

Congressional Field Hearing 8-5-2013 at Binghamton University  
*Higher Education and Entrepreneurship:*  
*How Partnerships between Universities and Small Business Can Grow Jobs*  
Congressman Richard Hanna

**Testimony provided by: Binghamton University Vice President for Research Bahgat Sammakia**

I want to welcome you all to the Binghamton University campus, specifically our Innovative Technologies Complex. When we were asked to host this event, we thought this location would be the perfect setting for the topic addressed by this hearing. Exciting things are happening here at the University, many of them right inside the walls of these buildings.

You have asked me to testify about the role higher education can play in helping small businesses advance technologies and create jobs. Binghamton University has a long history as well as a strong reputation for working with companies large and small. We also work closely with governments both large and small. We play a vital role in transferring the knowledge and innovations created and developed on our campus to the broader community.

We have partnerships with large corporations such as IBM, GE, Microsoft, Analog Devices, Corning and BAE, which has a large presence right here in Greater Binghamton. These are just a few examples. But just as important, we have partnerships with smaller companies such as Sonostics, which is growing a company right here in Binghamton with technology that was born at our university. We also work closely with a small firm in Oneonta, Custom Electronics Inc., to improve ultra-capacitor technology. Again, these are just a few examples of our relationships with small business and the types of technology research we are committed to developing.

Before getting too far into the discussion of our role promoting small business growth, I want to take a few moments to talk about the University and its vision and mission. Our president, Harvey Stenger, has a vision for the University to become the premier public university of the 21<sup>st</sup> century. It is our mission in the research division to support that vision. We wholeheartedly support it because it is a vision of excellence. One of the main initiatives under our new Road Map strategic plan is to be an institution that is path-breaking in its academic and research pursuits.

As I stated, our academic institution has a strong reputation for research and collaboration with the private sector. When talking about the work we do, I always want to make the point that we here at the University have scientists and engineers who make important discoveries and develop technologies that will have a positive impact on society.

Why do we believe this to be true? It is because this campus is grounded in the humanities and social sciences. Those who do not plant their feet on this foundation of liberal arts can still make important discoveries, but they may not be ones that are right from a societal perspective. So again, while we make it a priority to focus on research, innovation, technology transfer and job creation, and we are successful in all of these important endeavors, we believe that what sets us apart is our history of excellence in these areas.

While Binghamton University works well with private industry and small business, we know we can get better, and we will get better. Under the guidance of President Stenger's Road Map and with the help of our NYSUNY 2020 Challenge Grant, we expect to strengthen our research efforts. It is with additional research faculty that our research and its impact on society and our economy will grow.

During the next several years, we anticipate hiring an additional 150 faculty members. Those hires will be targeted in strategic areas where we already have a record of success: smart energy, neuroscience, molecular biology, computer science, nursing and bioengineering, just to name a few. The increase in faculty will allow us to reduce the student/faculty ratio and enable us to close the gap between Binghamton and other top schools in the areas of research and graduate education, which are among the biggest challenges we face in our quest to become the premier public university.

We also face other significant challenges in our research efforts on campus. As you most certainly are aware, the federal agencies that support a good portion of our research dollars, notably the National Institutes of Health and the National Science Foundation, have seen their funding stay flat or cut in recent years. Without the government's investment in R&D, we cannot be successful. In fact, we saw the first-ever dip in our overall research funding this year after two decades of steady growth.

We understand the economic climate and we recognize the challenges our leaders face in Washington. But we also know that a renewed focus on support for R&D and on higher education is a wise investment. "Science is not a luxury," the late John Marburger III, former science advisor to President George W. Bush and then-vice president for research at Stony Brook University, wrote in 2011. "Economists estimate that approximately half of post-WWII economic growth is directly attributable to R&D-fueled technological progress."

We are good stewards of the money we receive. With our Road Map strategic plan, our research efforts will become even more focused and we will identify new ways to build multidisciplinary collaborations for the good of society. Binghamton will make key contributions to innovations in smart energy, health sciences and other fields. We are also exploring the possibility of creating a pharmacy school.

So how do we get our research to market? How do we transfer technology created on campus into jobs out in the real world? Our University's staff works closely with researchers on campus and provides technology, education, business and law support.

Also at the top of our toolbox is the commitment to foster an entrepreneurial spirit. That spirit is across campus, not just in our scientists and engineers but in all of our students, both graduate and undergraduate. Building Binghamton University's entrepreneurial ecosystem is at the heart of everything we do.

One of our most effective tools is our Office of Entrepreneurship and Innovation Partnerships. In this office, our staff has worked with faculty to build portfolios of intellectual property. Not all of our intellectual property is patented, of course, but we have patented a number of innovations. This is a complicated process that can take as long as seven years. And, again, that is just the patent phase. From there, it can take several more years to develop a meaningful product or service for industrial purposes and the commercial market.

When faculty, students or staff create an innovative process or product, the Office of Entrepreneurship and Innovation Partnerships serves as the campus resource to help assess, protect and leverage the underlying intellectual property rights. And while we have experienced many successes with bringing research on campus to the commercial market, we still experience gaps in support, especially at the proof-of-concept stage.

That is where additional state and federal resources could provide a tremendous bridge to help us connect the invention in a lab to the eventual launch of a company — a company that will create new products and, just as important, jobs for our community.

Just as we must reinvest in R&D, we also need to strengthen our commitment to education in the STEM disciplines: science, technology, engineering and mathematics. It is truly the only way to prepare the next generation of Americans and American companies for what we know will be a global race for prosperity and security.

In my travels to places such as India, Korea, Hong Kong and Taiwan, I have seen excellent models of infrastructure that supports scientists, industry and education. The exciting new National Network for Manufacturing Innovation (NNMI) program appears to be a step in the right direction as we strive to build manufacturing research that leads directly and quickly to job creation. Binghamton is participating in two proposals for this federal program, which brings universities and companies together in a meaningful way.

Another way we as a University hope to bridge the gap between mind and marketplace is by developing a high-technology incubator. President Stenger's proposed incubator has received priority support from New York State's Regional Economic Development Council as well as crucial funding from the federal government's Economic Development Administration.

Binghamton University and the regional economic development community plan to build the incubator in downtown Binghamton to provide a unique entrepreneurial ecosystem for emerging companies. The Hawley Street facility will foster innovation, commercialization and job creation through collaborative efforts of academic, industry and government partners.

There is no facility in the region suited to new high-tech companies. Creating this infrastructure will ensure the region reaps the benefits of federal and state investments in the knowledge-based economy. The incubator will enable emerging companies to grow and relocate in the community.

Opportunities include access to a university-based skilled workforce and university staff charged with building relationships with industry; university multi-user facilities; human resource programs such as internships and co-ops; and university technology transfer and commercialization offices. The private-sector investment community will be encouraged to have a presence at the incubator as well.

Initiatives at the University, including the proposed Southern Tier High-Technology Incubator and the Center of Excellence in Small Scale Systems Integration and Packaging, provide stability to the region and an added boost to the regional and state economies.

I wanted to touch on two important federally funded programs also administered by our Office of Entrepreneurship and Innovative Partnerships; the Small Business Innovation Research Program and the Small Business Technology Transfer Research Program. As you all know, these two programs help the University help many small businesses in our region. They are at the heart of what this entire discussion today is about — our University using valuable resources like the ones provided by SBIR and STTR to encourage the conversion of government funded research into commercial applications.

Utilizing these programs, our University has been able to partner with and assist about a dozen companies since 2005. We are currently focusing on internal efforts to leverage these programs even more and identify additional companies in our region that can be helped by the resources provided by SBIR and STTR.

Additionally, the Small Business Development Center, a SBA-sponsored program administered by the University, assists entrepreneurs, business and industry in developing solutions for their problems. This leads to increased profitability for the entrepreneur and increased investment and job creation for the community. By assisting new and existing small business firms, the SBDC contributes to the stability and growth of the small business sector in the region.

Since its start in 1984, the expert advisors of the Binghamton SBDC have worked directly with 13,365 businesses, helping them to invest \$189,621,041 in the area's economy, and create or save 10,530 jobs.

Before wrapping up, I want to share with you a few statistics that underscore the University's influence on this region and its economic vitality. Our most recent study indicates this University's economic impact at approximately \$965 million annually for Broome and Tioga counties alone, and \$1.2 billion for New York State.

Based on fiscal year 2011 — the most recent numbers available — Binghamton University accounts for an estimated 12 percent of the gross domestic product of Broome and Tioga counties through its direct and indirect expenditures, including salaries, goods and services, capital outlays, and student and visitor spending, which total over \$622 million. When applied to the Binghamton Metropolitan Area regional multiplier, this \$622 million grows to \$965 million in total annual economic impact for the region.

In terms of jobs, Binghamton University employs nearly 5,000 faculty, staff and student workers, and supports an additional 5,500 full- and part-time jobs in Broome and Tioga counties, and 225 full- and part-time jobs beyond the region, for a total of 11,000 jobs in New York State.

As you can see, our reach is enormous and our impact impressive. We stand ready to continue to be that driving economic force for our community and an important resource for businesses across the country. With your support, we can continue to do great things: educate our students, make discoveries and create technology.

Thank you again for allowing me this opportunity to address you today as part of this field hearing. And thank you for choosing our campus to host this event. Binghamton University is proud of its academic reputation, our research accomplishments and all of our facilities on the main campus, downtown and here at the ITC. We are always eager to partner with our representatives in government and collaborate with the leading minds in commerce. If there is any additional information you require from us, please do not hesitate to ask.

Thank you!

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