INTRODUCTION

Ohio University’s (OHIO) equal focus on student education and community impact underpins its approach to economic development. The University’s innovation and entrepreneurial ecosystem creates a shared culture of entrepreneurship that fosters idea generation and commercialization and supports the launch of start-ups and the growth of regional employers while providing students and faculty with applied learning and research opportunities.

At the base of OHIO’s entrepreneurial ecosystem are university Colleges and their entrepreneurial curriculum that fuel and enable research from faculty and research Centers. OHIO research feedstock is nurtured and grown with externally match-funded programming such as the Small Business Development Center, Procurement Technical Assistance Center, Innovation Center and TechGROWTH Ohio. OHIO’s business programs integrate consistently with local and regional economic development entities, city planners, Port Authorities and other regional entities, offering services unavailable elsewhere.

The OHIO entrepreneurial ecosystem network provides University and community entrepreneurs access to no-cost business services, pre-seed capital and affordable office and laboratory space. OHIO is the regional entrepreneurship hub linking industry, higher education, government, nonprofits, and community leaders to spur innovation, entrepreneurship, and regional economic development.

The University’s innovation and entrepreneurial ecosystem creates a shared culture of entrepreneurship that fosters idea generation and commercialization, and supports the launch of start-ups and the growth of regional employers.
FOSTERING INNOVATION AND ENTREPRENEURSHIP

Ohio University’s innovation and entrepreneurship ecosystem simultaneously supports transformative student education, faculty innovation and technology commercialization, and regional economic development. OHIO emphasizes student learning not only in the classroom but also through the application of knowledge to define unmet needs in the marketplace and develop the services and products that can fill those voids.

Entrepreneurship Programs for Students

Fundamentally, the ecosystem provides students with entrepreneurship education and technical assistance to translate ideas into business opportunities. The Center for Entrepreneurship is a partnership of the College of Business and the Voinovich School of Leadership and Public Affairs. The center coordinates the Certificate in Entrepreneurship, a program that any student can complete, incorporating entrepreneurship-focused classes from every college of Ohio University. For example, an undergraduate studio art major may take certificate courses in entrepreneurship to learn how to effectively plan and launch an art gallery business.

Engineering students can build business plans, win funding, and create enterprises to bring their innovations to market. The center also administers entrepreneurship consulting clubs, the Bobcat Hatchery—a student idea incubator—business plan competitions, and other events throughout the academic year for OHIO students. The innovation and entrepreneurship ecosystem also creates educational experiences for students through internships, employment opportunities, and project work at start-up and emerging companies.

FIG. 1 / OHIO UNIVERSITY’S INNOVATION AND ENTREPRENEURSHIP ECOSYSTEM

Transformational Learning
Interdisciplinary Collaboration
Regional Network of Service Providers
Research and Development
Seed and Growth Funding
Technology Commercialization
Business Incubation and Acceleration
Community Engagement

OHIO UNIVERSITY INNOVATION AND ENTREPRENEURSHIP

The Center for Entrepreneurship is a partnership of the College of Business and the Voinovich School of Leadership and Public Affairs, collaborating with all Colleges and Schools throughout the University.

Fostering Entrepreneurship
In 1987, Dr. John Kopchick, Goll-Ohio Professor of Molecular Biology and professor of biomedical sciences in the Heritage College of Osteopathic Medicine, discovered the growth hormone receptor antagonist. This receptor blocks the action of a hormone that causes acromegaly, a disorder related to gigantism that affects thousands of people worldwide. The University licensed this hormone-blocking technology to Pfizer Corporation, which markets the drug SOMAVERT® (pegvisomant for injection). Ohio University and the drug’s inventors have received more than $75 million in royalty income from the license as of 2013.

Faculty Commercialization of Research Discoveries

Ohio University’s Technology Transfer Office helps faculty identify the market potential of their discoveries, pursue U.S. and international patent protection, secure industry partners that can commercialize their innovations, and—as appropriate—guide innovators through the entrepreneurial ecosystem to start their own enterprises. Since its founding in 1991, the Technology Transfer Office has helped faculty receive 110 patents and processed approximately 275 patent applications. In 2012 alone, the office received 27 invention reports and submitted 36 new patent applications, from which 13 new patents were issued. Currently, it maintains over 25 technology licenses in biotechnology/medical devices, energy/environment, and transportation.

For the University and the state of Ohio, these licenses translate into dollars that can be reinvested into the ecosystem to promote economic development. OHIO is the state’s top university for licensing revenue generated from research discoveries, with $8.6 million in fiscal year (FY) 2011. Since 1991, the Technology Transfer Office has helped generate over $75 million in royalty income from technology licensing.

NEW PATENTS

The Technology Transfer Office received 27 invention reports and submitted 36 new patent applications, from which 13 new patents were issued.
Business Incubation and Acceleration

OHIO is a pioneer in university-based business incubation and acceleration programs. The Ohio University Innovation Center—Ohio’s first university-based business incubator and one of the earliest incubators in the United States—offers space and customized business assistance services to start-up companies run by students, faculty, and community residents. Since its founding in 1983, it has incubated nearly 100 companies that have created more than 1,000 jobs. The Innovation Center’s most successful graduate is Diagnostic Hybrids, Inc., a medical testing kit company that generated $35 million for Ohio University and the state when it was sold to a California firm in 2010.

As of 2013, the Innovation Center is home to 19 member companies and organizations. According to a study prepared by the Voinovich School, Innovation Center companies in 2010 created 78 jobs in Athens County that generated an estimated $3.8 million in labor income and an estimated $437,734 in state and local tax revenues.

The Innovation Engine Accelerator—a partnership among the Innovation Center, the Center for Entrepreneurship, TechGROWTH Ohio, and several private partners—is a highly competitive digital media business accelerator that hosts a 12-week boot camp for five companies that receive up to $20,000 each in funding. By the end of the program, each company has a market-tested minimum viable product and an investor-ready pitch to attract follow-on funding.

The Innovation Center is one of the partners in TechGROWTH Ohio, a venture development organization that serves 20 counties in southeast Ohio. Funded by Ohio Third Frontier Entrepreneurial Signature Program and managed by the Voinovich School, TechGROWTH focuses on helping early-stage technology companies acquire resources to accelerate commercialization. TechGROWTH provides one-on-one counseling and technical assistance and dedicated financial resources to make seed investments to a portfolio of companies based in southeast Ohio.

Ecolibrium, a TechGROWTH client and Innovation Center tenant, was founded by an engineer who invented the first 100% plastic flat-roof solar panel mounting system. The company’s product, called the EcoFoot, significantly reduces installation costs, enhances the competitiveness of solar power and met with quick market acceptance. The company’s accelerated growth was enabled by competitively-awarded investment from TechGROWTH and regional Angel groups. The firm anticipates early exit and return to investors.
Since it was founded in 2007, TechGROWTH has worked with more than 500 client companies led by Ohio University faculty, student innovators, and regional entrepreneurs. TechGROWTH-funded clients generated over $143 million in regional economic activity from sales ($100 million), grants ($17.3 million), equity ($11.4 million), loans ($10.4 million), licensing revenue ($4 million), and in-kind services ($650,000) through June 2013.

In collaboration with OHIO’s Technology Transfer Office, TechGROWTH has helped 33 companies to receive 66 patents and 60 patents pending as of June 2013. Of those companies, 11 have an OHIO faculty and/or student component. Of the 65 patents issued, nine went to teams including an OHIO faculty member and/or student; of the 60 pending patents, 17 are from teams including an OHIO faculty member and/or student.

Regional Partnerships and Funding Support

New companies need access to capital at all stages of their growth, from seed money to launch a start-up, through angel investment, and on to formal venture investment. Ohio University facilitates access to capital for regional entrepreneurs, who because of their rural location might otherwise have difficulty getting the investments they need to grow their companies.

Chief among OHIO’s capital assistance programs is TechGROWTH Ohio, which has provided $3.5 million in growth funding to 80 companies, helping them to pay for third-party vendor services such as patent attorneys, industry specialists, and senior-level management consultants. In addition, TechGROWTH has provided $5 million in pre-seed investments through two pre-seed funds to 12 portfolio companies—five of which are Ohio University spinouts.

“Ohio University has focused not only on reaching the local community in Athens, but reaching into the whole region and making sure that different organizations and stakeholders are included. That mission to help advance economic growth and development in southeast Ohio really shines through in the things that they do.”

— Lisa Delp, Former Executive Director of the Ohio Third Frontier Program

NEW GROWTH

Kevin Pottmeyer, co-founder of Ghost Blind Industries poses with a hunting blind outside the company warehouse in Marietta, Ohio. Pottmeyer and business partner Chet Burdette designed and marketed a unique hunting blind that uses mirrors to better camouflage the hunter, enabling them to get closer to wildlife. TechGROWTH Ohio connects early-stage companies in Southeast Ohio with the tools and capital to succeed. Ghost Blind is just one of those companies, receiving grants, business advising, and pre-seed investment from TechGROWTH Ohio.

$143 MILLION

Regional economic activity from sales, grants, equity, loans, licensing revenue, and in-kind services generated by TechGROWTH-funded clients through June 2013
OHIO helps regional entrepreneurs access capital in other ways as well. The University collaborates with a network of funders to provide rural Ohio entrepreneurs with access to advanced funding resources to grow their businesses. These include:

- **Adena Ventures**, founded in 2002 by Ohio University alumnus David Wilhelm and Lynn Gellermann (now Executive Director of TechGROWTH Ohio). Based at the Innovation Center, it provides equity capital and operational assistance to high-growth businesses, primarily in Appalachian Ohio.

- **Athenian Venture Partners**, started with an investment from the Ohio University Foundation and with offices in Athens. It invests in technology and information technology firms. Its 2003 AVP Ohio Fund was named the top fund of its vintage based on high returns on investment in 2012 by Preqin, a leading provider of data and research on private equity, real estate, and hedge and infrastructure funds.

- **The East Central Ohio Tech Angel Fund**, which focuses on opportunities in east-central and southeast Ohio, investing in companies that have developed competitive advantages in their industries. With a total of 27 investors including experienced entrepreneurs and business professionals, it is one of the largest rurally focused investment funds in the United States (based on number of participating investors).

OHIO also operates and manages regional offices of federal business-assistance programs that help emerging and small businesses acquire funding. The Small Business Development Center at Ohio University serves Athens, Hocking, Meigs, Monroe, Morgan, Noble, and Perry counties. According to the U.S. Small Business Administration, the office helped regional client companies obtain over $21.6 million in loans and equity investment, which led to the creation of 505 jobs and the retention of another 1,038 jobs between 2007 and 2012. The Procurement Technical Assistance Center at Ohio University serves more than 37 counties from three offices (Athens, Akron, and Columbus) and facilitated more than $181 million in federal purchasing from small businesses in its service region in 2012.
MAKING ENTREPRENEURIAL SUCCESS STORIES

The impact of Ohio University’s innovation and entrepreneurial ecosystem may be best demonstrated by its successes. Following are stories of two start-ups that are venturing into new markets with support from OHIO.

Affine Technologies

Affine Technologies, started by two doctoral candidates from the Russ College of Engineering and Technology, is developing a technology to turn complex data into visualizations for real-time analysis and decision-making. Its first product is a data-rich, low-bandwidth communications link to create visual navigation systems for unmanned aerial vehicles (UAV) at dramatically lower costs. The UAV market is undergoing explosive growth as applications move from military to civilian uses and is forecasted to reach annual sales of $11 billion in 2021. Affine’s technology has applications in medical technologies, agriscience, education, research, and avionics engineering.

The Ohio University innovation and entrepreneurial ecosystem has helped Affine Technologies in multiple ways. Founders Scott Nykl and Chad Mourning presented their research and its potential applications during the Center for Entrepreneurship’s 2012 “Pitch Your Plan” competition at the annual Student Research Expo. They were encouraged to apply to the inaugural Innovation Engine Accelerator to begin commercializing the technology; from there, the company joined the Innovation Center’s Digital Media Incubator, a collaborative work space with specialized equipment and software. The Innovation Center has also introduced the founders to mentors and representatives of Jobs Ohio—introductions that led them to key connections with the Ohio Aerospace Institute and potential pilot partners, including Radiance Technologies and AirRobotics. OHIO’s Technology Transfer Office currently is helping Nykl and Mourning license the technology while TechGROWTH Ohio executives-in-residence continue to help them develop their business venture and apply for federal and state technology commercialization grants.
Global Cooling

A technology originally patented by an OHIO faculty member spawned three local technology start-ups, including most recently Athens-based Global Cooling, which manufactures a range of ultra-low-temperature freezers and serves the life science research, clinical trial, and biopharmaceutical markets. TechGROWTH Ohio—the lead investor in the company’s initial financing round and a lead co-investor in a $3 million Series A round that closed at the end of May 2013—has provided substantive and formative early assistance to the company, including funding an Executive in Residence who became its CEO and a grant writer who won independent State funding for the company, as well as providing an Investment Committee Board Member who segued into a permanent position as the company’s COO. The firm has also received assistance from the Voinovich School of Leadership and Public Affairs, the College of Business, the Innovation Center, and the Office of the Vice President for Research and Creative Activity. In May 2013, the firm received the 2013 Outstanding New Product of the Year award from the International Society for Biological and Environmental Repositories: the latest indicator of the firm’s technological and business successes borne from Ohio University’s innovation, pre-seed funding, and executive-level business assistance.

“Ohio University’s business assistance programs are creating a healthy and vibrant start-up and entrepreneurial community here in Athens.”

— Neill Lane, President and CEO, Global Cooling

GLOBAL COOLING

Athens-based Global Cooling manufactures a range of ultra-low-temperature freezers and serves the life science research, clinical trial, and biopharmaceutical markets.
CONCLUSION

Ohio University’s innovation and entrepreneurial ecosystem provides southeast Ohio with a full complement of services promoting economic growth and technology commercialization, creating opportunities for students, faculty, and regional entrepreneurs to develop enterprises and bring innovations to market. OHIO’s ecosystem is a targeted economic development engine enabling applied research, immersive learning, innovative technologies, and business development.

OHIO’s cross-campus infusion of entrepreneurship into academic curricula and sponsored programs encourages and enables students to devise grand solutions to big problems and turn their innovations into viable, growing businesses. By promoting entrepreneurship across multiple disciplines, OHIO instills the value of innovation in its students and the skills to turn innovation into enterprise. OHIO students bring these skills and values with them into the workforce as they build the economy of the future.