



OHIO
UNIVERSITY



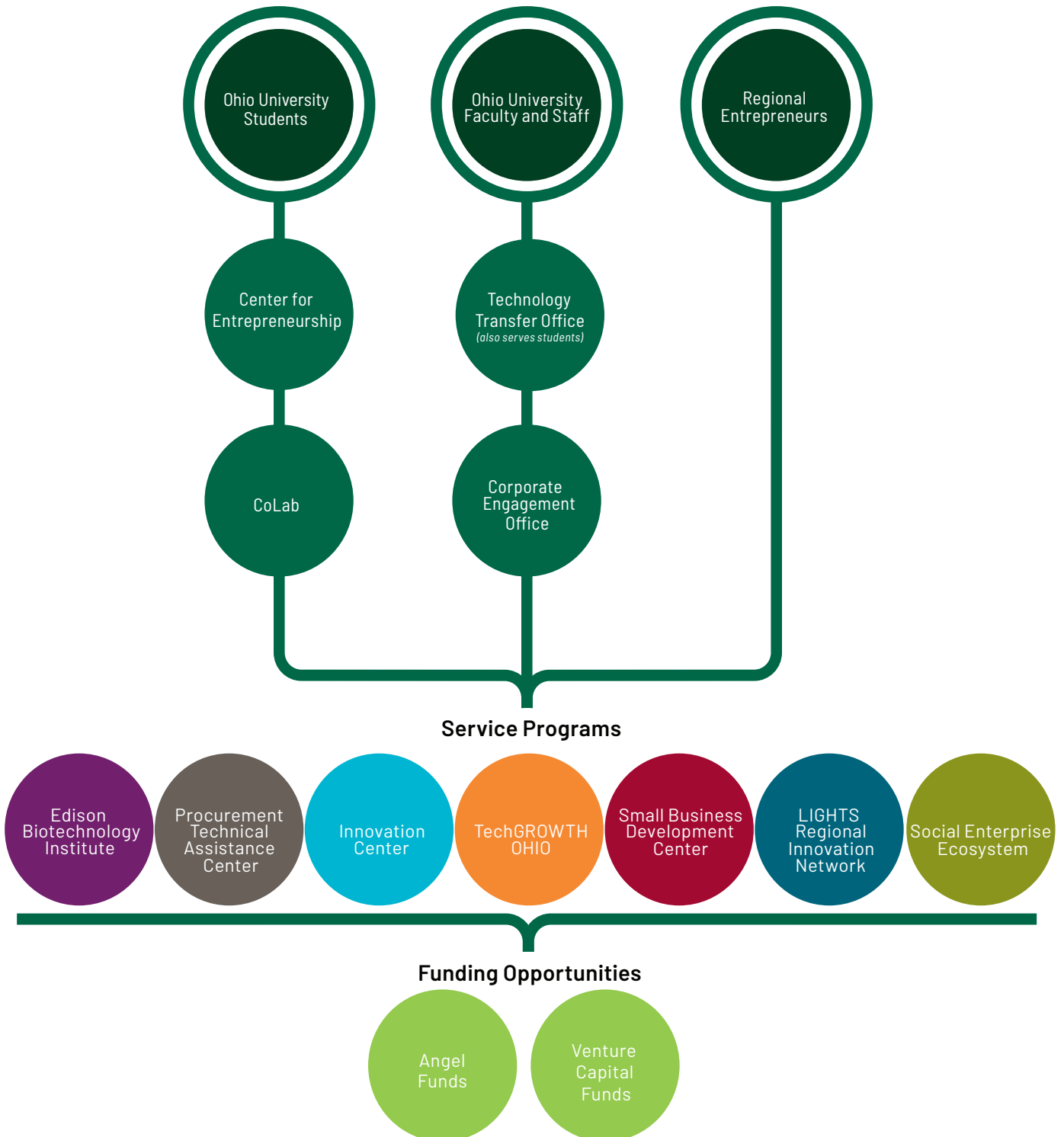
FOSTERING AN

INNOVATION ECOSYSTEM

Ohio University has a strong commitment to the economic development of the state of Ohio and to helping the public benefit from new knowledge and innovations emerging from its campuses. Over the last several decades, the University has built a program of applied research, technology commercialization, small business incubation, and entrepreneurship that has become a powerful force for stimulating the economy in southeastern Ohio. Ohio University regularly receives awards and recognition from state, national, and international organizations for its innovative strategy of partnering with other public and private entities to spur the growth of new jobs, technologies, and businesses in its home region. And while the University has made great strides in fostering economic development, it also continues to create new ways to expand the reach of the innovation ecosystem.

HOW THE SYSTEM WORKS

For all entrepreneurs in southeastern Ohio—whether emerging from the Ohio University campus or the community—the innovation ecosystem offers many opportunities for support. Any entrepreneur working with one of these entities can easily access the services of the other programs as needed.



HOW WE SUPPORT OHIO UNIVERSITY INVENTORS AND STUDENTS

For faculty, staff, and students, the **Technology Transfer Office** is the key partner in identifying innovations that should be patented and/or copyrighted and licensed to established and startup companies, to ensure that they benefit society.

FAST FACTS

OHIO is in the top tier of universities nationally for research return on investment. It received more than **\$100 million** in royalty income from research licenses between FY 04 and FY 19, primarily from a license to the Pfizer corporation for a growth hormone antagonist. The technology became the basis for a pharmaceutical treatment for individuals with acromegaly, a form of gigantism. In September 2019, the Technology Transfer Office began participating in the **Ohio IP Promise**, a state of Ohio partnership with public universities designed to offer more flexible options for research and licensing agreements and startup company formation. The office is a past recipient of the Deshpande Symposium's Exemplary Practice in Technology Commercialization Award.

The **Corporate Engagement Office** fosters and strengthens connections to the private sector in the areas of research, industry analysis, fundraising, and student opportunities.

The university also has dedicated staff at its Russ Research Center in Beavercreek, Ohio, to support and grow research partnerships with companies, government agencies, and other universities in the Dayton region.

FAST FACTS

Ohio University and The Ohio State University co-hosted a **conference on fostering university-industry partnerships** in September 2019. The event was the annual fall international meeting of the University Industry Demonstration Partnership (UIDP), a project-based organization focused on exploring issues that impact university-industry relations as well as developing innovative approaches to working together. The conference's focus was on workforce development and talent management, and featured guest speakers from across Ohio University.



The Technology Transfer Office has worked with faculty researchers to commercialize a process that turns pollution from Ohio streams into paint that can be used by artists.



Scientists at the Edison Biotechnology Institute pursue basic and applied research at the Konneker Research Center.

The **Edison Biotechnology Institute** pursues basic and applied research on health and medical disorders, with a focus on developing innovations that can benefit society through the creation of technologies and companies. A principal investigator with 25 years of pharmaceutical industrial experience also provides business coaching for pharmaceutical and medical device startups.

FAST FACTS

The institute has launched a **natural products research initiative** focused on in-depth studies of metabolites from plants and microorganisms, including how they interact with cells and their potential as new therapies. Researchers also are investigating biological techniques to generate metabolites with novel, patentable structures.

Ohio University is one of the nine governing higher education institutional members of the state of Ohio's **I-Corps@Ohio** program, which is designed to help faculty and graduate students develop their technologies for the marketplace and launch startup businesses.

FAST FACTS

To date, **eight** Ohio University teams have been chosen to participate in the program and have developed innovations in medical devices, drug discovery, avionics, and advanced materials.

OHIO is one of four major Ohio universities that led the design and development of the **Ohio Innovation Exchange (OIEx)**, a new research expertise portal created to bolster collaborations between universities and industry and further assist technology commercialization across the state of Ohio. This innovative knowledge management framework provides a single point of search for online users looking for faculty experts, research technologies, and shareable equipment across multiple universities. Sponsored by the Ohio Department of Higher Education, OIEx helps businesses gain access to high-end equipment, allows industry to tap into the next generation of employees, forges new R&D partnerships, strengthens industry-sector supply chains, and stimulates job opportunities across Ohio.

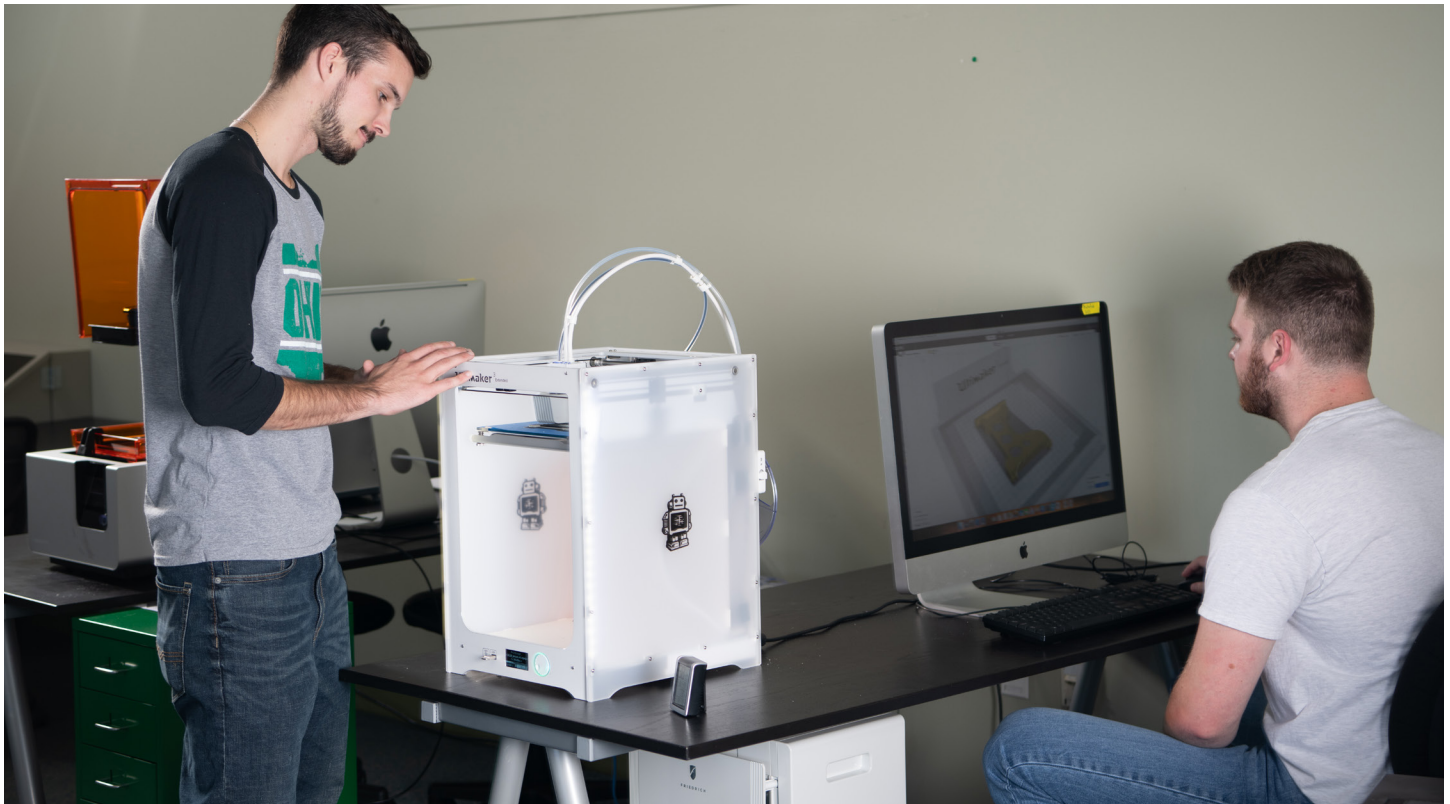
FAST FACT

The site features more than **13,000 faculty profiles** and **600 university resources** from across the state.

The **Center for Entrepreneurship**, a joint program of the College of Business and the Voinovich School of Leadership and Public Affairs, is a university-wide resource that supports student entrepreneurs and innovators in all academic colleges. The center offers a curriculum of entrepreneurship and experiential courses, workshops, mentoring, clubs, guest speakers, and special events designed to highlight career and entrepreneurial opportunities in a wide array of industries—all to encourage and guide student entrepreneurs.

As of spring 2019, there were approximately 145 students earning entrepreneurship majors or an undergraduate certificate in entrepreneurship. In addition, more than 400 students from across campus are enrolled in entrepreneurship coursework. During the 2017-2019 school years, the center hosted **11 major events** that attracted more than **2,700 attendees** representing most of the university's academic colleges and industry executives nationwide.

Undergraduate students spearheaded the development of **CoLab**, a campus-wide initiative to provide a central space and programming for student entrepreneurs innovators. The University committed approximately **\$600,000** towards the renovation of a space in Alden Library for the project, which also received support from generous private donors. The state-of-the-art facility, which opened in October 2018, draws students from across campus.



Ohio University students get hands-on experience with 3D printing at the Innovation Center's Additive Manufacturing Lab.



Ohio University students from across campus can use the CoLab, which offers central space and programming for student entrepreneurs and innovators.

The new **Bobcat Seed Fund** helps students pay for certain goods and services associated with starting a new business, such as legal and accounting services, software development, and prototype creation. The fund also supports a mentor and partner network for student and local entrepreneurs. In addition, the center works with faculty members from colleges across campus to create a network of “entrepreneurial champions” who incorporate entrepreneurship and innovation into existing or new courses.

FAST FACTS

The center received the **2017 Deshpande Symposium Award for Excellence in Student Engagement** in Entrepreneurship. Professor and entrepreneurial leader Luke Pittaway was named the **2018 Entrepreneurship Educator of the Year** by the United States Association for Small Business and Entrepreneurship, a lifetime achievement award. **More than 1,100 individuals attended the Business of Games Summits I and II** (digital games and eSports), hosted by the Center for Entrepreneurship and the GRID Lab in September 2017 and February 2019. The center co-hosted its **2nd Annual Music Industry Summit** in March 2019. Audiences packed Baker Theater for the event, which featured a keynote appearance by Chuck D, founder of iconic rap and hip-hop group Public Enemy and a member of the Rock & Roll Hall of Fame. These events offer students information about career and entrepreneurial opportunities in popular industries, as well as professional networking.

HOW WE SUPPORT REGIONAL AND UNIVERSITY ENTREPRENEURS

TechGROWTH Ohio, an Ohio Third Frontier Entrepreneurial Services Provider program of the Voinovich School of Leadership and Public Affairs, helps technology companies take their ideas to market, by enabling access to experts for every stage of business development and aligning resources to accelerate commercialization.

FAST FACTS

Since its launch in 2007, TechGROWTH Ohio has **served 2,210 entrepreneurs and startup entities, which have generated more than \$568 million** in economic activity in the form of new sales, external capital raised, and federal research grants awarded. TechGROWTH Ohio also has made **nearly \$5 million** of GROWTH Funding awards to **90 companies** and invested **more than \$7 million** of pre-seed capital in **15 early-stage technology companies**. More than 750 jobs have been created or retained with an average annual salary approaching \$55,000, compared to Ohio's average annual per capita income of approximately \$30,000. TechGROWTH Ohio is a **\$52 million** public private partnership between Ohio Third Frontier, Ohio University, and private investors. Every \$1 invested generates \$23.94 in return.

The Innovation Center, Ohio University's award-winning business incubator, offers customized business assistance, including capital access planning, human resource development, and market analysis. Its 36,000-square-foot facility features biotechnology labs, offices, conference space, and an Additive Manufacturing Lab. Additional services and resources include open educational and networking events, a virtual client membership, product development services, biotechnology expertise, and high-tech equipment.

FAST FACTS

In 2019, InBIA, the leading international professional association for entrepreneurial support organizations, honored the Innovation Center with the Randall M. Whaley **Incubator of the Year Award** and named it the **Rural-Based Entrepreneurship Center of the Year**. In 2018, the Innovation Center supported **297 jobs** that generated an estimated **\$12.9 million in employee compensation** in Athens County and an estimated **\$2.1 million in state and local tax revenues**. Since 2014, the business incubator's job creation numbers have **increased 112 percent**, employee compensation generated from its client companies has **increased 111 percent**, and tax revenue has **increased 222 percent**. These figures represent the number of jobs created directly, indirectly, or induced by supported businesses. Since 2015, the Innovation Center has won more than **\$3.4 million** in grants to support its work.



The Innovation Center features labs and offices for biotechnology startup companies to grow in southeastern Ohio.

The Ohio University **Small Business Development Center**, a program of the Voinovich School of Leadership and Public Affairs, offers business assistance in all areas of start-up and operations, including building businesses, improving competitiveness, increasing revenues, solving problems, or managing the next stage of growth.

FAST FACTS

The SBDC, which serves nearly **700 clients** in a 12-county region of southeastern and eastern Ohio, was named the **Small Business Development Center of the Year** in Region V in 2018 by the U.S. Small Business Administration.

The Ohio University **Procurement Technical Assistance Center**, a program of the Voinovich School of Leadership and Public Affairs, assists Ohio businesses seeking to sell goods and services to local, state, and federal government.

FAST FACTS

The center helped **796 businesses** in 55 of Ohio's 88 counties win **110,218 government contracts worth nearly \$900 million in FY 2018**.

Led by Ohio University's Voinovich School of Leadership and Public Affairs, **Social Enterprise Ecosystem (SEE) Appalachia** is a partnership with Foundation for Appalachian Ohio, Parkersburg Area Community Foundation, Rural Action, and experienced local expert consultants, supporting social enterprises in a 13-county region in Ohio and West Virginia. Social enterprises combine social mission—social impact in multiple sectors, among them health, education, and environment—with sale of goods or services to achieve financial and operational sustainability.

FAST FACTS

Initially funded as a pilot program by the Appalachian Regional Commission's POWER initiative, SEE has received two grants totaling **\$1.05 million**. Since its May 2017 launch, SEE has assisted **95 startups and small enterprises** that address the most important social challenges facing Appalachia. Program participants have already created **more than 80 jobs** and enabled clients to achieve more than **\$10 million in resources**.



The SEE and LIGHTS programs have supported the Building Bridges to Careers program, which provides youth career development opportunities in Marietta, Ohio.



The LIGHTS program has provided strategic planning support to DG Welding and Design in Malta, Ohio, and other regional businesses.

The **LIGHTS Regional Innovation Network**, led by Shawnee State University in partnership with the Voinovich School of Leadership and Public Affairs, the OHIO Innovation Center, and Ohio University-Southern, provides expertise, training, and resources to the workforce, entrepreneurs, companies, and local communities in a 28-county region of Ohio, West Virginia, and Kentucky.

FAST FACTS

Since the program launch in 2016, LIGHTS and its regional partners have assisted **206 startups and small business clients**. Those businesses currently **employ 88 people** with total annualized wages of **\$2.5 million**. The businesses also have achieved \$59.8 million in revenue and have attracted \$37.8 million in private investment. The LIGHTS Network has hosted 544 entrepreneurship and making events with 6,057 participants.

The **Ohio Innovation Fund (OIF)** is a venture capital firm that partners with founders of high-growth startups based in Ohio to help their companies rapidly scale. Ohio University served as a founding investor in the fund, along with The Ohio State University and Kent State University, as part of its commitment to foster innovation in the state. OIF works with entrepreneurs to build successful companies, some of which have emerged from research conducted at Ohio University, and serves on the Ohio University Selection Committee for the state of Ohio's Technology Validation and Startup Fund, Phase 1B awards. OIF and its portfolio companies also provide internship and career opportunities to Ohio University students and alumni.

FAST FACTS

As of mid-2019, OIF has **invested in 16 companies** throughout the state, including two Athens-based companies which have **more than 150 local employees**. These companies have gained national attention and awards from the Wall Street Journal, CNN, Gartner, and Forbes, among others, and a majority of the Fortune 500 are their customers. Their strategic partners include Facebook, Microsoft, SAP, and Citi, and their medical trial partners include Mayo, Sanofi, and Genentech. **More than \$250 million has been co-invested into its 16 companies**, with approximately 80 percent coming from out-of-state sources. Since OIF's founding in early 2016, their companies have been recognized as the top early-stage and growth-stage start-ups in Ohio for 2016, 2017, and 2018. In addition, OIF introduced **22 Ohio University students** to the entrepreneurial ecosystem through internships and shadow days in 2018-19, and the 2018 cohort of Ohio University interns have gone on to land high-impact roles post-graduation including in venture capital, at fast growing start-ups, and as founders.

ENTREPRENEUR SUCCESS EXAMPLES



AEIOU Scientific LLC, a client company of TechGROWTH Ohio and the Innovation Center, is offering the Cortical Bone Mechanics Technology™ for sale as a scientific research product.

AEIOU Scientific: Ohio University licensed a technology that can accurately estimate bone strength to Ohio startup company AEIOU Scientific LLC. The company began offering the Cortical Bone Mechanics Technology™ for sale as a scientific research product during fall 2018. Faculty members involved in the development of the technology participated in the I-Corps@OHIO program, and the company is using a National Institutes of Health Small Business Innovation Research grant to further commercialize the technology. AEIOU Scientific is a client company of TechGROWTH Ohio and the Innovation Center, which provide business services, office space, and venture development assistance.

Three Firefighters: Based in Zanesville, Ohio, the company has developed a product called "DoorBoss" to help firefighters safely manage air flow in burning buildings. TechGROWTH Ohio helped the startup company develop and test the product prototype, create a business plan, and network with partners, in addition to providing funding. Three Firefighters officially introduced DoorBoss in June 2018 and estimates it will help save 3,000 lives and \$14.3 million in property loss annually. VentureOhio, which advances entrepreneurship in the state, included Three Firefighters on its 2018 Watchlist of up-and-coming companies.

New Resource Solutions: This financial technology company, based in Athens and Columbus, links solar investors with appropriate projects. The company is opening new markets for providing low-cost renewable power for low- and moderate-income housing and public buildings currently unserved by existing providers. Aided by a public/private partnership arranged through SEE, New Resource Solutions secured a \$1.6 million investment for its successful pilot project, which placed solar panels on the roof of a regional school district, resulting in \$20,000 in annual cost savings. SEE is continuing to work with the company in preparation for its next funding round to expand its enterprise model.

iRecon: In 2019, TechGROWTH Ohio and Innovation Center client iReconCars®, a platform that automates the used car reconditioning process, was acquired by Cox Automotive™'s vAuto®. vAuto®, a provider of innovative technology for car dealerships, has relaunched the platform as iRecon®. TechGROWTH Ohio and the Innovation Center provided the company with marketing assistance, financial modeling, and acquisition term guidance.

Global Cooling: Based in Athens, Ohio, Global Cooling, Inc. develops and manufactures Stirling Ultracold ultra-low temperature freezers that use the company's proprietary free-piston Stirling engines. Stirling Ultracold freezers are used in laboratory settings and help to advance life sciences research by using much less energy than traditional freezers. Global Cooling, a TechGROWTH Ohio and Ohio Innovation Fund portfolio company, was recognized with TechOhio's 2019 Best Startup Culture Award in the late-stage startup category.

RXQ Compounding: This FDA-approved 503B compounding outsourcing facility was founded at the Innovation Center and supported by TechGROWTH Ohio. The company, which compounds drugs for the medical and veterinary fields, announced \$7 million in Series A funding, led by the Ohio Innovation Fund, in July 2018. A 2019 graduate of the Innovation Center, RXQ Compounding operates in a 35,000-square-foot-facility in Albany, Ohio, employing more than 100 people.

Diagnostic Hybrids: A spinoff of Ohio University biotechnology research, this company was an Innovation Center client that established headquarters in Athens, Ohio. By 2010, it employed more than 200 staff members and was a market leader in the development and distribution of rapid diagnostic kits for a broad range of medical issues. When the Quidel Corporation purchased the company that year, the Ohio University Foundation, a major stakeholder, received \$35 million. Under Quidel, the operation continues to be a significant employer in the Athens, Ohio, community.

eFuse: This Columbus-based startup developed a web and mobile application that serves as a professional hub for the fast-growing esports and video game industry. In fall 2019, the platform announced a \$1.4 million seed round, which included an investment from the Ohio Innovation Fund, ahead of its December launch. CEO Matt Benson is an alumnus of the College of Business and former 2018 intern and Entrepreneur-in-Residence with the Ohio Innovation Fund.



The Innovation Center provides a full-time executive coach for its clients and business consulting to regional entrepreneurs.



Researchers in Ohio University's Russ College of Engineering and Technology are developing new technologies for use in the energy industry.



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For more information about Ohio University's Innovation Ecosystem, visit:

Research Division
www.ohio.edu/research

Voinovich School of Leadership and Public Affairs
www.ohio.edu/voinovich-school

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