



REGION 2: INNOVATION ECOSYSTEM REVIEW

BY VALLEYS INNOVATION COUNCIL | 2020-2021

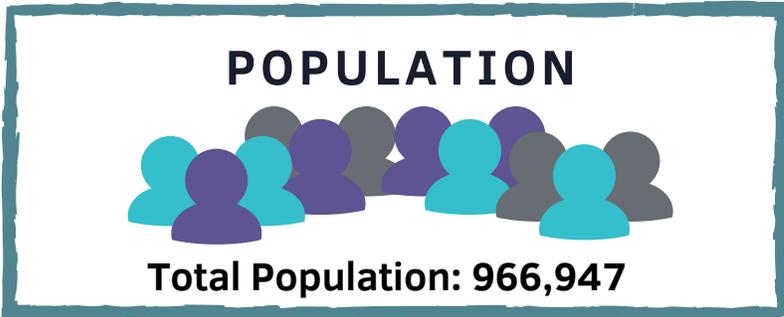




GO VIRGINIA REGION 2 OVERVIEW

Region 2 consists of the cities of Covington, Lynchburg, Radford, Roanoke, and Salem; and the counties of Alleghany, Amherst, Appomattox, Bedford, Botetourt, Campbell, Craig, Floyd, Franklin, Giles, Montgomery, Pulaski, and Roanoke.

- ### TARGETED INDUSTRY CLUSTERS
- Manufacturing
 - Life Science and Health Care
 - Food & Beverage Processing
 - Emerging Technology & IT

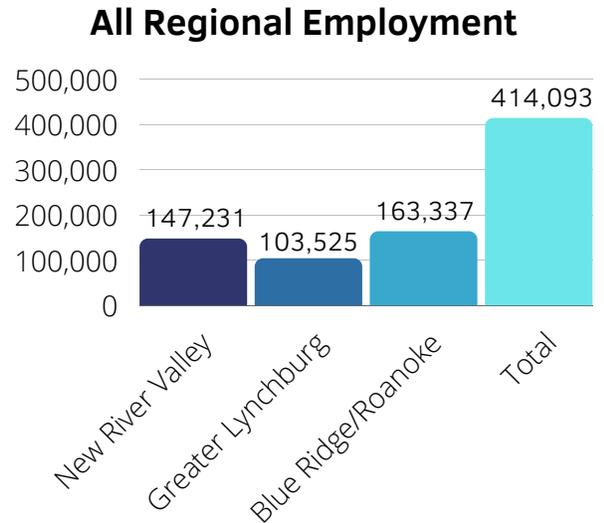
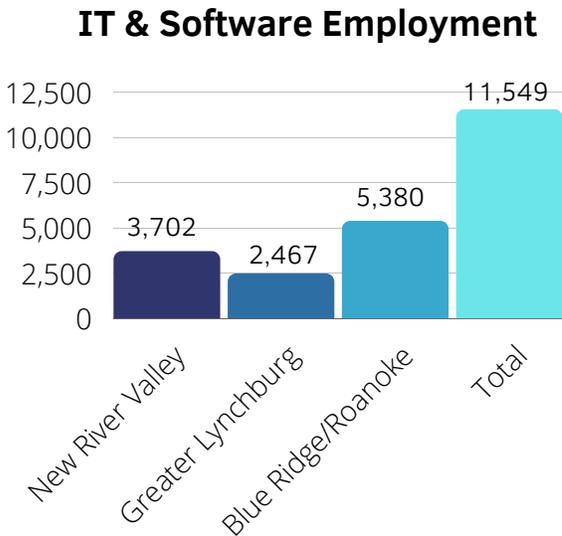


Population Summary by Sub Regions:

New River Valley:	371,531
Blue Ridge/Roanoke Valley:	333,764
Greater Lynchburg:	261,652

Source: U.S Census Bureau (2015-19)

Region 2 Employment and Mean Wages (3rd Quarter 2021)



Annual Mean Wages, IT & Software Development

New River Valley:	\$81,700
Blue Ridge/Roanoke Valley:	\$86,900
Greater Lynchburg:	\$96,700



Annual Mean Wages, All Occupations

New River Valley:	\$46,300
Blue Ridge/Roanoke Valley:	\$49,200
Greater Lynchburg:	\$47,200

Source: Virginia Employment Commission (2021)

ECOSYSTEM SPOTLIGHTS



HEALTH & LIFE SCIENCES COHORT 2021

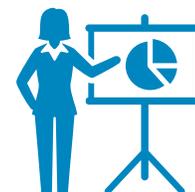
RAMP 2021 Cohort--RAMP brought in three health & life science-focused startups for the first cohort of Spring 2021. Tiny Cargo, Jeeva Informatics, and KinergyCare are the three health & life sciences startups that joined RAMP in their 12-week curriculum that provides mentoring, free office space with high-speed internet, access to venture capital, and \$20,000 in equity-free funding.

INNOVATION COMMERCIALIZATION ASSISTANCE PROGRAM (ICAP) 2021-22



ICAP Virtual Cohort--ICAP works with startups to provide support along their entire journey towards scaling – from the early idea stage, all the way through working on Series A level of funding. ICAP includes free training programs and counseling services offered through ICAP instructors and mentors to startups across the Commonwealth. The ICAP Introductory Course helps startups identify potential customers and develop successful business models. It is an ideal program for early-stage companies trying to prepare for eventual venture investment. Through our partnership with the Commonwealth Cyber Initiative, special emphasis will be given to cyber and cybersecurity-focused ventures.

PITCH PLUS 2021



RAMP PitchPlus Clinic--RAMP's PitchPlus Clinic is designed for later-stage, post-acceleration startups and other early-stage companies seeking knowledge about the venture capital markets, the venture capital fundraising process, and the transaction closing process from term sheets through due diligence to closing. The clinic will provide venture finance education, mentor connections, consulting assistance, and ongoing programming to prepare participating startups to pursue early-stage investment opportunities. Two PitchPlus clinics were hosted in 2021 on June 15 and November 16.



SHARED LABS

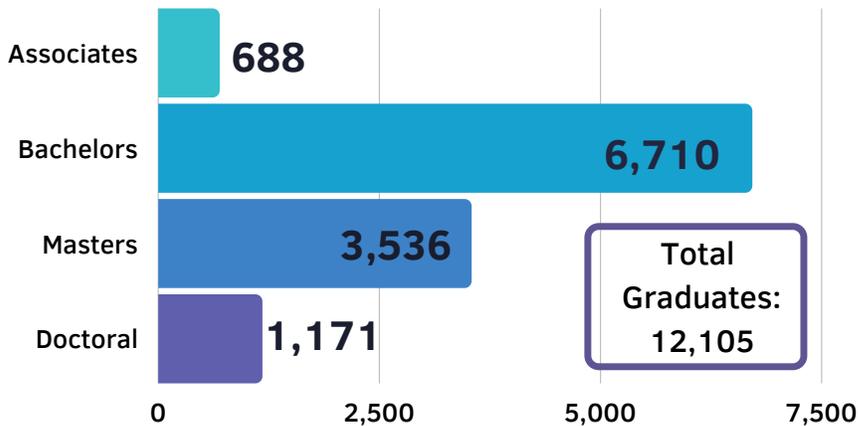
Virginia Tech's Corporate Research Center has received a state grant of nearly \$100,000 to study the idea of shared laboratories that would support the region's biotech industry. The funds, awarded by the GO Virginia state board, come with another \$55,000 in local contributions. The \$99,360 in state funds and the local match will be used to pay for a feasibility study of market demand for the labs and to create a conceptual design for the facilities, according to the research center.



TALENT PIPELINE

Regional STEM-H Talent Pipeline

REGION 2 STEM-H GRADUATES 2020



HEALTH GRADUATES

6,201



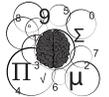
SCIENCE GRADUATES

2,392



MATHEMATICS GRADUATES

334



COMPUTER SCIENCE GRADUATES

902



ENGINEERING GRADUATES

2,272



Source: The Integrated Postsecondary Education Data System (IPEDS), 2019-20. Data current as of August 2021.

Region 2 Higher Education Institutions

Doctoral-Granting Public Institutions: Radford University; Virginia Tech

Doctoral-Granting Private Institutions: Edward Via School of Osteopathic Medicine (VCOM); Liberty University; University of Lynchburg

4-Year Private Institutions: Ferrum College; Hollins University; Roanoke College; Sweet Briar College

Community Colleges: Central Virginia Community College; Dabney S. Lancaster Community College; New River Community College; Virginia Western Community College

Regional Internship Programs

Experiential Learning in Tech Employment (ELITE): Through the support of a GO Virginia grant, the Roanoke-Blacksburg Technology Council (RBTC) offers a talent development program to address the regional need for early-stage IT and software development talent through internships. In 2021, 10 interns participated in the program through Elite grant funding amongst three different Region 2 companies.

Onward NRV Experience Internship: The NRV Experience by OnwardNRV is a seven-week-long summer curriculum designed to support employer internship programs by helping their interns grow professionally while increasing the number of young professionals living and working in the NRV post-graduation. There were 12 participating employers in 2021.

Virginia Tech Regional Internship Collaborative & Directory: The Regional Internship Collaborative bridges the gap between secondary and higher education institutions, their students, and businesses, providing work-based learning opportunities in the NRV, Roanoke-Alleghany region, and the greater Lynchburg region. Their directory includes key contact information and the opportunities for engagement that each organization offers for employers and students, updated as of Nov. 2021.

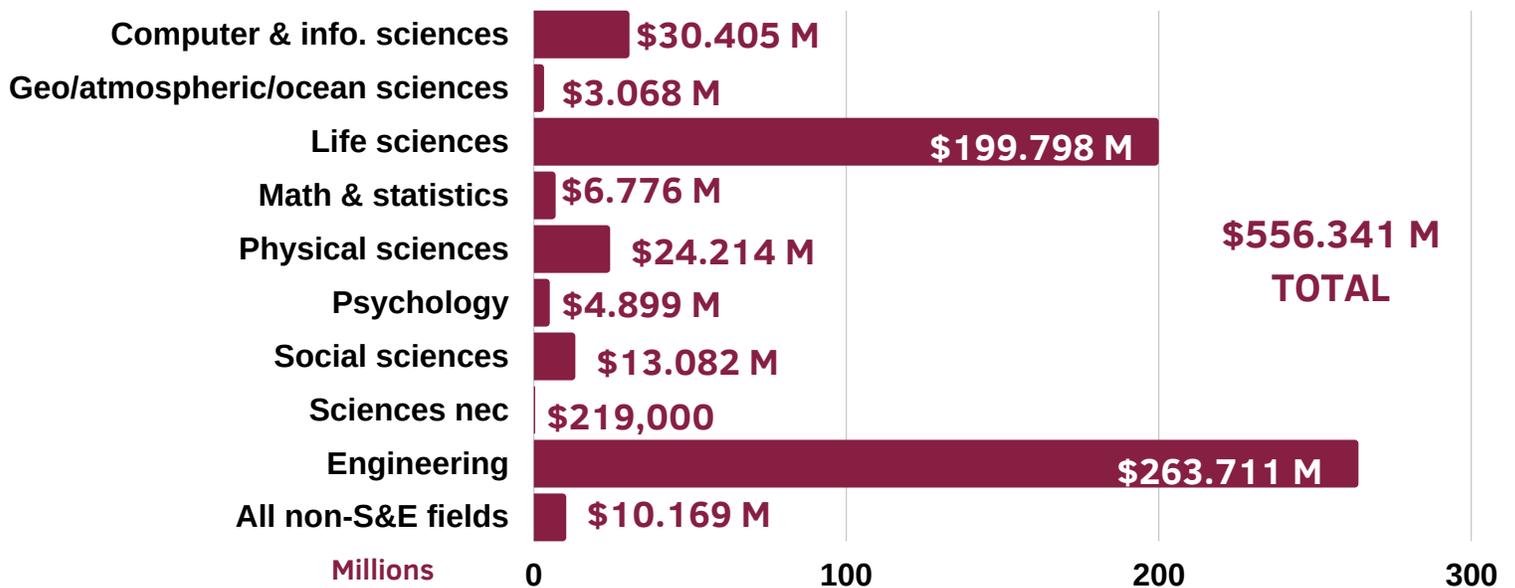
INNOVATION PIPELINE



R&D Expenditures and patents filed are assets to be leveraged and commercialized in a region's innovation pipeline. For a more in-depth exploration of the data, please visit <https://www.valleysinnovation.org/innovation-dashboard>.

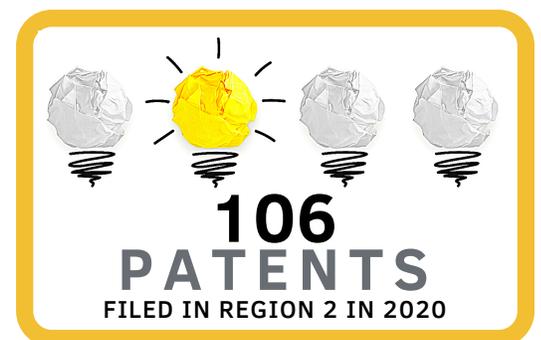
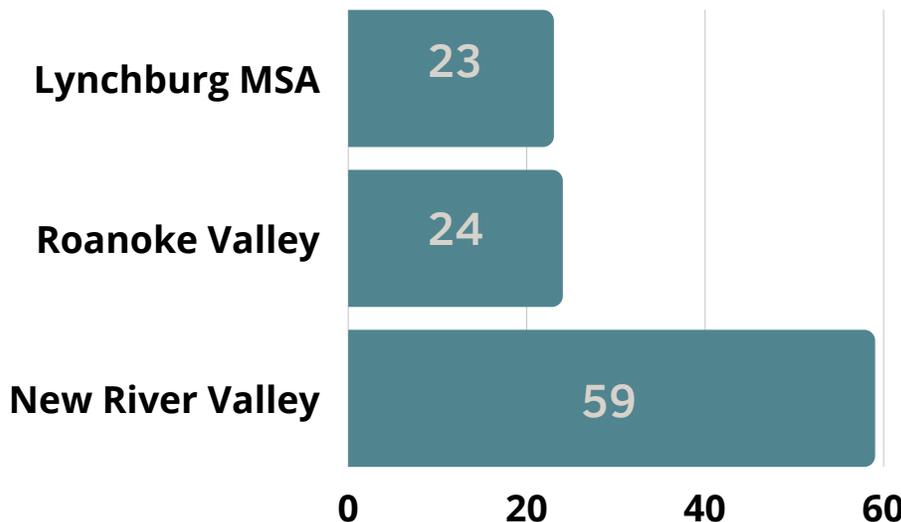
Virginia Tech's research & development expenditures in FY 2020 was roughly \$556.3M. It ranked second only to the University of Virginia (\$652M), among universities and institutions in the Commonwealth of Virginia. Virginia Tech had the 9th largest engineering research portfolio in the nation with about \$263.7M.

VIRGINIA TECH TOTAL R&D EXPENDITURES PER FIELD (FY 2020) = \$556,341,000



Source: National Center for Science and Engineering Statistics, Higher Education Research and Development Survey, FY 2020.

Patents by Region (2020)



Source: U.S Patent and Trademark Office. Data current as of August 2021.



CAPITAL ECOSYSTEM

Carilion Clinic Innovation (CCI) launched two new invention development programs in CCI's Invention Accelerator, including The Workshop and Innovance to reduce risk and support Carilion innovators as they develop and advance their inventions through funding, project management, and overall strategy development. In 2021, CCI had 43 Invention Accelerator projects, 14 patents filed, and over 50 inventors engaged in its programs.



Virginia Tech's LAUNCH Center for New Ventures offers a competitive proof-of-concept grant funding program to the Virginia Tech researcher community, designed as non-dilutive early stage gap funding to help transition technologies from the lab to commercialization. In calendar year 2021, LAUNCH awarded seven grants for a total of approximately \$350,000. These grant awards were applied across a broad range of technologies.

SBIR/STTR Awards



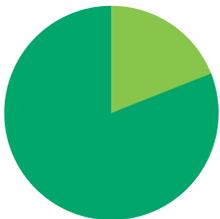
REGION 2 COMPANIES WON

22%

OF VIRGINIA'S SBIR/STTR GRANTS AWARDED IN 2020

\$43.2 M

SBIR/STTR GRANTS WON BY 11 REGION 2 COMPANIES (2020)



Capital Invested in Region 2 Companies in 2021

\$340 M

IN PRIVATE EQUITY

\$158.3 M

IN MERGERS & ACQUISITIONS

\$100 M

IN IPO

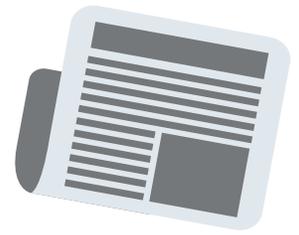
\$7.93 M

IN ANGEL & VC INVESTMENTS



Source: known capital raised in 2021 based on PitchBook and other data sources

ECOSYSTEM NEWS



January 2021--Nearly \$30 million in Virginia Telecommunication Initiative (VATI) grants will be disbursed among five projects to expand broadband access in 11 localities including Southern Virginia and Botetourt County. The projects will connect more than 11,700 households, businesses, and institutions to high-speed internet.

February 2021--Led by Virginia Tech, the Commonwealth Cyber Initiative's (CCI) Southwest Virginia node received eight multidisciplinary grants to advance the field in research areas such as 5G, artificial intelligence, and automated systems, paving the way for additional extramural funding. Six grants awarded to Virginia Tech faculty-led research teams will help further the expansion of autonomous systems, AI, 5G applications, and new approaches to security. Additionally, two Virginia Tech faculty-led projects received grants as part of the CCI Building Bridges Arts and Design Collaboration Program.

January 2021--Virginia Tech and Children's National Hospital has awarded \$100,000 to fund collaborative cancer research pilot projects. The inter-institutional program promotes cross-disciplinary collaborations among researchers at both institutions.



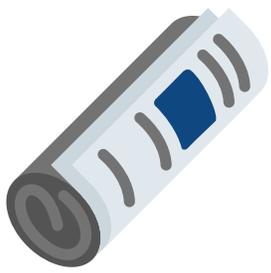
January 2021--CIT Announces Inaugural Solicitation for the New Commonwealth Commercialization Fund (CCF). In FY2021, CIT is conducting a single CCF solicitation for young Virginia companies that have strong potential to drive economic growth in Virginia, including through revenue and job creation. Up to \$7 million is available to award; a one-to-one match is required. This competitive round will provide grants up to \$100,000 to support companies' commercialization and market entry goals through product or service development, market research, intellectual property protection, marketing, pilots, and more.

September 2021--The Town of Blacksburg, Virginia is one of three cities to win a spot in the Mayors Innovative Design Cohort. The Cohort is a national partnership between the American Institute of Architects and the Mayors Innovation Project to "help build zero carbon, resilient, healthy, and equitable cities." Blacksburg leaders will have the opportunity to address the climate crisis while creating equitable, inclusive public spaces.



July 2021--Governor Ralph Northam today announced that 34 small technology-focused businesses in Virginia will receive a total of \$3.4 million in CCF grants to commercialize research in an array of sectors, including agricultural and environmental technologies, autonomous systems, clean energy, cybersecurity, data analytics, life sciences, and space and satellites, marking the inaugural funding round for CCF.

December 2021--Valleys Innovation Council (VIC), an affiliate of Verge, announced that it has received a \$200,000 grant from Truist Foundation to offer new educational programming and support structures through its PitchPlus program that will help regional entrepreneurs and founders understand the fundamentals of angel and venture capital finance, how to access capital and build connections between startups and sources of capital in Southside, Southwest, and West Central Virginia.



INDUSTRY NEWS



August 2021--Air purification company Oransi has announced it has entered into a merger agreement with motion control technology company, Aviemore, of Radford. Oransi announced in April that it will invest \$5.6 million to establish its first manufacturing facility in the Plymouth Building in Radford and will create 101 new jobs. (source: [Roanoke Times](#))



September 2021--History was made by a Blacksburg, Virginia, regenerative medicine company that raised a genetically modified donor pig whose kidney will be transplanted into a human body. Revivacor is a subsidiary of United Therapeutics and is based in Blacksburg's Virginia Tech Corporate Research Center. (source: [Fierce BioTech](#))



September 2021--A team from Fralin Biomedical Research at Virginia Tech Carilion and former graduates of Roanoke's RAMP Accelerator, discovered exosomes from cow's milk can be used as drug delivery vessels to patients with heart disease. Tiny Cargo partnered with Homestead Creamery, a local dairy business, for research. Tiny Cargo was also among Washington, D.C. Health Innovation QuickFire Challenge awardees. (source: [RAMP](#))



October 2021--Virginia-based scientist, Dr. Rajasimha, is using technology to increase diversity in clinical trials and testing by incorporating lower socioeconomic groups, ethnic minorities, women, children, and people from rural areas through data devices and internet access. Rajasimha hopes to speed up therapy research options for rare diseases. (source: [RareDiseaseAdvisor](#))



October 2021--Blacksburg robotics company launched all-in-one portable laser cutter to improve and rethink rapid prototyping and making with hundreds of materials including plastics, wood, fabric, metal, stone while maintaining precision and accuracy. The prototype has a new design that is easy to use, transport and store. (source: [Rendyr](#))



November 2021--Torc Robotics and Applied Intuition announced a multi-year collaboration to address the challenges of autonomous vehicle development in order to safely commercialize Torc's autonomous trucks for over-the-road applications. Torc is developing a Level 4 autonomous system for long-haul trucking in the US. Under Level 4 autonomy, a vehicle is capable of performing driving functions under specified operating conditions without human intervention. (source: [torc.ai](#))



December 2021--Acomhal, founded by Fralin Biomedical Research Institute at Virginia Tech Carilion, has been awarded \$305,000. The a cancer stem cell research company is developing a novel peptide drug that targets and kills cancer stem cells, preventing new tumors. Overall funding includes \$150,000 from the Virginia Tech Carilion Seed Fund, \$100,000 from the Virginia Innovation Partnership Corporation (VIPIC) GAP Funds Program, and \$55,000 from the CommonWealth Angels investment group. (source: [vtx.vt.edu](#))



VALLEYS INNOVATION COUNCIL 2021 REI INITIATIVES

Mission

The Valleys Innovation Council supports the region by **connecting, communicating, and collaborating** with stakeholders to grow and strengthen our innovation economy.

FACILITATE--VIC has supported and led various coalition meetings with subsets of Region 2 stakeholders to advance proposals and move forward on identified priority projects. VIC supported a regional Access to Capital committee as part of its commitment to developing the regional capital ecosystem, where we hosted 6 out of a 7-part Founders & Funders series in 2021 with 138 attendees total to support high-growth startups. Event planning support was provided for a Regional Entrepreneurship Summit, part of the VTCRC's successful Game Changer Week (Aug. 23-27).

TRACK--VIC tracks and benchmarks key innovation ecosystem metrics and activities to understand the capacity of the region to support and expand the innovation economy. Using this data, VIC works to develop strategies and collaborations to improve the regional I+E ecosystem.

STRATEGIZE--As part of its Regional Entrepreneurship Initiative (funded in part by GO Virginia), VIC develops resourcing plans with Region 2 stakeholders to support innovation-driven entrepreneurship projects and strategize on future funding plans. We continue to work at the regional/state levels to drive the innovation economy and encourage research commercialization.

BUILD CAPACITY--VIC leads and supports grant proposals that advance regional ecosystem priorities. A summary of successful proposals this year include:

- Truist Foundation:** \$200k to expand PitchPlus program activities in coordination with The Launch Place, Appalachian Council for Innovation, Eddy Alexander, RBTC, and Blue Ridge PBS.
- Supported VTCRC's Region 2 Go Virginia Per Capita Grant:** to expand laboratory space and facilities for the region's growing life science industry.
- Since 2020:** Seven GO Virginia proposals have been submitted that promote innovation and entrepreneurship (5 regional, 1 statewide). Six proposals have been funded, supporting \$2.26 million in GOVA grant dollars towards innovation and entrepreneurship.

VIC Financial Supporters

