



The Innovation Pipeline: From Universities to Small Businesses – A Rural Perspective

February 11, 2020

Good Morning.

Chairman Crow, Ranking Member Balderson, Committee Members, I appreciate the opportunity to testify before the Committee today.

Background.

My name is Greg Crawford. I am the president of Miami University in Oxford, Ohio. I have been passionate about entrepreneurship and education for my entire career. I began my professional career at Xerox Palo Alto Research Center, I have served as the Dean of Engineering at Brown University and the Vice President and Associate Provost for the University of Notre Dame. I am a practicing entrepreneur, having started two biomedical companies, been a part of a spin out company, created the Program in Innovation Management and Entrepreneurship (PRIME) at Brown, the Engineering, Science, and Technology Entrepreneurship Excellence Program (ESTEEM) at Notre Dame, and led Notre Dame's California initiative in Silicon Valley. At Miami, our focus is not only on graduating great students who find great jobs but also on graduating great entrepreneurs who create tens, hundreds, or thousands of great jobs.

Small Town/Business Ecosystem.

Today, I am going to describe Miami University's vision for an innovation pipeline for moving students and graduates from the university to small businesses. I am going to speak to the importance of creating and developing talent and retaining some of that talent in small-town and rural America so that those places fully participate in the economic revival underway in our urban core.

As a public university, we believe our service to the state and nation starts at home. Oxford is recognized as one of the greatest college towns in America, but like many rural communities across America, it is facing huge challenges from dislocations in the global economy. Fifteen years after Thomas Friedman famously declared "the world is flat," the effect of that shift is crushing many of our once thriving and idyllic rural communities. Building an innovation pipeline that moves talented students and graduates from university to small businesses in rural communities is a primary focus for Miami University and our rural community.

In Oxford, Ohio, we seek to create a vibrant, innovative, and forward-looking organization, comprising constituents from Miami University, the City of Oxford, and local small businesses. All working collaboratively to advance ideas, inventions and innovations with real economic value to the market place. I will share with you how we intend to accomplish this in an iconic small town with resources and assets similar to rural communities across the country. This strategy, built in collaboration with the City of Oxford and our rural stakeholders, will restore economic viability to our community and serve as a model for small towns across rural America. This work is in progress – and it is making progress.

“Pulling” Innovation into the Ecosystem.

The Pull Strategy: While most universities concentrate on pushing out the intellectual property (IP) they discover, Miami has added an approach that pulls in IP from outside partners. We take idle IP from companies and national labs and develop it further right in Oxford, Ohio, with the intention of applying it for commercial and social benefit. For example, patents developed at Wright-Patterson Air Force Base were shared with us to see whether we could discover uses for dormant or small-scale ideas.

More “Shots on Goal” & More Ideas: Our “pull strategy” provides our students with great practical experience in examining idle IP for ideas, strategies, development and promotion into new technology, products, services, or for the creation of new ventures. It also provides our students the opportunity to learn the art of de-risking an idea. The more students and faculty involved with the pull strategy the greater the number of idle IPs we can examine and the more ideas we can take through the de-risking process.

Ohio’s IP Promise: Complementing our pull strategy, the State of Ohio has developed a statewide IP “push strategy” called the Ohio IP Promise. All Ohio public universities have united in the Ohio IP Promise. The IP Promise establishes a uniform set of guiding principles so researchers know exactly how they can take charge of their work and make it available to the public and so the public knows exactly how they can access university intellectual property. Now, even small companies in rural towns can have access to powerful university ideas.

Educating Innovators for Innovation.

Whether physically located in a rural community or an urban core, universities are crucial in creating the talent that will flow through the innovation pipeline. At Miami University, we develop talent by, among other things, providing our students:

- **Humanics** – offering in-demand programs in the areas of healthcare and health sciences, engineering, automation and robotics, and data and analytics that address the human factor while tackling societal challenges. All of which move us toward providing our students with quantitative acumen, humanities acumen, and scientific acumen. Overall, we strive to instill an entrepreneurial mindset in our students, i.e. “Robot-proof” them for the 4.0 Emerging Industrial Revolution.
- **Open-Ended Experiences** – opportunities to experience the messy, complex, sometimes risky, tension-filled aspect of the compromise-driven world of real business and value creation through project work, internships, and employment.
- **Working hand in hand with small businesses and industry**, Miami University educates workforce-ready graduates. We complement our students’ humanics and open-ended experiences with intense career advising. Advising is offered early, often, and at a high level for every Miami student.

Humanics: College graduates must be able to address today’s problems as well as tomorrow’s unidentified challenges. They must be educated in quantitative acumen – data, humanities acumen – the human aspect, and scientific acumen – technology. At its core, to be “Robot-proof” means to understand that simply because data and technology can do something, one should appreciate the value of questioning whether that thing should be done.

Dealing with Ambiguity & Learning to Fail Successfully: Developing talent with an entrepreneurial mindset is where Miami excels. Our motto is learn by doing, grow through experience, and improve with practice.

Just last year, more than 4,000 students from across every major took an entrepreneurship class – creativity at work and how to create value. We have programs around the country and internationally where our students learn through practicing entrepreneurship – Silicon Valley is one example where our students intern with some of the world’s most innovative companies. Additional internship opportunities are available through our entrepreneurship intern program where we place students in startups during the summer.

Working Hand in Hand with Small Businesses and Industry: Through our Work+ Program, students can receive a debt-free education. Students in the program work 24 hours a week at a company – for example, thyssenkrupp Bilstein’s Industry 4.0 – and get a paycheck while the company pays their tuition.

All of these experiential engagement opportunities make Miami graduates ready to create value, start companies, participate in new-collar jobs, not just blue-collar or white-collar jobs. Miami has had great success in moving students and alumni through the innovation pipeline from the university setting to small businesses and beyond:

- Some, 1,500 Miami alumni on the social network LinkedIn currently self-identify their jobs as a founder or co-founder;
- More than \$2B in venture funding has been raised by Miami-affiliated high-growth companies since 2011; and
- 94 Miami-affiliated high-growth companies have exited through acquisition since 2011.

Unfortunately, these graduates often head to the east and west coasts, to the most innovative places in the world – Silicon Valley, Austin, Chicago, Cincinnati, and Route 128 in Boston.

Keeping Innovators & Innovation Home in Rural Communities.

Imagine the impact on small town America if some college graduates trained in technology, innovation, and entrepreneurship, set up shop in rural American towns like Oxford, Ohio. Innovation has brought our urban cores roaring back, including in Ohio cities like Cincinnati, Columbus, and Cleveland, but we need to bring rural communities into the prosperity.

There is a need to recruit and retain talent in rural America. With technology and AI hitting all sectors of industry across the country, the United States needs to find a way to keep some of our most innovative thinkers in rural America. That’s our mission in Oxford. Our rural community wants to figure out how to keep some of Miami University’s brilliant minds in Oxford, and Butler County, Ohio. We need them owning homes, building small businesses, engaging civically, and contributing economically to our community.

Agriculture Department Report Cites Creatives Necessary for Rural Innovation: A Department of Agriculture Economic Research Service study by Tim Wojan revealed that creativity and innovation are key to how rural America innovates. “Ultimately, Wojan and [his] colleagues’ analysis find a strong statistical association between the arts, innovation, and economic dynamism in rural areas,” reports Richard Florida in “The Rise of the Rural Creativity Class” (2018).¹ “And this leads them to conclude that the arts are a direct force in rural innovation, not just an indirect factor that helps to attract and retain talent for all

¹ https://getpocket.com/explore/item/the-rise-of-the-rural-creativity-class?utm_source=pocket-newtab

industries.” Wojan’s studies demonstrate the possibilities in general, and our community would like to demonstrate the possibilities in particular.

Our aim is to establish a hub of creativity and innovation, imagination and design, art and science. We are developing a city block in Oxford that unites creativity with technology. We believe the unity and collaboration of a full range of human endeavor, including technology, arts, commerce, entrepreneurship, and environmental stewardship will empower renewal and prosperity for our community and beyond.

Oxford Advances Creatives First: A key component of Wojan’s studies is the presence of a strong arts community. Our city has a wonderful arts community and a vibrant Arts Center. Our first phase is the identification and exploration of the creatives – artistic entrepreneurs and sole proprietors in architecture, music, painting, photography, sculpting, and dance that occupy the Arts Center – as well as the arts infrastructure provided gratis by Miami University (the Arts Center and the natural park area located directly behind the Arts Center).

Next Phase – Technology, Entrepreneurship, Creative, Hub: Our next phase will focus on the development of the technical portion of the project, the recruitment of individuals and companies and the rehabilitation of a structure for infrastructure purposes. We believe that we can be successful in recruiting tech-minded individuals by leveraging the big ideas that come out of the university and focusing on recruiting companies who want proximity to our top-tier talent as well as startups. We have identified space in a vacant 400,000 square foot Miami University-owned building, located directly across the street from the Arts Center. This former food preparation facility, with multiple floors of wide-open space, is ideal for incubator-type activity and for forming an innovation hub where scientists, engineers, and entrepreneurs can collaborate in coworking spaces, sharing ideas and creativity, ingenuity and design, and so much more.

Phase three will consist of the full integration of the creatives and the tech portion. Together the Arts Center, the natural park area, the anticipated innovation and entrepreneurship building, and the Oxford Municipal Building (housing the city’s administration and economic development offices), located across the street from the Arts Center, will comprise the Technology, Entrepreneurship, Creativity, Hub Corridor (the TECH Corridor).

The TECH Corridor would be one of the first of its kind established in an Ohio – and American – rural community to foster such collaborations and converge expertise across disciplines. The TECH Corridor proposed here is novel in several ways:

- It is situated in a rural community facing the struggles with the new world order;
- It is in close proximity with an institution of higher education;
- It consists of an entire block of infrastructure where technology and the arts co-exist and thrive together;
- It contains a broader vision and engagement strategy than one sees at most incubator sites; and
- It has a park amenity where creatives and investors can find refreshing green space for reflection, contemplation, and discovery. Research shows that such green space elevates creativity and cognitive processes.²

² <https://bjsm.bmj.com/content/49/4/272?sid=56b97a4c-0e75-46d0-a6ba-41c7f41a089c>;

We can capitalize on our existing Miami University investment in the Oxford Community Art Center, and utilize their creativity constituents to work side-by-side with scientists, engineers, business professors, and entrepreneurs on this rare block with a park and new amphitheater and the Oxford Municipal Building across the street. We are ready to leverage this promising convergence of circumstances and infrastructure for the good of our University, our community, our state, and our nation.

Current & Future Strategies.

One big necessity in rural communities is to stay connected with other cities, the urban core within the region, and the world.

Stay Connected to Cities: In today's world, rural communities need the urban core and the urban core needs rural communities. At Miami University, we are active in the Greater Cincinnati region's economic development efforts as a member of the Regional Economic Development Initiative (REDI Cincinnati). I serve on the board of Cintrifuse, an incubator and accelerator dedicated to creating a stronger technology presence in the Greater Cincinnati region. Our students regularly participate in the #StartupCincy entrepreneurial ecosystem interning at Cintrifuse, early stage investors CincyTech and Queen City Angels, a variety of accelerators, and tech companies such as the Brandery, 84.51, Frameri, and Roadtrippers, to name a few.

Stay Connected to the World: Oxford has a sister city in Differdange, Luxembourg, and Miami has a learning center there. Once a steel country, Luxembourg is now the heart of Europe for finance and creativity. While Differdange once had large blast furnaces, it now supports business incubators.³ There are lessons to be learned from how Differdange and Luxembourg reinvented themselves.

Stay Connected to Each Other. Small towns and universities located in them are inseparable. Each entity must collaborate and connect with the other. The success of one hinges on the success of the other. If you represent rural communities without a university, please adopt us – Miami University and Oxford, Ohio, are open for business! Jessica Greene, the Assistant City Manager for Oxford, is here with me today and we would love to talk with you after the hearing.

Grateful & Thank You!

Thank you for your time today. I am honored to present to the House Subcommittee on Innovation and Workforce Development. I am the son of parents who lived the American Dream. Neither went to college – I am first-generation. My Dad is a veteran & retired air traffic controller who worked for the federal government for 36.5 years. My mother worked in retail. Their dream was simple – for their children to go to college – they made it possible.

I feel fortunate everyday as a university president to extend their dream to tens of thousands of others in our state and nation, educating them to be great honorable citizens, leaders, innovators, entrepreneurs, and creators. When we bring together good people and good ideas, we will elevate the quality of life for

³<https://blog.pwc.lu/luxembourg-become-hottest-startup-scene/>

everyone in our nation, in the small towns and countryside as well as the big cities. We can and will be great everywhere when we work together as one.

TECH CORRIDOR AERIAL VIEW

