utilizes an SBA revolving loan fund to provide micro-loans to startup clients. VT KnowledgeWorks has used a small revolving loan fund for pre-seed investments, and the Business Development Centre in Lynchburg manages several revolving loan funds able to be used for small business expansion in the City and nearby communities with a total loan pool of \$3.975 million
- Organize a formal angel investor network in the region. Given lack of understanding of innovation-based businesses of high-net worth individuals consider creating an in-house capacity to conduct due diligence with support from GO Virginia
- Seek to form a multi-regional seed fund with nearby regions that is able to bridge angel investors and more formal venture capital, with ability to lead syndication at seed stage and participate in follow-on early stage rounds

**Illustrative Best Practice Examples:**

- Susquehanna, PA:** Rural Business Innovation organization provides business technical assistance for accessing financing, along with a micro-loan startup grants, as well as a network of incubators near local colleges and universities (including Bucknell)
- Chattanooga, TN:** Two seed funds are active in the region, Chattanooga Renaissance Fund and Lamp Post Group.
- Ohio Third Frontier:** 34 pre-seed or seed funds established across regions of Ohio, capitalized at approximately \$6-\$7 million on average.

TECONOMY 13

### Proposed GO Virginia Action: Establish Regional Quarterbacks for Entrepreneurial Development in Each GO Virginia Region

**Specific Activities:**

- Identify opportunities and needs for regional entrepreneurial development within traded sector industries
- Ensure an implementation capacity on priority actions
- Provide a "front door" in each region for entrepreneurs to receive coordinated services among service providers

**Service Delivery Approach:**

- Performance-based grants developed in consultation with each region to address priorities
- In each region, an advisory committee will be created to oversee the efforts of the regional quarterbacks
- Potential for multi-regional applications
- VRIC proposal articulates additional entrepreneurial activities that need to be coordinated with the regional GO Virginia efforts

**Budget Rationale:**

- Award \$200k-\$300k per region to fund a full-time professional to serve as the regional quarterback. Funding could yet be made available in FY 2019.
- The regional quarterback would be tasked with advancing a regional strategic plan and prioritizing strategic investments, with the input from regional entrepreneurial ecosystem stakeholders, under the auspices of the GO VA Regional Boards.
- Once a regional prioritization investment plan is developed, further funding would be available in FY 2020 and thereafter to fill the gaps identified, including funding for efforts such as: EIRs, incubators, accelerators, mentor networks, etc.

**Comparable Best Practice Model: Launch Tennessee**

- Supports a network of Entrepreneur Centers, located in six cities across the state that provide entrepreneurs access to a mix of support services, including: wayfinding for entrepreneurs, boot camps, mentorship, co-working space, and initial pre-seed grants.
- In 2016, Launch Tennessee made grants to its Entrepreneur Centers of \$200,000 to \$375,000 for each center. These centers serve a much smaller area than GO Virginia regions.

TECONOMY 14

### Appendix A: Listing of Working Group Members

TECONOMY 15

### Working Group: Regional Council 2 Task Force on Startups/Innovation/Commercialization

- Bob Bailey, Center for Advanced Engineering and Research
- Greg Feldmann, Valleys Innovation Council
- Victor Iannello, Radiant Physics, co-chair VIC
- Doug Juanarena, serial entrepreneur and angel investor, co-chair VIC
- Megan Lucas, Lynchburg Regional Business Alliance
- Georgeann Snead, Electronic Design & Manufacturing, Inc.
- Jonathan Whitt, Liberty University

TECONOMY 16

### Appendix B: Quantitative Trendlines on Entrepreneurial Development

TECONOMY 17

### Initial Analysis of Entrepreneurial Dynamics in Your Region's Traded Industry Sectors

**Key Measures:**

- Job distribution by age of firm
- Job creation by age of firm
- Business formation rates of start-ups
- Survival rates of startup companies
- Examining key elements of "net" employment growth
- The contribution of high-growth startups compared to all startups

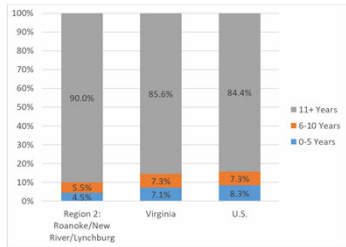
**Note on Data Sources:**

- Two data sources used to provide a full depiction of entrepreneurial dynamics
- The Quarterly Workforce Indicators (QWI) from U.S. Census** is a new longitudinal database with detailed data related to the job creation and other characteristics of firms, including by age groupings.
  - Most Detailed Level of Geographic Coverage:** County
  - Coverage:** Covers over 95% of U.S. private sector jobs (does not cover ag jobs, self-employment)
  - Grouping of Employment by Age of Firms:** 0-1 Years, 2-3 Years, 4-5 Years, 6-10 Years, 11+ Years
  - Industry Coverage:** 2-digit industry, which can define at a high-level traded sector industries
  - But QWI does not provide intelligence at the firm level
  - All data is on a quarterly basis
- The Business Dynamics Research Consortium (BDRC) database** is a time-series dataset that catalogues individual establishments by location, employment, sales, and industry from 2007 to 2017. The BDRC is maintained by the University of Wisconsin.
  - Coverage:** It compiles multiple data sets to track performance and growth for more than 144 million individual businesses across the United States.
  - Provides extensive firm-level data
  - able to identify firm by address
  - Detailed industry coverage

TECONOMY 18

### Regional Employment Distribution by Age of Firm for Traded Sector Industries

Majority of employment base is contained within older firms, mirroring wider state and national trends

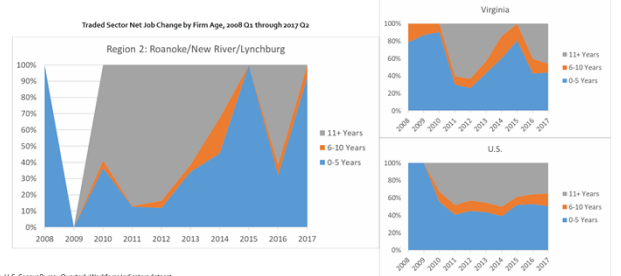


Traded Sector Employment Levels by Firm Age as a Percentage of Total Employment, Averaged 2008 Q1 through 2017 Q2

Source: U.S. Census Bureau Quarterly Workforce Indicators dataset.

### Trends in Job Growth Generation by Age of Firm for Traded Sector Industries

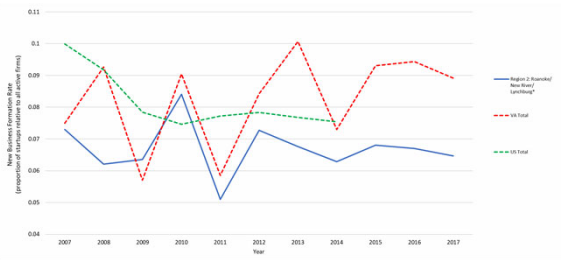
Region 2 has a more balanced mix of net job growth coming from startups and older firms – interestingly startups larger share in recent years, though firms at stage of scale-up (6-10 years old), not contribution much to net job growth.



Source: U.S. Census Bureau Quarterly Workforce Indicators dataset.

### Overall New Business Formation Rates for Region Based on BDRC Firm Level Data

Trends in overall new business formation rates for region follow state until 2012, but then observe decline in activity



\*US new business formation rates available to 2014, via US Longitudinal Business Database

### BDRC Profile of Startup Activity Trends in Region

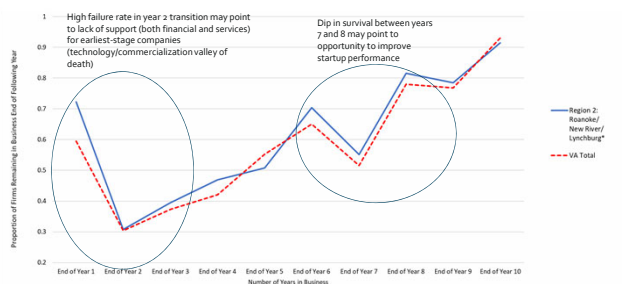
11,166 jobs found in Region 2 in 2017 associated with start-up activity in traded sector industries over the past decade

Founding Year of Startup Cohort*	Number of Startups in Traded Sector Industries	Number of Startups Surviving by 2017	Start-up Employment Levels 2017
2007	293	87	573
2008	257	108	864
2009	224	91	676
2010	402	155	1,337
2011	188	75	381
2012	309	151	913
2013	318	138	959
2014	306	192	1,509
2015	308	217	1,233
2016	271	212	1,333
2017	247	247	1,388

\*Composed of all new non-branch firms with first recorded employment activity in a given year

### Year over Year Survival Rate Trends in Regional Traded Sector Startups

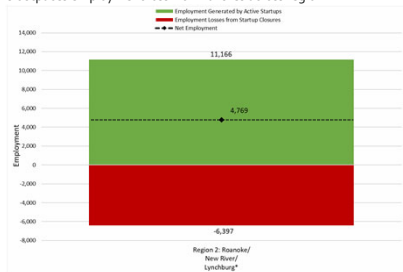
Cumulative 10-year startup cohort survival rates for region are 55.2% compared to a VA statewide rate 53.5%



\*Startups defined as having firm age <10 years as of 2017

### Net Employment Impacts Generated by Traded Sector Startup Firms in VA

Significant churn within startups, though generally net employment gains from those surviving startup firms outpaces employment loss from failures across region



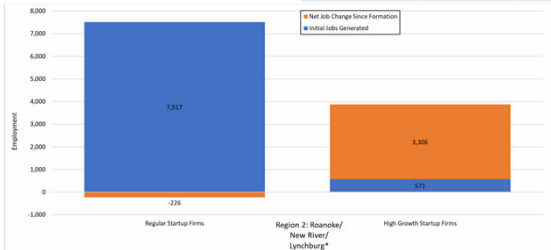
	Total Virginia Startups
Employment Generated by Active Startups	155,033
Employment Losses from Startup Closures	-98,732
Net Employment	56,301

\*Indicates GO Virginia regions with research universities  
\*\*Startups defined as having firm age <10 years as of 2017

### Employment Growth Impacts Generated by Current Traded Sector Startup Firms in Region

- Key to long term success is high growth startups – disproportionate share of lasting gains in employment observed from cohort of startups exhibiting high annualized growth rates

	Total VA Regular Startup Firms	Total VA High Growth Startup Firms
Initial Jobs Generated	104,888	9,058
Net Job Growth Since Formation	506	40,781



\*Indicates GO Virginia regions with research universities  
 \*\*Startups defined as having firm age < 10 years as of 2017, high growth startups defined as >15% annualized employment growth over lifetime of business

### Profile of Traded Sector High Growth Startup\* Activity in Region

- Region 2 generation of high growth startups is in line with statewide averages:
  - High growth firm share of surviving startups, just slightly below state average:
    - Region 2: 11.3%
    - State Avg: 12.3%
  - Jobs per Surviving High Growth Firm slightly more in Region 2:
    - Region 2: 20.5 jobs
    - State Avg: 17.3 jobs

Founding Year of Startup Cohort*	Total Number of Startups in Traded Sector Industries	Number of High Growth Start-ups Surviving by 2017	Employment Levels of High Growth Start-ups, 2017
2007	293	7	165
2008	257	8	434
2009	224	12	215
2010	402	15	683
2011	188	7	83
2012	309	21	340
2013	318	19	466
2014	306	52	932
2015	308	46	521
2016	271	2	38
2017	247		

### Profile of Startup Activity Within Key Regional Industry Clusters

#### Region 2 Priority Clusters from 2017 Growth and Diversification Plan:

- Manufacturing
- Life Sciences and Health Care
- Food and Beverage Processing
- Emerging Technologies and IT

Major Industry Cluster	Number of Startups in Cluster	Number of Start-ups Surviving by 2017	Number of High Growth Start-ups in Cluster**	Start-up Employment Levels, 2017	Start-ups Industry Cluster Employment Concentration Index*
Agriculture & Food Processing	248	137	12	666	1.06
Business Services	1,651	921	120	4,252	0.83
Energy, Natural Resources, & Finished Products	164	88	17	688	0.97
Engineering, R&D, Testing & Technical Services	185	107	19	570	0.51
Financial & Insurance Services	472	242	20	725	0.63
Health Care Services	84	41	18	710	0.60
Information Technology & Communications Services	173	104	33	991	1.41
Life Sciences	147	83	15	632	1.43
Manufacturing	225	112	23	1,019	1.24
Ship Building, Aerospace, & Defense					

\*Represents a measure of specialization in startup activity in certain industry clusters given overall state trends; > 1 indicates highly specialized concentration of startup generation in industry area 0.187  
 \*\*Defined as >15% annualized employment growth over lifetime of business

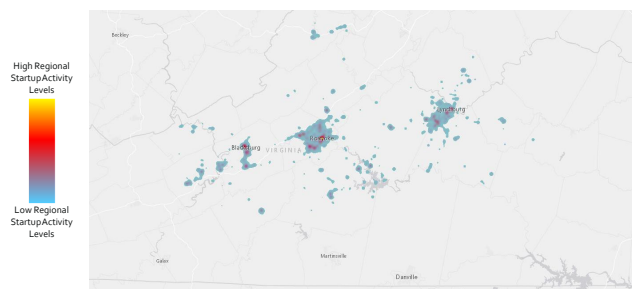
### Contribution of Entrepreneurial Development to Leading Industry Clusters

Significant dynamics among industry clusters – move away from traditional industries, with current strength in health care and emerging strengths in ICT and Engineering/R&D

Role of entrepreneurial activity in emerging opportunities is significant in ICT, but only modest in Engineering/R&D – plus more generally helps offset declines in traditional industries

Industry Cluster	Economic Development Position in Region	Contribution of Entrepreneurship	Data Analysis						
			2017 Employment	2017 Location Quotient	Regional 2007-2017 Percentage Job Growth	U.S. 2007-2017 Percentage Job Growth	Net Job Growth, All Companies, 2007-2017	Net Job Growth, Startups, 2007-2017	Share Start-ups of All Net Job Growth, 2007-2017
Agriculture & Food Processing	Declining	Very Significant	3,736	0.54	-8.5%	10.7%	-346	666	>100%
Business Services	Stable/Declining	Very Significant	14,926	0.85	-5.0%	9.1%	-788	4252	>100%
Energy, Natural Resources, & Finished Products	Specialized/Declining	Very Significant	8,349	1.46	-23.5%	-13.3%	-2,422	698	>100%
Engineering, R&D, Testing & Technical Services	Emerging Strength	Modest	3,872	0.99	45.7%	6.5%	1,215	570	47%
Financial & Insurance Services	Declining	Very Significant	4,382	0.61	-13.7%	-4.1%	-2,215	725	>100%
Health Care Services	Current Strength	Modest	15,875	1.40	19.6%	12.5%	2,600	710	27%
Information Technology & Communications Services	Emerging Opportunity	Significant	4,259	0.65	38.3%	50.8%	1,175	991	84%
Life Sciences	Declining	Very Significant	1,634	0.48	-27.2%	9.7%	-611	632	>100%
Manufacturing	Specialized/Declining	Very Significant	32,212	1.84	-15.4%	-13.5%	-5,888	1019	>100%
Ship Building, Aerospace, & Defense	Declining	Very Significant	91	0.03	-53.9%	-7.7%	-59	24	>100%
Transportation, Distribution and Logistics	Stable/Declining	Very Significant	13,281	0.86	-12.2%	8.7%	-1,838	3196	>100%

### Geographic Distribution of Traded Sector Startup Activity in Region



### Closer Look at Subregional Entrepreneurial Activities

Three traded sector entrepreneurial hubs emerge in Region 2, comprising 93% of startup firms and related jobs since 2007 that are in existence in 2017.

Subregions	Independent Cities and Counties Included	2017 Number of Startups since 2007 in existence	2017 Employment from Startups since 2007	Number of High Growth Startups Since 2007 with 10+ Employees	Industry Clusters with Three or More High Growth Companies of 10+ Employees
Roanoke-centric	Botetourt, Franklin, Roanoke City, Roanoke County, Salem City	1418 (45%)	5316 (48%)	40	TDL, ICT, Business Services
Lynchburg-centric	Lynchburg City, Amherst, Bedford, Campbell	937 (30%)	3046 (27%)	32	Business Services, ICT, TDL
Blacksburg-centric	Montgomery, Pulaski, Radford City	552 (18%)	2073 (19%)	12	ICT, Business Services, TDL

Initial Analysis of Broader Innovation Ecosystem Activity Innovation Ecosystem Activities

Key Measures:

- R&D and Commercialization
- Patent Activity of Inventors Residing in Region
- Venture Capital
- Federal Small Business Innovation Research Awards

**Growing University R&D, But Concerns on TechTransfer**

**Academic R&D Expenditures (Millions)**

Region 2: Roanoke/New River/Lynchburg	2010	2011	2012	2013	2014	2015	2016	Total
Virginia Tech	\$398.2	\$450.1	\$454.4	\$496.2	\$513.1	\$504.3	\$521.8	\$3,338.0
Other Institutions	\$0.7	\$3.8	\$2.6	\$5.0	\$2.6	\$2.2	\$5.7	\$22.6

**University Technology Transfer Metrics Per \$10M in Research Expenditures, Avg. 2010-16**

Region	Licenses/Options Executed	Licensing Income	Startups Formed
Virginia Tech	0.78	\$50,711	0.09
U.S.	1.04	\$413,677	0.13

**Academic R&D Expenditures, Top 5 Disciplines**

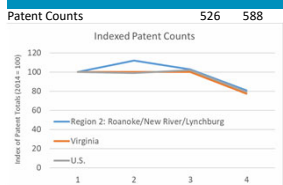
Field	R&D Expenditures, 2010-16 (Millions)	% of Total
Agricultural Sciences	\$675.62	20.1%
Biological and Biomedical Sciences	\$440.08	16.4%
Civil Engineering	\$378.61	16.9%
Electrical/Electronic/	\$299.79	16.1%

Source: National Science Foundation (NSF) Higher Education Research and Development (HERD) Survey and FRDOC Research and Development Expenditures Survey

Patent Activity: Significant Base, Very Diverse Areas of Technology

Total Patents, 2014-17

Region 2: Roanoke/New River/Lynchburg	2014	2015	2016	2017	Total
	526	588	540	426	2,080



Technology Class Area	# of Patents, by Inventor, 2010-2017
Lenses and optical parts	64
Biopharmaceuticals	32
Digital computing or data processing equipment or methods, specially adapted for specific functions	31
AC/DC power converters	24
User interface and data input devices	21
Program control and monitoring systems	21
Materials analysis methods and technologies	21
Light guides; Structural details of arrangements comprising light guides and other optical elements, e.g. couplings	20
Control of nuclear reaction	19
Optical devices	19

Source: Association of University Technology Managers (AUTM) Licensing Activity Survey, U.S. Patent and Trademark Office (USPTO) Patent Grants, Thomson Reuters Thomson Innovation patent analysis database

**Fall-Off in Venture Capital**

**Region 2: Roanoke/New River/Lynchburg**

	2010	2011	2012	2013	2014	2015	2016	2017	Total
Deal Counts	8	11	7	7	7	12	4	7	63
Investment Totals (Millions)	\$15.4	\$79.8	\$3.7	\$1.9	\$7.5	\$6.9	\$3.6	\$11.2	\$130.0

**Region 2: Roanoke/New River/Lynchburg**

	Pre-Seed	Angel	Seed	Early Stage	Later Stage	Total
Deal Counts	8	24	4	15	12	63
Investment Totals (Millions)	\$0.1	\$9.7	\$1.2	\$46.2	\$72.7	\$130.0

Source: PitchBook Data, Inc.

**SBIR/SSTR Awards**

- Significant activity in SBIR awards, slightly below recent U.S. trends

**Region 2: Roanoke/New River/Lynchburg**

	2010	2011	2012	2013	2014	2015	2016	2017	Total
Award Counts	130	100	95	83	77	73	87	78	723
Award Amounts (Millions)	\$42.67	\$35.78	\$31.54	\$27.13	\$23.13	\$29.47	\$32.46	\$31.69	\$253.87

Source: www.SBIR.gov

**SBIR/SSTR Awards**

- A few companies dominate in SBIR activity

**Top 50 Companies Receiving Phase II Awards, 2015-17**

Company	Phase II Award Counts	Phase II Award Amounts (Millions)
Luna Innovations Incorporated	37	\$31.75
Nanosonic Inc.	17	\$14.49
Nuvotronics, LLC	10	\$9.39
Harmonia Holdings Group, LLC	6	\$4.60
Prime Photonics, LC	4	\$2.57
Graf Research Corporation	2	\$1.75
International Scientific Technologies, Inc.	2	\$1.74
Innovative Wireless Technologies, Inc.	1	\$1.44
Ceramic Tubular Products	1	\$1.01
Innovative Technologies International, Inc.	1	\$1.01

Source: www.SBIR.gov

## Regional Use of SBA Loans

- SBA 7(a) loans are the agency's primary program for financial assistance to small businesses
  - Amounts: up to \$5M
  - SBA guarantees: 75% to 85%
  - Qualification: for-profit business, SBA size standards, demonstrate good credit/mgmt./ability to repay
  - Use of Proceeds: Startup costs, buying land/buildings/equipment, new construction, working capital, seasonal lines of credit.
  - Benefits: Flexible, longer terms, lower down payments, no prepayment penalties

**Region 2: SBA 7(a) Loans and Loan Amounts, Cumulative Totals 2010-18\***

Industry Clusters	C's Receiving Loans	Total No. of Loans	Total Loan Amounts (\$)	% of Total Loan Amount
<b>Total, All Traded Sector Industries</b>	<b>97</b>	<b>118</b>	<b>\$40,578,100</b>	<b>100%</b>
Agriculture & Food Processing	10	13	\$1,598,000	3%
Business Services	26	31	\$6,448,300	16%
Energy, Natural Resources, & Finished Products	11	11	\$3,535,500	9%
Engineering, R&D, Testing & Technical Services	4	5	\$3,356,000	8%
Financial & Insurance Services	2	2	\$1,087,000	3%
Health Care Services	2	2	\$535,000	0%
Information Technology & Communications Services	4	5	\$320,300	1%
Life Sciences	1	1	\$40,000	0%
Manufacturing	24	33	\$19,931,500	49%
Transportation, Distribution and Logistics	13	15	\$3,766,300	9%

\*Data for 2018 are through Q3.

## Regional Utilization of SBA Loans vs. State & U.S. Totals

- In 2017, regional companies approved for loan funding at a lower level relative to US

**SBA 7(a) Loan Counts, Traded Sector Companies Per 1,000 Establishments, 2017**

**SBA 7(a) Loan Amounts (\$), Traded Sector Companies Per Establishment, 2017**

Source: TECOMY analysis of SBA loan data reports.

## Appendix C: Inventory and Stakeholder Discussions

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## Informing the "Situational Assessment"

### Stakeholder Discussions and Inventory \*

- Bob Bailey, CAER
- Alex Barber, LU Center for Entrepreneurship
- Anna Bentson, Opportunity Lynchburg
- James Creekmore, Creekmore Law Firm and owner/operator of TechPad, a co-working space in Blacksburg
- Russ Ellis, Commonwealth Growth Fund
- Sam English, serial entrepreneur, formerly with Carilion Institute and active consultant
- Greg Feldmann, Valleys Innovation Council
- Meredith Huntley, VIC
- Victor Iannello, Radiant Physics, co-chair VIC
- Doug Juanarena, serial entrepreneur and angel investor, co-chair VIC
- Stephanie Keener, SBDC - Lynchburg Region
- Megan Lucas, Lynchburg Regional Business Alliance
- Derick Maggard, VT Apex
- Robert McAder, Roanoke Blacksburg Technology Council
- Joe Meredith, VT Corporate Research Center
- James Ramey, VTC Innovation Fund/Middleland Capital
- Georgieann Snead, Electronic Design & Manufacturing, Inc.
- Brad Stephens, CoLab Roanoke
- Plus, Ross Baird feedback from his own meetings with entrepreneurs

\* See handout for inventory profiles.

### Entrepreneurial Activities Across Stages of Entrepreneurial Development

Entrepreneurial Activity	Ideation	Commercial Viability	Market Entry	Growth & Scalability
Business Development Centre			✓	
Center for Advanced Engineering and Research	✓	✓		✓
CoLab			✓	
Commonwealth Growth Fund			✓	
Liberty University Center for Entrepreneurship	✓			
Lynchburg Regional Business Alliance				✓
Opportunity Lynchburg Co-Starters	✓			
RAMP Regional Accelerator		✓		
Small Business Development Centers - Roanoke and Lynchburg	✓ (ICAP)		✓	✓
Tech Pad			✓	
Valleys Innovation Council				✓
Virginia Western Community College Entrepreneurship Plus Program	✓			
VT Apex System Center for Innovation and Entrepreneurship	✓			
VT Carilion Innovation Fund			✓	
VT Corporate Research Center		✓		✓

\* See Excel handout for inventory profiles.

## Appendix D: Competitive Benchmarking

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### Benchmarking: Regions Selected and Comparative Measures

**Regions Selected:** TEconomy solicited and received input across the 9 GO Virginia regions on regions they benchmark themselves against, consider useful comparisons

- Large Technology Hubs**
  - Raleigh/Durham, NC
  - Austin, TX
  - Charlotte, NC
- Medium-sized regions with urban core and multiple mid-tier research institutions**
  - Birmingham, AL (UAB)
  - Chattanooga, TN – medium-sized, minimal university presence
  - Durham, OH (Duke, of Dayton, Wright State Univ.)
  - Durham, NC (Duke)
  - Greenville, SC (Clemson Univ.)
  - Nashville, TN – medium-sized, major research university
  - Raleigh, NC (NC State)
- Rural regions with major research institutions**
  - West Lafayette, IN (Purdue University)
  - Gainesville, FL (Univ. of Florida)
- Rural region without major research institutions (near Interstate and mfg-oriented)**
  - Greater Susquehanna, PA (MSA/Micro blend)
  - Cookeville, TN (Micro) – rural, minimal university presence
  - Jackson, TN (Micro) – rural, minimal university presence

**Comparative Measures:** Organized across stages of entrepreneurial development

- Ideation**
  - Highly educated population growth and in-migration
  - New firm startup rate
  - University R&D
  - Patent Activity
- Commercial Viability**
  - SBIR/STTR Activity
  - University Technology Transfer & Commercialization
- Market Entry**
  - Employment in Younger, Traded Sector Firms
  - Venture Capital Activity
- Growth & Scalability**
  - Presence of High Growth Companies
  - Talent dynamics such as population growth of working age population, educational attainment and highly educated population growth and in-migration
  - SBA 7(a) loan activity

\*Regional geographies are Metropolitan Statistical Areas (MSAs) if not otherwise specified above.

### Ideation

Ecosystem Element	Measure	GO VA Region 2	VA	U.S.	Benchmarking Groups: Median Value			
					Large Tech Hubs	Mid-sized Regions	Rural with Major Research Anchor	Rural with No Major Research Anchor
New Firm Startup Rate	Rate of New Firm Formation as a Percentage of All Firms, 2014	5%	7%	8%	9%	7%	7%	5%
	Percentage Pt. Change, 2010-14	0.3	0.3	0.2	0.0	-0.1	0.4	-1.0
University R&D	University R&D Expenditures per Capita, 2016	\$672	\$174	\$222	\$863	\$170	\$2,800	\$62
	Percent Change in Total R&D Expenditures, 2010-16	31%	22%	17%	16%	15%	13%	-25%
Patenting (Incls. Industry & University)	Invented Patents per 1,000 Population, 2017	0.3	0.3	0.5	2.1	0.4	1.4	0.2
	Percent Change in Total Invented Patents per 1,000 Population, 2010-17	-38%	-33%	-33%	7%	16%	9%	20%

Sources: TEconomy analysis of National Science Foundation, Higher Education R&D Survey and US Patent and Trademark Office data and U.S. Census Bureau, Business Dynamics Statistics

### Commercial Viability

Ecosystem Element	Measure	GO VA Region 2	VA	U.S.	Benchmarking Groups: Median Value			
					Large Tech Hubs	Mid-sized Regions	Rural with Major Research Anchor	Rural with No Major Research Anchor
SBIR/STTR Awards	SBIR, STTR Award Funding per Capita, Avg. 2014-17	\$38	\$15	\$8	\$17	\$5	\$30	\$0.30
	SBIR, STTR % Pt. Change in Share of Award Funding, Avg. 2010-13 to 2014-17	-0.25	-0.56	-	0.09	0.03	-0.04	0.00
	Number of Phase 1 Awards, 2010-2017	485	1,796	17,802	486	44	119	2
	Number of Phase 2 Awards, 2010-2017	238	935	10,002	235	33	49	0
University Technology Transfer & Commercialization	Avg. Annual Univ. Start-ups, 2014-16	5	17	911	28	5	21	-
	Avg. Startups Formed per \$10M Univ. Research, 2014-16	0.10	0.15	0.16	0.13	0.10	0.36	-
	Avg. Licenses/Options Explored per \$10M Univ. Research, 2014-16	0.07	0.11	0.11	0.07	1.03	2.87	-

Sources: TEconomy analysis of National Science Foundation, Higher Education R&D Survey and US Patent and Trademark Office data and U.S. Census Bureau, Business Dynamics Statistics

### Market Entry

Ecosystem Element	Measure	GO VA Region 2	VA	U.S.	Benchmarking Groups: Median Value			
					Large Tech Hubs	Mid-sized Regions	Rural with Major Research Anchor	Rural with No Major Research Anchor
Employment in Younger, Traded Sector Firms	Share of Employment in Traded Sector Firms Ages 0-5, 2017 Q2	4%	7%	8%	8%	6%	7%	3%
	Avg. Share of Employment Growth in Firms Ages 0-5, 2013-2017 Q2	58%	52%	46%	36%	34%	42%	30%
	VC Investments per Capita, 2014-17	\$29 M	\$2.6 B	\$308 B	\$2.3 B	\$127 M	\$66 M	\$0.2 M
Venture Capital Investments	Change in VC Investment, 2010-13 to 2014-17	-71%	24%	89%	42%	86%	-13%	2000%
	VC Deals, 2014-17	30	1,068	54,030	565	81	74	3
	VC Deals per 100,000 pop., 2014-17	4	13	17	31	13	30	2
	Share of VC Deals, 2010-13/2014-17	9%	67%	58%	67%	49%	135%	125%
	Change in VC Investments in Angel + Seed + Early Stages, 2014-17	78%	51%	41%	36%	79%	65%	100%
	Share of VC Deals in Angel, Seed + Early Stages, 2014-17	80%	81%	88%	85%	84%	91%	100%

Sources: TEconomy analysis of U.S. Census Bureau, Quarterly Workforce Indicators data and PitchBook data

### Growth & Scalability

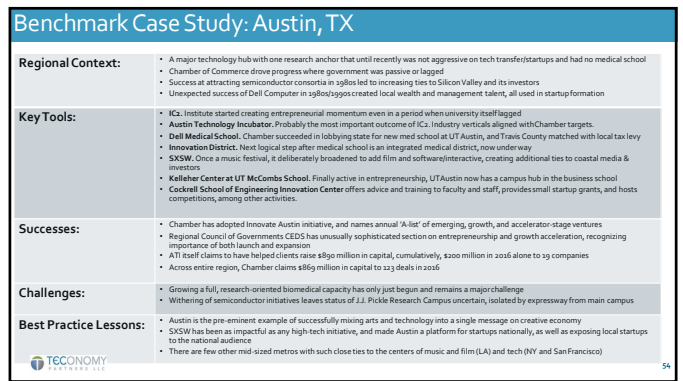
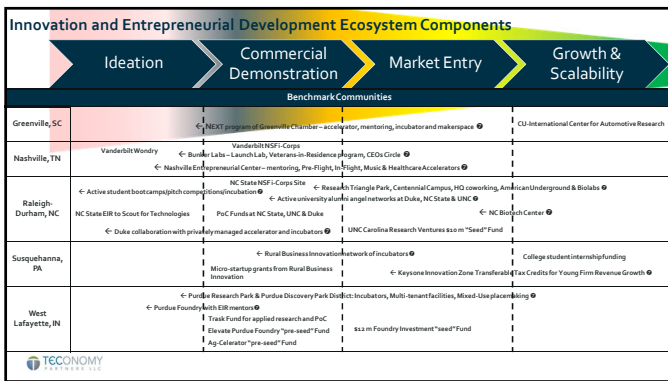
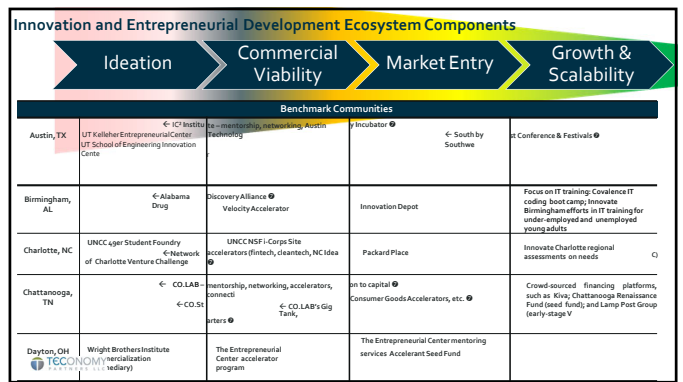
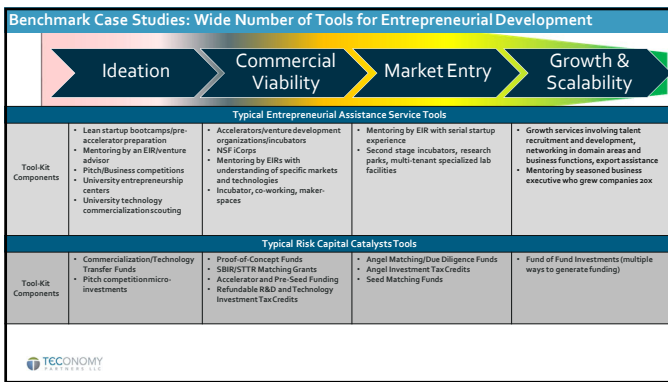
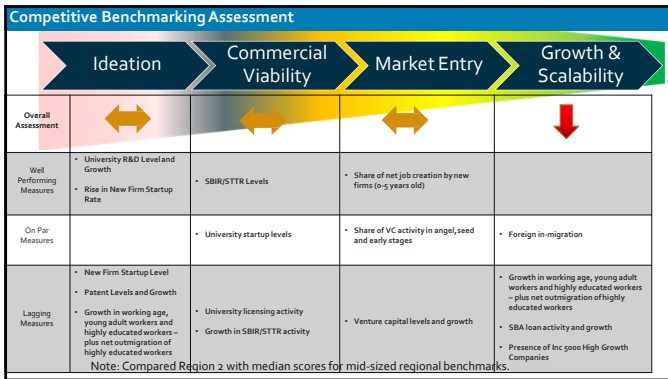
Ecosystem Element	Measure	GO VA Region 2	VA	U.S.	Benchmarking Groups: Median Value			
					Large Tech Hubs	Mid-sized Regions	Rural with Major Research Anchor	Rural with No Major Research Anchor
SBA 7(a) Loans	Avg. SBA 7(a) Loans, per 100,000 population, 2010-2017	1.7	2.9	4.7	3.6	2.7	2.0	3.2
	Change in SBA 7(a) Loans, 2010-2017	13%	11%	22%	55%	80%	-17%	-20%
	Avg. SBA 7(a) Loan Value, per Capita, 2010-2017	\$4	\$9	\$17	\$18	\$12	\$10	\$20
	Change in SBA 7(a) Loan Value, 2010-2017	-40%	214%	82%	149%	120%	693%	48%
Presence of High-Growth Companies	Number of Companies on the Inc. 5000 List of Fastest Growing US Companies, 2018	2	297	-	57	13	3	1
	Change in Companies in Inc. 5000, 2010-18	0%	2%	-	15%	13%	83%	-50%

Sources: TEconomy analysis of U.S. Census Bureau, American Communities Survey

### Cross-Cutting Ecosystem Element: Talent Dynamics

Ecosystem Element	Measure	GO VA Region 2	VA	U.S.	Benchmarking Groups: Median Value			
					Large Tech Hubs	Mid-sized Regions	Rural with Major Research Anchor	Rural with No Major Research Anchor
Growth in Working Age Population	Growth in Total Working Age Population, 25-64—2012-2017	-3%	1%	3%	9%	5%	2%	-2%
	Growth in Young Working Age Population, 25-34—2012-2017	-1%	3%	7%	11%	7%	6%	4%
Educational Attainment	Share of Population Ages 25-64 with a Bachelor's Degree or Higher, 2017	20%	28%	23%	31%	23%	21%	15%
	Growth in Highly Educated Workforce (BA+), (25-64, working age) — 2012-2017	3%	10%	12%	26%	17%	16%	6%
Highly Educated Migration	Net Migration of Highly Educated Workers (BA+), 2012-17	-23,974	-14,000	154,411	45,424	2,279	-9,684	-1,402
	Foreign In-Migration (BA+), 2012-17	7,231	151,627	3,933,494	38,243	8,782	8,423	587

Sources: TEconomy analysis of U.S. Census Bureau, American Communities Survey



Benchmark Case Study: Birmingham, AL	
<b>Regional Context:</b>	<ul style="list-style-type: none"> <li>Mid-sized region with research anchors, including University of Alabama Birmingham (\$900+ m annually) and Southern Research Institute (~\$70 m annually in contract research funding).</li> <li>Research anchor focus is strongly on life sciences.</li> <li>Challenge of having to reinvent itself from being a steel-oriented economy (the "Pittsburgh of the South") to an innovation and knowledge hub.</li> </ul>
<b>Key Tools:</b>	<ul style="list-style-type: none"> <li><b>Applied and translational research focus:</b> Alabama Drug Discovery Alliance, a collaboration of SB and IAB, leverages significant drug discovery and development research and shared use facilities and moves new therapeutic leads through a structured process of assay development, high-throughput drug screening, lead identification and development, pre-clinical testing and early clinical trials.</li> <li><b>Innovation Depot,</b> a 140,000 sq. ft. incubator and co-location space, making it one of the largest in the nation. It offers range of space options, including wet lab. The Innovation Depot is far more than a technology incubator, but a home for a variety of entrepreneurial and talent initiatives in collaboration with community stakeholders.</li> <li><b>Velocity,</b> a relatively new accelerator housed at Innovation Depot, with ability to invest \$50,000 in seed funding for each selected startup company.</li> <li><b>IT workforce development</b> - Multiple efforts in place at different levels for IT coding/software development bootcamps targeting undergraduates and under-employed/unemployed young adults.</li> <li><b>Networking activities:</b> Tech Birmingham programs include a monthly TechTuesday speaker series, member only networking socials, broader information sharing events, and Key IT Local to create opportunities for local companies to do more business together in IT products and services, among other efforts.</li> </ul>
<b>Successes:</b>	<ul style="list-style-type: none"> <li>Innovation Depot reports 212 companies assisted with 3,064 jobs and \$155 million in sales revenue. Largely tech-oriented companies, but some life sciences.</li> <li>Establishing networks and connections with other communities to generate investor interest and entrepreneurial teams, including New York and Israel.</li> <li>Many of its graduates are now serving as tenants for a larger innovation district development in Birmingham.</li> <li>Alabama Drug Discovery Alliance in early 2018 had 19 drugs in the development pipeline, leveraging major drug discovery programs in emerging infectious diseases, cystic fibrosis and cancer, engaging major biopharmaceutical companies.</li> </ul>


Benchmark Case Study: Charlotte, NC	
<b>Regional Context:</b>	<ul style="list-style-type: none"> <li>Fast growing technology hub with smaller research anchors</li> <li>Leveraging position in banking center to generate a rising entrepreneurial community.</li> </ul>
<b>Key Tools:</b>	<ul style="list-style-type: none"> <li><b>Innovate Charlotte (formerly Charlotte Regional Fund for Entrepreneurship)</b> Established through the 2012 regional plan for "Prosperity for Greater Charlotte," and funded through the region's \$2.2 billion community foundation. It was envisioned as a grant funding mechanism to support local non-profits to advance entrepreneurial culture, ecosystem connections, risk capital availability and technical skills. Over the years has taken a more pro-active approach in providing entrepreneurial assessments of the region, holding ideation workshops and recommending specific activities.</li> <li><b>Packard Place:</b> A redeveloped large auto showroom/building that has been transformed into an entrepreneurial hub housing multiple accelerators (see below) as well as offering fellowships to new startup founders and co-working space.</li> <li><b>Network of accelerators:</b> includes one in clean energy (Joule Accelerator), fintech (OC FinTech), and tech (RevTech Labs and NC IDEA)</li> <li><b>Ventureprise:</b> UNC Charlotte's long-time affiliated incubator founded back in 1986. Long history of engaging entrepreneurial community, though in 2017 reconstituted with a stronger focus on student and faculty startups, with programs such as Ventureprise Launch NSF Corps for university tech commercialization and 48hr Foundry a student incubator. Also manages the NC IDEA offering a lean-startup program similar to its Ventureprise Launch for innovation-driven startups in the community.</li> </ul>
<b>Successes:</b>	<ul style="list-style-type: none"> <li>Packard Place reports results for its aggregate community of accelerators, coworking spaces, fellows, etc. as generating from 2010-2017, 300 new jobs and \$1 billion in venture capital raised.</li> <li>Ventureprise reports over the 2008-2017 period supporting 46 new clients, with some notable successes such as CSI(Photogrids, Verian Technologies, SecureEdge Networks and Sapere, which had successful exits or have moved into their own commercial facilities to accommodate substantial growth.</li> </ul>
<b>Challenges:</b>	<ul style="list-style-type: none"> <li>Long time period to grow university research anchors to match fast growth of overall entrepreneurial activities and offer a deeper driver of innovation.</li> <li>Not doing well in growing new research park anchors to complement emergence of technology hub, including slow growth of campuses with Charlotte Research Institute and David H. Murdock Research Institute.</li> </ul>
<b>Best Practice Lessons:</b>	<ul style="list-style-type: none"> <li>Role of community foundation and community leaders in spurring entrepreneurial development.</li> </ul>


Benchmark Case Study: Chattanooga, TN	
<b>Regional Context:</b>	<ul style="list-style-type: none"> <li>Mid-sized region with limited research anchor. [RYAN, CANYOU ADD BENCHMARKING INDICATORS?]</li> </ul>
<b>Key Tools:</b>	<ul style="list-style-type: none"> <li><b>Company Lab (or CO LAB)</b> is a non-profit accelerator and one-stop shop for local entrepreneurs founded in 2008. CO LAB has developed a range of programs and services for both local growth and high-growth companies at different stages of development, including Way Finding to screen and guide entrepreneurs to services, CO-STARTERS a 9-week program that teaches lean startup methods for business startups, CO LAB Accelerator, a mentor-driven program for high-growth potential startups, GIG Tank, an accelerator focused on ultra-high bandwidth business applications, Consumer Goods Accelerator, an accelerator focused on outdoor recreation and food/beverage sector.</li> <li>CO LAB connects companies to capital, like the Chattanooga Renaissance Fund, and Leap Post Group focused on seed investments. CO LAB has also joined the Kiwi, crowd-sourced financing platform.</li> <li>In 2014 a new intermediary organization formed, the Enterprise Center, to more broadly leverage the City's high broadband infrastructure to create a place that develops and tests many applications for urban needs.</li> <li>Chattanooga foundations and business leaders have historically invested in downtown revitalization efforts, including the riverfront development. CO LAB spans out of downtown revitalization and visioning exercise supported by local family foundations. Other investments and assets include Chattanooga's gigabit network (10 gbps metro-wide fiber optic network), UTC, the regional university in close proximity to downtown, and the rebranded Innovation District involved mixed use developments.</li> </ul>
<b>Successes:</b>	<ul style="list-style-type: none"> <li>Significant scale of activities by CO LAB since its formation back in 2008, including 100+ cohorts and 700+ participants in CO Starters. 83 companies graduated and \$7M+ capital raised from CO LAB Accelerator, 58 companies graduated and \$23M+ capital raised for GIG Tank and 200 consultations a year from Way Finding.</li> </ul>
<b>Challenges:</b>	<ul style="list-style-type: none"> <li>Lack of capital is viewed as a key constraint to high-growth companies</li> </ul>
<b>Best Practice Lessons:</b>	<ul style="list-style-type: none"> <li>Demonstration of how to revitalize a community and its downtown through talent retention, placemaking, startup activity, and ecosystem building that supports both "local growth" and high-growth companies</li> <li>Critical role of local foundations in catalyzing activities and combining placemaking, unique tech infrastructure development and entrepreneurial programming.</li> </ul>


Benchmark Case Study: Dayton, OH	
<b>Regional Context:</b>	<ul style="list-style-type: none"> <li>Mid-sized region anchored by major federal research lab, Air Force Research Labs at Wright Patterson Air Force Base, and University of Dayton with its research institute generating more than \$200m in research activities highly aligned with ARL needs, plus Wright State University, with some research programs and an important talent driver for the region.</li> <li>Challenge of moving beyond federal contract activity to drive new traded sector company growth.</li> </ul>
<b>Key Tools:</b>	<ul style="list-style-type: none"> <li><b>Wright Brothers Institute (WBI):</b> A partnership intermediary to facilitate technology transfer from ARL, identify unmet technology needs, further commercialization through collaborative team efforts and engage small technology based businesses to tap opportunities and partnerships.</li> <li><b>The Entrepreneur Center (TEC):</b> Serves as the delivery arm of entrepreneurial services supported by the Ohio Third Frontier and operates a traditional incubator with two sites in the region, which is now expanding into offering coworking space and an accelerator program. Also houses a site for WBI.</li> </ul>
<b>Successes:</b>	<ul style="list-style-type: none"> <li>Wright Brothers Institute reports supporting over 100 innovation-based projects annually, with typically \$3 million of commercialization activities and engaging over 1,000 small technology oriented businesses.</li> <li>While not among the top performing seed funds in Ohio, the Accelerant seed fund over 2007-2014 invested \$12 million, creating 2,995 jobs and retaining 1,216 jobs. This performance through ranks last of the six privately-managed regional seed funds supported with matching funding from Ohio Third Frontier - and since 2013 has received additional state matching funds.</li> </ul>
<b>Challenges:</b>	<ul style="list-style-type: none"> <li>Creating more commercially focused technology-based companies.</li> </ul>
<b>Best Practice Lessons:</b>	<ul style="list-style-type: none"> <li>While advancing industry partnerships with federal labs can be effective, it does not always translate into new commercially focused technology businesses.</li> </ul>


Benchmark Case Study: Gainesville, FL	
<b>Regional Context:</b>	<ul style="list-style-type: none"> <li>Compact metro in North Central Florida surrounded by rural counties, distant from major population centers, dominated by U Florida, the land grant which also includes a medical school</li> <li>Master planning is emphasizing infill between historic downtown and the university campus</li> <li>Innovation &amp; economic development one of six "pillars" of regional CEDS</li> </ul>
<b>Key Tools:</b>	<ul style="list-style-type: none"> <li><b>Sid Martin Biotech,</b> 10,000 sq. ft. incubator created in 1990 with long and well recognized track record, off campus in Progress Corporate Park</li> <li><b>Florida Innovation Hub,</b> 100,000 sq. ft. dry incubator at downtown campus, anchoring</li> <li><b>Innovation Square,</b> Major live/work innovation district project planned for blocks between campus and downtown Gainesville, 1 major multi-tenant building already open, both wet and dry space</li> <li><b>Entrepreneurship and Innovation Center.</b> On-campus hub for student entrepreneurship, including consultancy with real startups and "hatchery" for student ventures</li> <li><b>Florida Opportunity Fund.</b> Venture fund established with state's allocation from Treasury 558C1 fund</li> <li><b>Florida Virtual Entrepreneur Center.</b> State-supported through Florida High Tech Corridor collaboration of the three major research universities.</li> <li><b>StartupGAIN (formerly GAIN).</b> Not-for-profit organization encouraging local startups.</li> <li>Additional seven tech incubators including two at smaller institutions like Santa Fe College strongly supported by the Chamber and highlighted in regional strategies</li> <li>Multiple commercial coworks, makerspaces, etc.</li> <li>Florida Angel NEXUS. Statewide collaborative of regional angel groups and funds.</li> <li>Every county in the region (all 12 counties surrounding Alachua) qualify for planning support from the state Rural Economic Development Initiative</li> </ul>
<b>Successes:</b>	<ul style="list-style-type: none"> <li>Sid Martin claims its companies have attracted cumulatively \$500 million in capital (\$1.2 billion in funding including revenue and acquisitions), with 10k still in operation 3 years after graduation, and 48 of all biotech companies in state started there</li> <li>UF licensing office claims to have started more than 180 companies (about half biomedical, but also technology)</li> </ul>
<b>Challenges:</b>	<ul style="list-style-type: none"> <li>Relative isolation from state's major business/corporate centers - 70 miles to Jacksonville, 130 to Orlando, 130 to Tampa</li> <li>Chamber recognizes need to take strategy to a higher level, including better connecting startup creation to targeted industry clusters, and reducing outward brain drain</li> </ul>

Benchmark Case Study: Greenville, AL	
<b>Regional Context:</b>	<ul style="list-style-type: none"> <li>Mid-sized region anchored by presence of university research anchors in the region and a growing academic hospital creating a new medical school in collaboration with local universities.</li> </ul>
<b>Key Tools:</b>	<ul style="list-style-type: none"> <li><b>New innovation center campuses outside of the main Clemson University campus with focus on specific technologies, including:</b> <ul style="list-style-type: none"> <li><b>Clemson University International Center for Automotive Research (CU-ICAR), Greenville:</b> Significant public-private partnership between growing automotive industry, Clemson University and the state to create a new R&amp;D center of excellence in automotive technologies close to the industry cluster and about 45 minutes from the Clemson campus. Includes creation of a new graduate program in automotive technologies at the site that involves multi-disciplinary approach involving electronics, computing and advanced materials, supported by recruitment of eminent scholars. Home to company research centers, including BMW IT Research Center and Koyo Bearing R&amp;D Center, plus offers a 60,000 sq ft Center for Emerging Technologies.</li> <li><b>Clemson University Biomedical Engineering Innovation Campus, Greenville:</b> A 30,000 sq. ft. lab located within a facility at the Greenville Health System campus, which is a spearhead to advance collaborations with a new academic medical center development taking place.</li> <li><b>Clemson University Innovation Campus and Technology Park, Anderson, SC:</b> Eight miles from the main Clemson campus. Home to university's Advanced Materials Research Lab, environmental labs and computing center, Duke Energy Innovation Center, and industry funded National Biotech Research Center.</li> </ul> </li> <li><b>Rise of mix of accelerator, incubator and maker-spaces in Greenville region:</b> Led by the NEXT program of the Greenville Chamber, brings a strong focus on entrepreneurial and innovation-focused small businesses, with three different facilities, including one targeted for advanced manufacturing, mentoring programs, events and other ecosystem development efforts.</li> </ul>
<b>Successes:</b>	<ul style="list-style-type: none"> <li>\$250 million public-private partnerships in CU-ICAR has generated 770 jobs and another 720 jobs announced, plus major surrounding projects including 1,200-acre mixed use development with an expected population of 10,000, location of Hubbell Lighting Corporation headquarters, among other industry and health-system investments.</li> <li>NEXT Innovation Center reports assisting 302 companies, attracting \$13 million in new capital in 2017 and 261 new jobs paying on average \$69,443.</li> </ul>
<b>Challenges:</b>	<ul style="list-style-type: none"> <li>Linking major public-private innovation center developments with entrepreneurial activity.</li> </ul>
<b>Best Practice Lessons:</b>	<ul style="list-style-type: none"> <li>Creating new anchor research and innovation centers around industry clusters through university, industry and state partnerships</li> </ul>

Benchmark Case Study: Nashville, TN	
<b>Regional Context:</b>	<ul style="list-style-type: none"> <li>Mid-sized region anchored by a major research university, strong music scene and leading healthcare companies</li> </ul>
<b>Key Tools:</b>	<ul style="list-style-type: none"> <li>The Nashville Entrepreneur Center a non-profit offering a range of fee-based services and memberships spanning coworking, networking, incubation and intensive mentoring/acceleration services:                             <ul style="list-style-type: none"> <li>Co-Working space and Community access</li> <li>Pre-Flight program for entrepreneurs to advance business ideas</li> <li>In-Flight program for early-stage startups with up to three employees and \$150,000 in revenue</li> <li>Accelerators focused on music industry and healthcare industry verticals that accept startups nationwide</li> </ul> </li> <li>Vanderbilt is an NSF I-Corp site and has graduated 12 teams; Vanderbilt's Windry, the university innovation center, is aimed at developing an institutional innovation culture for faculty and students, and includes programs like Innovation Garage (industry-university collaboration on disruptive solutions), entrepreneurship courses, a makerspace, pitch events, and EIRs</li> <li>Bunker Labs</li> </ul>
<b>Successes:</b>	<ul style="list-style-type: none"> <li>Branding from major Launch TN entrepreneurial event, 368%, is helping to create buzz for Nashville's entrepreneurial community, which is not strong in VC funding, overall net employment from young companies nor university tech transfer, but is attracting significant net in-migration and is generating significant numbers of high-growth companies.</li> </ul>
<b>Challenges:</b>	<ul style="list-style-type: none"> <li>Very diffuse entrepreneurial community, with need to create stronger presence of innovation in the region, including more placemaking</li> </ul>
<b>Best Practice Lessons:</b>	<ul style="list-style-type: none"> <li>Importance of having a one-stop entity for entrepreneurship</li> </ul>
	

Benchmark Case Study: Raleigh-Durham, NC	
<b>Regional Context:</b>	<ul style="list-style-type: none"> <li>Mid-sized region anchored by major research universities with strong focus on innovation programs and place-making.</li> </ul>
<b>Key Tools:</b>	<ul style="list-style-type: none"> <li><b>NC Biotech Center:</b> Long-standing, dedicated program to growing life sciences in the region and across the state, including advancing research excellence, investing directly in emerging companies, ensuring trained workforce and advancing networking and peer groups in life sciences.</li> <li><b>Major placemaking for technology with Research Triangle Park (RTP) and Centennial Campus at NC State:</b> RTP is one of the oldest and largest research parks in the U.S., but has been largely home to larger corporations, including a strong emphasis on biopharmaceutical. It is now reinventing itself with a new town center to offer more amenities and opportunities for emerging companies, plus single-use facilities are being converted into multi-tenant facilities for start-ups and emerging companies, such as Alexandria Real Estate's new AgTech facility that used to be a Syngenta R&amp;D facility. Centennial Campus at NC State has been a leader on establishing innovation districts, leveraging the university as an anchor and creating close relationships between faculty, students and company tenants, while offering mixed-use developments including housing.</li> <li><b>Role of universities in commercialization.</b> <ul style="list-style-type: none"> <li>NC State is a national leader, with over 30 startups annually, dedicated funding through its Chancellor's Innovation Fund for proof-of-concept, a full-time site for NSF I-Corps, an Executive in Residence program to scout for technologies at university research labs, bootcamps and business plan competitions, strong entrepreneurial programs within its colleges and strong alumni networking of its start-ups (Wolfpack Investor Network).</li> <li>UNC in 2010 launched a stronger focus on commercialization and entrepreneurship, including commercialization training launched through an EDA R-grant, on-campus incubator, a downtown coworking space, proof-of-concept funding (Kickstart Venture Services), alumni investor network (Carolina Angel Network) and a \$20 million seed-stage investment fund created by the university's endowment known as Carolina Research Ventures Fund.</li> <li>Duke University has also embraced entrepreneurship with fellowship program, startup challenge, an incubation fund and a prototyping facility for students, and in its technology transfer efforts participation in the Coulter program, active alumni angel network and partnerships with private sector incubators and accelerators (MedBlue incubator, Biomarker Factory and Center for Advanced Hindsight).</li> </ul> </li> <li>Non-university physical developments, including coworking and incubator spaces, such as HQ1 coworking with three facilities in Raleigh and American Underground and BioLabs in Durham</li> </ul>
<b>Successes:</b>	<ul style="list-style-type: none"> <li>Raleigh Durham is a top region for venture investment in high-potential innovation-driven companies, with over \$1 billion in venture funding to 173 companies, able to attract VC investment from East and West coasts, as well as having a strong base of SBIR-backed companies.</li> </ul>
<b>Challenges:</b>	<ul style="list-style-type: none"> <li>Linking major public-private innovation center developments with entrepreneurial activity.</li> </ul>
	

Benchmark Case Study: Susquehanna, PA	
<b>Regional Context:</b>	<ul style="list-style-type: none"> <li>Rural region with no university research anchors, but presence of non-research oriented colleges and universities.</li> </ul>
<b>Key Tools:</b>	<ul style="list-style-type: none"> <li>Presence of a Keystone Innovation Zone designation, one of 29 in the state, offering transferable tax credits of up to \$200,000 based on growth in revenues to young companies under 8 years old, operating in innovation-led sectors and located in designated areas near colleges and universities.</li> <li>Rural Business Innovation serves as hub for entrepreneurship including:                             <ul style="list-style-type: none"> <li>Network of incubators located near local colleges and universities</li> <li>Business technical assistance for accessing financing</li> <li>Micro-startup grants of up to \$5,000</li> <li>Student internships of up to \$2,000 per semester</li> <li>Coordinator of local KIZ involving outreach and engagement with local businesses</li> </ul> </li> </ul>
<b>Successes:</b>	<ul style="list-style-type: none"> <li>Diversified range of approximately 30 companies served across manufacturing, IT, and bio-health through incubators, internships, micro-loans and KIZ tax benefits</li> <li>Eleven companies received KIZ benefits in 2017 generating nearly \$1 million in new sales and receiving \$444,000 in transferable tax credits.</li> </ul>
<b>Challenges:</b>	<ul style="list-style-type: none"> <li>Sustaining a rural economy by having new and small businesses generate job opportunities</li> </ul>
<b>Best Practice Lessons:</b>	<ul style="list-style-type: none"> <li>Demonstrates role that an entrepreneurial focused entity can have across a rural region partnering with local institutions</li> <li>Shows that a targeted tax credit oriented towards young growing businesses in traded industry sectors can be effective in rural communities.</li> </ul>
	

Benchmark Case Study: West Lafayette, IN	
<b>Regional Context:</b>	<ul style="list-style-type: none"> <li>Rural region with major research anchor</li> </ul>
<b>Key Tools:</b>	<ul style="list-style-type: none"> <li>Purdue's university driven research park developments. The Purdue Research Park, a 735-acre site on formerly university ag-related lands approximately 8.5 miles from main campus. Now home to 160 tenants. Home to a 105,000-sq. ft. university incubator and coworking space, which was developed with private contributions and bond funding from a state tax-incentive financing program to create business incubators that offers \$5 million in bonding per incubator. Discovery Park District, a 400-acre mixed-use development immediately west of the main campus. It is the location for many of the university's commercialization and entrepreneurial development initiatives housed in the Burton Morgan Center for Entrepreneurship.</li> <li>Purdue's Foundry is an accelerator-type program to help Purdue-affiliated entrepreneurs create startups offering access to ER mentors as well as an umbrella for a range of entrepreneurial and commercialization initiatives including: Track Fund for applied research and proof-of-concept funding of university inventions, an NSF I-Corp site, a range of venture financing assistance, including a \$12M Foundry Investment Fund, a pre-seed Elevate Purdue Foundry Fund receiving state support, Purdue Startup Fund, Purdue Angels and pre-seed Ag Accelerator funding.</li> </ul>
<b>Successes:</b>	<ul style="list-style-type: none"> <li>Since the founding of the Purdue Foundry in 2013, there have been 165 startups created that generated more than \$270 million in funding and 200-plus new jobs.</li> </ul>
<b>Challenges:</b>	<ul style="list-style-type: none"> <li>Growing a broader and sustainable innovation ecosystem for the region that sees local startups stay rooted in the region as well as attract other growth-oriented companies.</li> </ul>
<b>Best Practice Lessons:</b>	<ul style="list-style-type: none"> <li>A major research anchor can both attract existing industry operations to locate nearby as well as create the tools to generate new startups from research inventions, and faculty and student ideas.</li> </ul>
	



**Innovating Tomorrow's Economic Landscape**

TEconomy Partners is a global leader in research, analysis and strategy for innovation-based economic development. Today we're helping nations, states, regions, universities, and industries blueprint their future and translate knowledge into prosperity.

**Region 2 GO Virginia Council**

Project Title: Increasing the Birth Rates of New High Growth Companies for Region 2

Applicant: The Advancement Foundation (TAF)

Localities covered: Alleghany, Bedford, Botetourt, Giles, Pulaski, Roanoke County; Covington, Salem, Roanoke

Growth & Diversification Plan Strategy Area (s): Entrepreneurship

**GOVA Funds Requested: \$300,000** Matching Funds: \$964,000 TOTAL COSTS: \$1,264,000

Project Description:

TAF's Innovation Mill (The Mill) is a new initiative for TAF which will leverage business resources, entrepreneur resource partners, industry experts, and established community and economic development partners to increase business readiness and success rate for new high growth companies. The program offers 6 steps for preparedness: 1. Free 360 evaluations of concept and knowledge by a team of regional business leaders; 2. Assembly of a team of industry experts, students, and mentors to advance R&D; 3. Customer Discovery to validate minimum viable product; 4. Connections - Industry leader focus groups to build relationships and identify industry partners; 5. Student engagement in solution sessions and identification of potential hires; and 6. Investor insight sessions to provide feedback and identify opportunities for capital

At each stage of the program, there is an opportunity to refer to entrepreneur resource partners for scalability, investment, and 1 on 1 mentoring. The program expects a number of ancillary benefits: building an industry network, engaging students in experiential learning that will infuse entrepreneurial mindset in the future workforce, branding our region as a high growth startup community, and providing more opportunities to engage investors in early stage development. The Mill will recruit 50 new potential high growth companies over 2 years and work with them 1 on 1 through proof of concept and development of next stage strategies for growth. They estimate 70% will move on to other resources within the ecosystem to continue to scale. The applicant estimates an ROI of \$1.5 million from the creation of 40 higher wage jobs (greater than \$37,000) plus a number of other possible ROI numbers, through such areas as leveraged funds, value of volunteers, and capital deal investment.

Type of Funds	Totals
GO Virginia	\$ 300,000.00
Matching Funds	\$ 964,000.00
<b>Total CAMS Budget</b>	<b>\$ 1,264,000.00</b>
Additional Leverage	\$ -
<b>Total Project Budget</b>	<b>\$ 1,264,000.00</b>
<i>*These answers will autofill from previous tabs.</i>	
Type of Match	Totals
<b>Matching Funds</b>	\$ 964,000.00
At least \$1:1	<b>YES</b>
<b>Local Match</b>	\$ 332,000.00
At least \$50,000	<b>YES</b>
At least 20% of GO VA Request	<b>YES</b>
Local Match Waiver Requested?	<b>NO</b>

## **REVIEWER SUMMARY:**

REVIEWERS included: Dr. John Dooley, CEO, The Virginia Tech Foundation (Council Reviewer); Sarah Lyon-Hill, Senior Economic Development Specialist, Virginia Tech (staff reviewer); Jody Keenan, Executive Director of Virginia SBDC Network (Subject Matter Expert or SME); Erik Pages, President of EntreWorks Consulting (SME); and Marty Kaszubowski, Executive Director for Innovation Initiatives at Old Dominion University (SME).

### **Strengths:**

- “The primary value, it seems, is that this project might become the initial entry point for founding teams of potential high-growth ventures in the region, i.e., a regional top-of-the-funnel filter that becomes a “force multiplier” that benefits the other entrepreneurial support programs in the region who would otherwise have to do it themselves.”
- “There is awareness across the region among entrepreneurs and partners about the existing TAF programs. The plan to engage more entrepreneurs at the top of the funnel is valid.”
- “This responds to [Region 2 strategy of] ‘supporting entrepreneurship.’ The project also addresses issues presented by SCHEV and VT studies analyzing the challenges facing entrepreneurs and ecosystems.”
- “Local economic development organizations do appear to be on board with project. Strong and diverse base of support letters are on hand.”
- “Strong partnerships are in place and should help to ensure that referrals to system are made.”
- “Project has nice focus on high-growth firms and on building long-term relationships to help those firms grow. “
- “The program focuses on start-ups in all four target industry clusters. If successful, it is very likely that the program will spur tangible job growth, realistically, within a five to ten year timespan.”
- “Historically, TAF’s reach is broad and rooted in multiple rural and urban counties in the region, which is a unique aspect of this regional entrepreneurial organization that provides diverse, widespread impact opportunities.”
- “The proposed project is closely aligned to the [Region 2] strategy of entrepreneur development. That appears to be the primary focus of the proposed program. It is good to see connection in the latest version of the proposal linkages to other regional assets which share this objective.”
- “The endorsement letters of regional stakeholders is impressive and encouraging.”
- “The development and implementation of a comprehensive support program for regional start-ups has great potential and is a welcome addition to the entrepreneur eco-system.”
- “The proposal expands on TAF efforts which have been well received and forward looking in the region. It addresses the top end of the funnel. This centralized system will recruit new and early stage companies to fill and support the growth within the entrepreneurial pipeline.”
- “The experiences and expertise of the three project team members identified in the proposal suggest positive results in past project management and program delivery.”

## Weaknesses:

- “The sustainability plan is vague.”
- “The proposal doesn’t address specific strategies regarding the priority clusters. I would suggest that it would be helpful for the proposal team to identify industry expertise that correspond to the priority clusters to support the mentoring component of the proposed program. It would also be helpful if recruiting efforts for program participants could have some focus on the priority cluster areas of the Region 2 plan.”
- “The expected active engagement of the stakeholders remains somewhat ambiguous. If the proposal team can facilitate meaningful interactions and engagement of the identified stakeholders the program has great chance for success.”
- “A key component for the success of the program is highly dependent upon the successful recruitment of industry expertise in support/mentoring roles. The proposal could have been enhanced with identified commitments of industry leaders to the proposed project.”
- “The program being offered is not especially innovative – similar business model canvas, value proposition, customer discovery, mentor network, service-provider, etc. programs have been and still are offered in most every part of the state”
- “The project write-up does not specifically describe how it will define high-growth potential ventures and what specific features or factors the team will use to filter out candidates that do not have the desired potential. More specifically, it’s not enough to simply ask the local economic development offices or local service providers to send their high growth entrepreneurs into this program. Those organizations typically recognize that main street businesses are somehow not the same as, for example, a B2B enterprise software company, but they rarely end up being effective sources of referrals until they are handed a very specific definition/profile of the kind of company being targeted. The proposed program will need to develop and publicize that specific definition/profile, and it would help to do so now and put it in the proposal.”
- “They aren’t really offering any new or innovate services so they will need to be very high-touch and very effective in their programming to be successful.”
- “From an organizational standpoint it seems like a lot of moving parts to manage and coordinate.”
- “Is there an advisory group of key (5-7) decision makers supporting the staff and guiding the direction? Even with the 4 teams of 5 and the BID teams, it seems like a sprawling group.”
- “The program specifics and timelines are not clear to me. (ie: what is the curriculum; how many week does the company engagement last; when does the engagement end; is there ongoing follow-up after the engagement)”
- “With 50 possible start-ups, there is concern that participants in the different support teams may burnout. TAF has addressed this somewhat with the proposal of introductory workshops, but more details on what these participants would have to do and the time requirement, basically descriptions on how to best utilize their expertise without burning them out over time, would help.”
- “It’s not clear that they are offering a really distinctive service to these firms. The linkage to team of mentors is innovative and different, but other services (eg. Market development plan)

are also available elsewhere. In addition, they are likely overly optimistic about grant funding opportunities for these companies. SBIR is likely primary option for most of them.”

- “Team heavily promotes their ability to recruit high growth firms, but I don’t see much evidence of how they will do this. They point to their connection to regional networks, but existing players (such as SBDC) have these same networks. What will they do differently to find companies to participate?”
- “Can this scale to support 50 companies? It will be tough to manage that.”
- “The goals for high growth teams seem aggressive for a rural area. .... Is there any historical performance data from TAF that could support the Mill projections?”
- “I also worry that plans are fairly ambitious—region has been working on these issues for many years and it seems unlikely that there are 50 “undiscovered” high growth companies who are ready, willing, and able to participate in and benefit from the program.”

# The Innovation Mill and GO Virginia in Region 2's Entrepreneurial Ecosystem--DRAFT

Stage	Programming	Resources	Consulting	Higher Education	Funding	Space
<b>Grow</b>		Local/Regional Economic Development Offices	<b>SBDC (GoVA)</b>	<b>Talent Collaborative (GoVA), BRAIN DRAIN (GoVA)</b>	<b>*Study by VIC (GoVA)</b> Debt, Venture Capital, Angel Groups, VCC, Banks, VTC Innovation Fund, Common Wealth Growth	CRC, <b>Wood Haven (GoVA)</b>
<b>Launch</b> <i>(Business Planning)</i>	<b>RAMP (GoVA),</b>	<b>RAMP Mentor Network (GoVA),</b> Econ Dev	<b>SBDC (GoVA)</b>	Licensing (i.e. VT-Link)	Angel Investors, Angel Groups, SBIR, VTC Seed Fund	CRC, <b>RAMP(GoVA)</b>
<b>Develop</b> <i>(production &amp; ready for market)</i>	<b>RAMP(GoVA),</b> Gauntlet (Main Street/scalable)	<b>RAMP Mentor Network(GoVA),</b> Gauntlet Mentor Network	<b>SBDC (GoVA),</b> SCORE	Research Commercialization (i.e. VT-LAUNCH), <b>Liberty CERE (GoVA), DSLCC Drone Zone (GoVA)</b>	Angel Investors, Angel Groups, VTC Seed Fund, TAP Business Seed Capital, SBIR	CRC, <b>RAMP(GoVA), Liberty CERE (GoVA), DSLCC Drone Zone (GoVA)</b>
<b>Validate</b>	<b>INNOVATION MILL(yr. round),</b> ICAP (summer), Gauntlet (Main Street/scalable-winter/spring), <b>RAMP--high-tech (GoVA)</b>	<b>INNOVATION MILL Industry Expert Mentor Network,</b> Gauntlet Mentor Network, Libraries	<b>INNOVATION MILL Business Innovation and Development Team, SCORE</b>	<b>Liberty CERE (GoVA),</b> VT--VTIP/LAUNCH, VTC Fellows, <b>INNOVATION MILL Higher Ed engagement (VWCC, DSLCC, Hollins, VT, Roanoke Col)</b>	Friends & Family, Angel Investors, SBIR, economic dev revolving loan funds <b>INNOVATION MILL - In-kind support services, low interest loan fund</b>	<b>Liberty CERE (GoVA).</b> CRC, Colab, The HIVE, 11th St HIVE, <b>INNOVATION MILL</b>
<b>Create</b>	<b>INNOVATION MILL (year round),</b> ICAP (summer), Gauntlet (Main Street/scalable-winter/spring)	<b>INNOVATION MILL Industry Expert Mentor Network,</b> Gauntlet Mentor Network, Libraries	<b>INNOVATION MILL Business Innovation and Development Team, SCORE, VTKW</b>	Faculty research & student learning: <b>Liberty CERE (GoVA), DSLCC Drone Zone (GoVA), IEL(Hollins), CI&amp;A (Radford), Apex (VT), INNOVATION MILL Higher Ed engagement</b>	<b>INNOVATION MILL - In-kind support services, low interest loan fund,</b> Gauntlet (Main Street/scalable), Founder Funds, Friends & Family	Colab, The HIVE, 11th St HIVE, <b>INNOVATION MILL</b>

**KEY:**

PROPOSED PROJECT - INNOVATION MILL

GoVA--Funded by GO Virginia Grant

**INNOVATION MILL**

*Pipeline strategies to increase the birth rate of new high growth companies*

<b>Strategies</b> (Increasing the birthrate of new high growth companies)	<b>Strategy # 1</b> 360 Evaluation Team	<b>Strategy # 2</b> Business Innovation & Development Teams (support)	<b>Strategy # 3</b> Target Customer Discovery (proof of concept)	<b>Strategy # 4</b> Industry Expert Focus Groups (innovation, knowledge exchange)	<b>Strategy # 5</b> Higher Education Focus Groups (Innovation, research)	<b>Strategy # 6</b> Investors (Becoming Investible Ventures)
<b>Purpose of</b>	Outline plan of action/training based on business type, needs survey, identified weaknesses, develop proof of concept and leverage community resources.	BID Team sets strategies, prioritizes, addresses weakness, challenges, potential innovations and filters focus groups and filters focus groups feedback	Large groups of potential end users brought together for presentation of product, discovery, awareness	Learning curve reduced, strategies, implementation challenges, expert advice, problem solving, increase connections, solutions, access to resources	Focus groups for innovation discussions, problem solving	Informal - advising posture, early discussions, proof of concept, discover investor concern/desirables when determining investment
<b>WHO</b>	Economic Development, Higher Education, Resource Agencies, Community Leaders	Made up of: Higher Education Resource Agencies, Industry Experts, Entrepreneurs: Hollins, Roanoke, VWCC, DSLCC, VT, SBDC, SCORE	Target customers for product	Target Industries list	Target Institutions - varied from STEM to general business /classes for various industries	Growing list based on investor industry interest
<b>Ideal Outcome</b>	Creation of recommended resources that will assist the entrepreneur in their development.	Working team that assists the entrepreneur in addressing weaknesses of the concept, research, address industry specific challenges, streamline learning curve.	Client discover, concerns, potential improvement, pricing, sales channels and distribution.	Expert advice, problem solving, increase connections, solutions	Student perspectives shared, solutions discovered, cross generation conversations, experiential learning, connections	Investors engaged early, connected and share insights as potential investors.
<b>Ancillary Benefits</b>	Resource Agencies practicing the work of collaboration through ACTION that is helping specific scalable businesses move forward.	Networking across industry, entrepreneurs, higher education, students engage in the practice of using an entrepreneurial mind set, students feel more connected to the community and potential industry.	Strengthening the support system for industry growth for new and early stage companies, brand our region as a highly supportive community for new and early stage business development.	Strengthening the support system for industry growth for new and early stage companies, brand our region as a highly supportive community for new and early stage business development.	Strong support system for industry growth, brand of new/ early stage high growth companies, Network industry, entrepreneurs, higher education, students engage/practice use of an entrepreneurial mind set, student retention/connection community	Brand the region - support of new/growing companies, mentoring relations/network, conversation that will lead to real relationships, potential early funding, develop

The Advancement Foundation  
**Innovation Mill**

<b>1st Quarter</b>				
<b>Company</b>	<b>High Wage Jobs</b>	<b>Low wage jobs</b>	<b>Revenue projections (3 years)</b>	<b>Industry Type</b>
Lily Hemp	10	10	\$1,600,000	Life Sciences, Food and Beverage
Total You Health	3	6	\$1,000,000	Life Sciences
Advance Energy	10	6	\$1,000,000	Technology
Wingman	20	20	\$700,000	Manufacturing
	<b>43</b>	<b>42</b>	<b>\$4,300,000</b>	
<b>2nd Quarter</b>				
<b>Other Companies being evaluated</b>				
IVO Wireless Batteries				Technology
QKE drones				Technology
Coelus Research				Manufacturing
Heartwood Tree Salvage				Manufacturing
Hydroponics				Food and Beverage, Manufacturing
Kombucha				Food and Beverage, Manufacturing
<b>3rd Quarter</b>				
<b>Other Companies being evaluated</b>				
Ridgeline Aquatics				Manufacturing
Blue Duck LLC	7	20		Acquisitions
Farburgeusa				Food and Beverage, (franchising)
Hamms Fine Foods				Food and Bev Manufacturing
Twin Creeks Brewing Company				Manufacturing, Franchising

## Region 2 GO Virginia Council

Project Title: Ignite

Applicant: The United Way of Southwest Virginia (UWSWVA)

Localities covered: Pulaski, Giles, city of Radford

Growth & Diversification Plan Strategy Area (s): Talent/Workforce

**GOVA Funds Requested: \$109,237**      Matching Funds: \$102, 886      TOTAL COSTS: \$218,474

### Project Description:

UWSWVA proposes to expand Ignite to all Pulaski, Giles, and Radford 8,175 middle and high schools students. Ignite facilitates regional collaboration between schools and employers to equip and retain the next generation of the local workforce. Ignite Program Goals include: 1.) Educational Alignment: Coordinate activities and training events which strengthen relationships and communication between educational entities and industries; 2.) Industry Experience: Assess and inform student career interests; create meaningful internship opportunities with local employers and promote those opportunities throughout the region in partnership with all regional school systems through an electronic platform; evaluate the success of internship placements and skill attainment, and evaluate impacts on post-secondary planning and filling workforce gaps; 3.) Occupational Awareness: identify, support, and facilitate initiatives that introduce the region's youth, parents, teachers, and counselors to occupational career opportunities and learning experiences; translate student awareness to interest, then to action, in students' academic and career planning.

Ignite seeks to address gaps between educational systems and employers, building a platform to deliver long-term systemic changes that grow the local economy. The proposed project will prioritize partnerships with employers in GO Virginia Region 2's four key target industries: Manufacturing; Life Sciences and Health; Food and Beverage Processing; and Emerging Technology/IT. The project will target not only key industries, but also high demand occupations, providing opportunities in administration, sales, production, healthcare, and food and service-related occupations, among others.

With a focus on capacity-building within systems and across organizations, industries, and geographies, this project's success will be most greatly demonstrated in the promotion of regional collaboration that translates into broad community benefits. The project will position more students for jobs that pay a living wage, improve availability of local talent to employers, create awareness of occupational opportunities, and lead to long-term partnerships that accelerate long-term, sustainable economic change.

Calculation of return on investment includes benefits of participation for students and families, employers, and the local economy. Results for students have been fairly well documented, including increased training, work experience, and credentialing leading to better paying jobs; clearer career identity and goals; and a better understanding of classroom material leading to increased engagement and academic achievement. Return on investment for employers is demonstrated in how important the investment in internship and other work-based learning initiatives are in the strategic search for new, better prepared employees.

UWSWVA requests \$109,237 toward the proposed project to be fully implemented over the next two years (July 2019-June 2021). Though the project is time-limited due to its focus on capacity-building, the partnerships developed and program activities will continue to expand in the long-term to meet the needs of educators, students/parents, employers, and ongoing efforts to grow and diversify the local economy. GO Virginia funding will cover some personnel, contracting expenses for program

coordination with each of the participating schools, and software development. Leadership development will be facilitated through the Youth Success team at United Way of Southwest Virginia. The total project budget is \$218,474.

Type of Funds	Totals	
GO Virginia	\$	99,406.00
Matching Funds	\$	102,886.00
<b>Total CAMS Budget</b>	<b>\$</b>	<b>202,292.00</b>
Additional Leverage	\$	-
<b>Total Project Budget</b>	<b>\$</b>	<b>202,292.00</b>

*\*These answers will autofill from previous tabs.*

Type of Match	Totals	
<b>Matching Funds</b>	\$	102,886.00
At least \$1:1	<b>YES</b>	
<b>Local Match</b>	\$	102,886.00
At least \$50,000	<b>YES</b>	
At least 20% of GO VA Request	<b>YES</b>	
Local Match Waiver Requested?		

#### **REVIEWER SUMMARY:**

REVIEWERS included: Marla Akridge, Executive Director, Alleghany Highlands Economic Development Corporation (Council Reviewer); Elli Travis, Economic Development Specialist, Virginia Tech (staff reviewer); Randall Stamper, Assistant Vice Chancellor, Grants and Federal Workforce Programs, Virginia’s Community Colleges (Subject Matter Expert or SME); Phyllis Newbill, Ph.D., Outreach and Engagement Coordinator, Institute for Creativity, Arts, and Technology, Center for Research in SEAD (Science, Engineering, Arts, and Design) Education (SME).

#### **Strengths:**

- “This project offers a credible, tested strategy for growing skilled talent in a region. The work holds the potential to both inspire young people to explore local employment options and build relationships that will help them connect to those jobs in their futures.”
- “Directly related to growing skilled talent; also focuses partly on IT preparation and training, internships, etc.”
- “Shows need, in a rural area”
- “Support letters were good.”
- “Extensive partnerships with area school divisions and employers are already established in the original Ignite footprint; would use lessons learned to expand to three other counties/city;
- “The team has developed an enviable model for regional collaboration with government, school systems, industry, and regional organizations. The team has already laid the groundwork for an impressive regional collaboration across sectors, and the potential for regional benefit is significant.”

- “Could be replicated.”
- ““Seems to be a well-known and supported program in its communities; included in ED pitches; connections cited to workforce development boards, colleges, and school divisions.”
- “The IGNITE project seems to be working well in its charter location. The extension makes sense, especially given the similarities in the localities targeted.”
- “Investments in young people's futures are probably the most efficient way to be innovative and forward looking. Given the love of home that is central to local culture here, this project does have potential for promoting sustainable, long-term economic growth.”
- “I like the tie in with 4-H reality store – .... there was a lot of praise for the positive effects of that programming”
- “No concerns about ability to execute.”

**Weaknesses:**

- “The application says that the Ignite program is successful; where are the data that demonstrate that?”
- “12 internships per year is very low given the size of the population targeted.”
- “Idea of internships is fantastic, not easy to implement due to logistics, insurance liability, and other issues.”
- “A weakness of the project could be a missed opportunity to help learners think critically about the kinds of work being done in their region. While the project is likely to do significant good in helping local students identify local jobs, I would like to see some analysis by the learners to determine whether a given business or industry is a benefit to the larger region. I hope that the learners will have the opportunity for nuanced conversations about healthy workplace cultures, environmental sustainability, and labor issues”
- “This seems to suggest that the outcome is direct from high school to work, which doesn’t seem like a wise approach to employment in the 21st century. “
- “Not especially innovative, other regions have been doing these things”
- “The list of “metrics” is extensive. It might be too ambitious”
- “High school diploma is not enough; what are they doing with colleges and universities?”
- “If higher-wage job growth occurs as a result, it will be many years away, as is the case with most investments in education and children. This is not a reason not to invest in this direction; rather, it is a caution for adjusting expectations of immediate measurable results.”
- “Suggests that school divisions need help in connecting with employers, but doesn’t explain why that is or what they cannot do. “
- “I would like more details on how this work will actually be accomplished. There are a lot of lofty ambitions to do important work, but it is not clear from this proposal how they will engage teachers and employers, how they will get internship sites, etc.”

- “I would feel more comfortable if all of the 12 elementary/middle schools they plan on engaging signed a letter of support, same for businesses, etc. (only Pulaski, Giles, and Radford are included in the letter of support)”
- “All the metrics are also activity based, not outcomes based.”
- “Need to elaborate how services and activities will become an integral part of the school divisions long-term.”



VIRGINIA INITIATIVE FOR  
**GROWTH &  
OPPORTUNITY**  
IN EACH REGION

Project Title: Ignite

Applicant: The United Way of Southwest Virginia (UWSWVA)

Localities covered: Pulaski, Giles, city of Radford

Growth & Diversification Plan Strategy Area (s):  
Talent/Workforce

Type: Capacity Building

GOVA Funds Requested: \$99,406

Matching Funds: \$102, 886

TOTAL COSTS: \$202,292

# Project Overview:

- ▶ UWSWVA proposes to expand Ignite to all Pulaski, Giles, and Radford 8,175 middle and high schools students.
- ▶ Ignite facilitates regional collaboration between schools and employers to equip and retain the next generation of the local workforce.
- ▶ Three core foci:
  - ▶ Connect K-12 and industry
  - ▶ Create industry experience opportunities (internships, etc)
  - ▶ Enhance occupational awareness

## Reviewer Comments - Strengths & Weaknesses:

- ▶ Partnerships and support letters from industry and school system are present and impressive.
- ▶ Replicates an established K-12 focused program that has garnered much attention and praise.
- ▶ Comprehensiveness and focus on systems change.
- ▶ Ability of organization to execute is clear.
- ▶ Program is too young to have clear evidence of impact, success.
- ▶ Is the connection strong enough to higher wage jobs in target sectors in terms of industry experience opportunities and occupational awareness?
- ▶ Serves a relatively small portion of Region 2.

# Assessment Grid

CRITERIA	Assessment
1:1 Match	YES
Local Match	YES
Local Participation Requirement	YES
Alignment with G&D Plan	YES
Implementation Capability	YES
Line of Sight to Per Capita	Likely
Innovative/Move the Needle	Somewhat
Staff Assessment	Addresses K-12 capacity building and talent strategies; applicant may need to clarify line of sight to per capita/building greater capacity; replicability in region; and sustainability details

# Applicant: 5 minute overview & response

# Council Discussion & Action

**Project Title: Increasing the Birth Rates of New High Growth Companies for Region 2**

**Applicant: The Advancement Foundation (TAF)**

**Localities covered: Alleghany, Bedford, Botetourt, Giles, Pulaski, Roanoke County; Covington, Salem, Roanoke**

**Growth & Diversification Plan Strategy Area (s):  
Entrepreneurship**

**Per Capita GOVA Funds Requested: \$300,000**

**Matching Funds: \$964, 000**

**TOTAL COSTS: \$1,264,000**

# Project Overview:

- ▶ TAF's Innovation Mill (The Mill) focuses on leveraging business resources, entrepreneur resource partners, industry experts, and partners to increase business readiness and success rate for new high growth companies.
- ▶ The program includes 6 steps :
  - ▶ 1. Free 360 evaluations of concept and knowledge by a team of regional business leaders;
  - ▶ 2. Assembly of a team of industry experts, students, and mentors to advance R&D;
  - ▶ 3. Customer Discovery to validate minimum viable product;
  - ▶ 4. Connections - Industry leader focus groups to build relationships and identify industry partners;
  - ▶ 5. Student engagement in solution sessions and identification of potential hires; and
  - ▶ 6. Investor insight sessions to provide feedback and identify opportunities for capital

# Reviewer Comments - Strengths & Weaknesses:

- ▶ Strong partnerships evident and documented.
- ▶ Important focus on high-growth firms and on building long-term relationships to help those firms grow.
- ▶ Addresses the top end of the funnel - a centralized system that will recruit new and early stage companies to fill and support the growth within the entrepreneurial pipeline.
- ▶ May need more specific strategies regarding the priority clusters
- ▶ A key component is successful recruitment of industry expertise in support/mentoring roles. Applicant could have included identified commitments of industry leaders to the proposed project.
- ▶ A lot to coordinate and manage; referral system may need more specificity and thought to ensure that high potential entrepreneurs are able to be identified and referred.
- ▶ Goal of 50 firms may be aggressive/ambitious for region.

# Assessment Grid

CRITERIA;	Assessment
1:1 Match	YES
Local Match	YES
Local Participation Requirement	YES
Alignment with G&D Plan	YES
Implementation Capability	Good track record, but complex
ROI	Potentially good
High Wage Job Creation Potential	YES, but perhaps less than estimated
Innovative/Move the Needle	Somewhat - may fill a gap
Staff Assessment	<p>Applicant has strengthened the project; holds potential to reach/support higher growth entrepreneurs in more rural parts of Region 2; may need evidence of industry support; justify or revise ROI; describe capacity to implement; refine target entrepreneurs and referral process<sup>11</sup></p>

# Applicant: 5 minute overview & response

# Council Discussion & Action



OUTREACH & INTERNATIONAL AFFAIRS  
VIRGINIA TECH.

CONTINUING AND PROFESSIONAL EDUCATION

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February 1, 2019  
Region 2 Council

Attention Region 2 Council Members:

In late 2018, Virginia Tech (CPE) had the opportunity to process remittances for several of the sub-grantees. As such, we had some lessons learned and have established some new procedures and options to ensure continued success moving forward:

1. Virginia Tech will offer sub-grantees the option to receive an advance portion of their reimbursements to assist organizations with cash flow.
2. Sub-grantees that prefer to receive remittance payments through direct deposit will be provided the opportunity to sign up for that service.
3. Virginia Tech has added staff to assist with operation of the growing Go Virginia project portfolio.
4. Virginia Tech is hosting a best-practices orientation conference call on February 7, 2019 for all sub-grantees and DHCD staff members.

We will continue to monitor and modify processes as necessary.

Sincerely,

*Meghan Gaskill*

Meghan Gaskill  
Project Manager  
[mlgaskill@vt.edu](mailto:mlgaskill@vt.edu)  
540-231-9617



**Quarterly Project Status Report October 1, 2018—December 31, 2018 (Quarter 4)**

<b>Project Name</b>	<b>Project Manager</b>	<b>Start Date</b>	<b>Description</b>
Capital Ecosystem Development	Meredith Hundley	April 24, 2018	Project is on track with milestones, main barrier was an approval of IRB application required to start primary data collection.
Center for Energy Research and Education Industry Lab	Rich Adams, David Fazzina, Jacqueline Rearick	May 9, 2018	Project is ahead of schedule in terms of milestones. Lab already in use by community college and six industry site visits have been completed
Enhancing the Region through New Technology for Unmanned Systems (Drone Zone)	Dr. John Rainone	June 4, 2018	Project is largely on track with some road bumps grantee is working to overcome. I-6 Challenge Grant was not funded which would have provided additional tuition for community college and dual enrollment students as well as a Drone Zone manager. The Drone Zone team is working to find additional funding sources while the grant is resubmitted. Dual enrollment and community college students will begin courses in Fall 2019. The shutdown negatively affected the company who was going to contribute match, hence the delay in receiving that funding.
Region 2 Talent Collaborative	Ben Bowman, Marty Holliday, Morgan Romeo	October 22, 2018	Given the late contract-signing of the project, it seems to be on track with business and student engagement.
RAMP	Robert McAden, Mary Miller	May 29, 2018	Project appears to be largely on track. The procurement process for mentor matching is taking longer than expected as grantee evaluates options other regions are using to find the best fit for Region 2. Clinic delayed due to weather has been rescheduled. Business workshops are demand driven, so grantee is working to encourage interest and participation.
Stopping the Brain Drain	Erin Burcham	April 15, 2018	Research is on track and has included a good range of participants from each of the regions. Consultant will deliver study results in March.





VIRGINIA INITIATIVE FOR  
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## GO Virginia Region 2

Wood Haven	Beth Doughty, John Hull	May 18, 2018	On Track
Advanced Manufacturing Partnership Lab (AMPL): Connecting Industry and Academic for Innovation, Liberty University	Rich Adams, David Fazzina, Jacqueline Rearick	Contract in Progress	
Roanoke Small Business Development Center	Joyce Waugh	January 31, 2019	Set to begin in February 2019.



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VIRGINIA INITIATIVE FOR  
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IN EACH REGION

## GO Virginia Region 2

Project Name: **Capital Ecosystem**

Project Manager: Meredith Hundley

Project Start Date: April 24, 2018

Period Covered: October 1, 2018—December 31, 2018 (Quarter 4)

### PROJECT STATUS THIS MONTH

**OVERALL PROJECT STATUS:**

Some delays due to Virginia Tech IRB

**SUMMARY:** Project is on track with milestones, main barrier was an approval of IRB application required to start primary data collection.

Previous Quarter	Current	Upcoming
Finished Survey	Drafted Capital Landscape Report	Final Capital Landscape Report released
Analyzed Survey	Conducted Angel Investor Seminars	
Began Angel Investors Focus Group		

Barriers: IRB approval process has been cumbersome with multiple stakeholders, delaying survey instrument

Products:

- Surveys and Stakeholder Engagement: Survey approved by IRB on 11/10 and deployed
- Capital Landscape Study: Access to secondary data obtained & analysis conducted
- Online Dashboard: Data beginning to be added into Tableau
- Capital Pathways Plan: Accelerated plans with seminars & workshops



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**Project Name: Center for Energy Research and Education Industry Lab**

Project Manager: Rich Adams, David Fazzina, Jacqueline Rearick

Project Start Date: May 9, 2018

Period Covered: October 1, 2018—December 31, 2018 (Quarter 4)

### PROJECT STATUS THIS MONTH

**OVERALL PROJECT STATUS:**

On track/ ahead of schedule

SUMMARY: Project is ahead of schedule in terms of milestones. Lab already in use by community college and six industry site visits have been completed

Previous Quarter	Current	Upcoming
	Complete final design and lab configurations	Acquire electron microscope
	Site visits from private industry partners and prospects	Acquire microscopy lab equipment
	Framatone donates lab equipment (\$1 million)	Market CERE Industry labs to Region 2
	Transport Framatone equipment to facility	Begin academic use of Industry Labs

Barriers: None

Products/Metrics:

- Industry/educational partnerships (1): CVCC utilizing a CERE lab
- Industry site visits (6): SPARQ, BWXT, Framatone, ICISI, Farfield, CAS Severn





**Project Name: Enhancing the Region through New Technology for Unmanned Systems (Drone Zone)**

Project Manager: Dr. John Rainone

Project Start Date: June 4, 2018

Period Covered: October 1, 2018—December 31, 2018 (Quarter 4)

**PROJECT STATUS THIS MONTH**

**OVERALL PROJECT STATUS:**

Delayed due school funding for community college classes but this has been resolved.

**SUMMARY:** Delayed because I-6 Challenge Grant was not funded which would have provided tuition for college and DE students. The Drone Zone team is working to find additional funding sources while the grant is resubmitted.

Previous Quarter	Current	Upcoming
Convene drone zone focus group as the project management team	Approval of Unmanned Systems Career Studies Certificate Program by VCCS complete, SACSCOC approved	Student enrollment
Begin the procurement process to purchase software.	Enroll students – college course delayed until Fall 2019	Courses offered
Purchase and install software and coordinating training for program instructors	First two semesters of course offered – program delayed until Fall 2019	Coordinate job placement for program completers
Hired project liaison to coordinate efforts between SUBGRANTEE and subject matter experts and employers 9/28/18		

Barriers: Tuition funding preventing the training of high school and college students and the overall start date of the project

Products/Metrics:

- Nine businesses currently engaged





VIRGINIA INITIATIVE FOR  
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IN EACH REGION

## GO Virginia Region 2

Project Name: **Region 2 Talent Collaborative**

Project Manager: Ben Bowman, Marty Holliday, Morgan Romeo

Project Start Date: October 22, 2018

Period Covered: October 1, 2018—December 31, 2018 (Quarter 4)

### PROJECT STATUS THIS MONTH

**OVERALL PROJECT STATUS:**

On track

**SUMMARY:** Given the late contract-signing of the project, it seems to be on track with business and student engagement.

Previous Quarter	Current	Upcoming
Establishment of project management team and official launch, communication and project tracking mechanism, and Talent Development and Retention program	Inventory current career expo and CTE marketing efforts – Expo meetings held October 22	

Barriers: No barriers listed

Products/Metrics:

- Establishment of an existing worker training program: Three Workforce Boards in New River Valley, Roanoke Valley and Lynchburg Region have started promoting EWT
- Upskilling of 75 workers in three years: 24 employees participated in Leadership development training, to move from skilled electrical, mechanical and related employment into leadership and project management positions



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VIRGINIA INITIATIVE FOR  
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## GO Virginia Region 2

Project Name: **Regional Acceleration and Mentorship Program**

Project Manager: Robert McAden, Mary Miller

Project Start Date: May 29, 2018

Period Covered: October 1, 2018—December 31, 2018 (Quarter 4)

### PROJECT STATUS THIS MONTH

#### OVERALL PROJECT STATUS:

Roughly on track

SUMMARY: Project appears to be largely on track, except for the mentor matching piece. Need to check in with grantee to better understand barriers and plan to make up for workshops and clinics that did not occur in the quarter they were supposed to.

Previous Quarter	Current	Upcoming
Finalize programming for second cohort and procure materials	Hold 2 Pitch & Polish clinics (one rescheduled for spring due to weather)	Follow-up on progress of first cohort companies
Evaluate and build or subscribe to a mentor database– grantee carefully evaluating existing options as first choice option no longer exists.	Complete programming for second cohort	Complete evaluation of second cohort
Determine criteria and method for providing seed funding to cohort companies	Hold a Demo Day for cohort companies	Hold 2 Regional Mentor Workshops
Select companies for second cohort	Distribute seed funding to cohort companies	Launch third cohort application process (companies and mentors)
Select mentor pool for second cohort	Hold an alumni event for all mentors and cohort participants	Hold RAMP Information Sessions for potential applicants and mentors
Launch second cohort	Identify 5 potential grant sources for evaluation (In progress, 2 identified)	Hold 1 Mentor Networking Event
Hold 3 Pitch & Polish clinics (demand driven)	Evaluate cadence of RAMP-in-Residence - determine demand for additional	Produce Quarterly Report



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## GO Virginia Region 2

	cohorts, programs in additional locations, or sector-focused programs	
Hold 1 Mentor Education/Networking Event	Review progress on website and social media strategy and analytics and implement changes as needed	
	Produce Quarterly Report	

Barriers: Mentorship matching software procurement delayed as grantee seeks software appropriate for Region 2 entrepreneurs and mentors. Desire is to focus on Region 2 mentors, not those outside of the state.

### Metrics:

- 9 companies and 12 mentors engaged
- 1 Pitch & Polish clinic hosted
- 4 companies and 9 mentors participating in the Pitch & Polish clinic

### Products

- One pitch and polish clinic held that assisted 4 entrepreneurs.
- One mentor event engaging 12 mentors
- 8 startup mentor connections
- Design work started on the RAMP Website Redesign
- 1 summer intern



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Project Name: **Stopping the Brain Drain**

Project Manager: Erin Burcham

Project Start Date: April 15, 2018

Period Covered: October 1, 2018—December 31, 2018 (Quarter 4)

**PROJECT STATUS THIS MONTH**

**OVERALL PROJECT STATUS:**

On track

**SUMMARY:** Research is on track and has included a good range of participants from each of the regions.

Previous Quarter	Current	Upcoming
Conducted 10 interviews with business leaders with good regional representation	Launch electronic study	Develop resources for Region 2 businesses based on findings for talent attraction and retention
Focus groups (goal of 5, actual is 7). 4 with higher education administrators, 3 with young professionals.	Convene Talent Action Coalition	Implement a regional program to connect college students to businesses
Conducted 32 interviews with business leaders with good regional representation	Develop talent attraction and retention metrics program	Continue to meet with the Talent Action Coalition
Utilize findings from the focus groups and in-depth interviews to design the electronic quant/qual study (process underway by November)		Evaluate resources, programming, and metrics of success

Barriers: Launching the electronic quantitative-qualitative hybrid study has been delayed pending school approval.

Products/Metrics:

- See number of interviews and focus groups listed above.





Project Name: **Wood Haven Road Water and Sewer Infrastructure Enhancement**

Project Manager: Beth Doughty, John Hull

Project Start Date: May 18, 2018

Period Covered: October 1, 2018—December 31, 2018 (Quarter 4)

**PROJECT STATUS THIS MONTH**

**OVERALL PROJECT STATUS: On track**

**SUMMARY: Project appears to be on track**

Previous Quarter	Current	Upcoming
Completion of the Transportation Impact Analysis	Procurement of engineering services for PE/Design	Produce Construction Documents
Submission of the Land Use Application	Produce PE/ Survey (Now working on developing construction plans)	Permitting
Public Meeting		Bid Project/Contract Negotiations
Planning Commission Hearing		Construction

Barriers: For the PE/survey, topographic survey work in progress/mostly complete. Meeting on October 22<sup>nd</sup> included discussion of alignments with regulatory agencies. To market the site effectively, it needs improvement. WVRIFA is actively engaged in improving site readiness.

Products/Metrics:

- Investment in Marketing Site: Received grant from Appalachian power. Updated information on Virginia scan including Tier level
- Number of projects (active company recruitment files): 3
- Number of prospects (active company visits): 1
- Leveraged private investment: Installation of natural gas

