

2013-14 Executive Budget Testimony
Economic Development
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Good afternoon. My name is Alexander Cartwright and I am the Vice President for Research and Economic Development at the University at Buffalo of the State University of New York. I am also a Professor of Electrical Engineering in UB's School of Engineering and Applied Sciences. I appreciate the opportunity to speak to you today about UB's economic development work and the university's increasing role in growing Western New York's economy.

I want to thank committee Chairs John DeFrancisco, David Valesky, Herman Farrell and, of course, Robin Schimming; ranking member Senator Tim Kennedy; their Senate and Assembly colleagues; and legislative staff for the opportunity to speak today.

SUNY Chancellor Nancy Zimpher testified yesterday about the 2013-2014 Executive Budget and what it means for the state university system. As Chancellor Zimpher testified, SUNY is poised to partner with and deliver on what Governor Cuomo described in his State of the State address through tech transfer from academia to commercialization; to Innovation Hot spots; to creating an Innovation NY Network, and an Innovation Venture Capital Fund. I would be remiss if I did not speak to the ways in which UB in particular, and the Centers of Excellence program in general, help SUNY deliver on these exciting opportunities.

As our Vice President for Research and Economic Development, I have also been working with Research Foundation for SUNY president Dr. Tim Killeen to identify other ways that SUNY universities can deliver economic impact to our communities. The universities are home to significant assets and expertise that when appropriately channeled, as with the Centers of Excellence program, can make major contributions to economic development.

First, let me speak generally to what UB – as a premier, public, research-intensive university – does for our community.

- Public research institutions educate students for today's – and tomorrow's – knowledge economy;
- Public research institutions innovate;
- Public research institutions provide a home to innovators and entrepreneurs who want to help their communities;
- And most importantly, public research institutions create jobs through innovation, education, and creativity.
- The State University of New York is a model state university system that delivers on these commitments to our communities – and the University at Buffalo is strategically aligned with this mission.

I am here today to speak to you about ways in which the University at Buffalo is a key contributor to our region's development – and how we can do even more through targeted investment in the New York State Centers of Excellence program.

The University at Buffalo is a premier, public, research-intensive university. While focused on education, UB – like all research intensive universities – also plays a significant role in regional economic development. We do this primarily through innovation and job creation. Our cutting-edge research enables UB to play a key role in developing technologies, launching startup companies, and supporting the region's economic diversification and high-wage job growth.

We are proud of the strides we have made in orienting our activities to positively impact the Western New York economy. Our contributions have been made possible, in large part, through our partnership with New York State and the support that you and your colleagues have provided to date.

Specifically, I want to thank you for our two New York State Centers of Excellence. One, in Bioinformatics & Life Sciences, was among the original Centers named in 2001 when the program was introduced. The other is in Materials Informatics, and was designated last year. Buffalo has these Centers – these engines for our region’s economy – thanks in large part to the leadership and advocacy of many in this room today. We are honored to have been entrusted with two Centers of Excellence.

The Centers of Excellence program is the vehicle we need to harness our research capabilities and ideas and translate them into economic impact. We have the expertise to innovate. The program ensures that we are focused outward, working with companies to meet their R&D challenges, enabling private-sector growth, and – ultimately – creating jobs.

The Centers have also given us a unique opportunity to expose students to the ways in which university-based research benefits private-sector interests. We are essentially training the next generation of entrepreneurs, and we want to increase this capacity to produce ever larger numbers of entrepreneurs and innovators – creative thinkers who can add significant value to our region’s economic future. Something that sets our Center of Excellence in Bioinformatics and Life Sciences apart from other university facilities is its culture of entrepreneurship and outward orientation that encourages direct interaction with companies.

Since its launch in 2001, the New York State Center of Excellence in Bioinformatics and Life Sciences, which opened the doors of its new facility on the Buffalo Niagara Medical Campus in downtown Buffalo in 2006, has made many noteworthy contributions to our community. Among these are:

- Playing a key role in the creation and retention of over 5,000 jobs
- Spurring, on average, 5-to-10 new life sciences company a year
- Obtaining over \$130M in follow-on research funding
- Yielding an over 30-to-1 economic impact via technology development projects
- Collaborating with economic development partners to attract six companies to our region
- Launching a collaborative, inter-institutional personalized medicine consortium
- Reaching thousands of individuals a year through education, programming, and networking activities, including the iSciWNY program, and
- Obtaining three regional awards of \$1.5M from the federal Economic Development Administration for technology-based economic development.

The Center of Excellence is home to over 250 scientists and research staff with biological, physical, and computational expertise, all of whom are engaged in interdisciplinary translational research with collaborators from throughout the region, across the country, and around the globe. We leverage Buffalo Niagara’s life sciences expertise and commercialization partners to create world-class interdisciplinary research resources, including faculty, equipment, and facilities that drive innovation and promote economic development.

Arguably one of the Center’s most significant contributions has been through its location downtown on the Buffalo Niagara Medical Campus as the university’s first building on the campus, which has resulted in significant follow on investment and development from UB as well as our research, clinical, and industry partners. The culmination of this critical mass has been the decision to move our School of Medicine and Biomedical Sciences to the downtown

medical campus. We are pleased to be working with the WNY delegation and many of the leaders here today to realize this vision that we know serves the best interests of the entire Buffalo Niagara community.

Our new Center of Excellence in Materials Informatics aligns with New York State's efforts to help new and existing businesses become more competitive through technological innovation. The Center also complements the Western New York Regional Economic Development Council's economic development strategies.

The new Center expands on UB's expertise in materials science and informatics to drive innovation and R&D to grow critical industries such as advanced manufacturing, life sciences, and energy. Fostering private-sector collaboration across a range of industries, the Center will give Western New York companies a competitive advantage, create high-technology jobs, and attract new industries to the region.

UB is making significant investments in materials informatics. The university is uniquely positioned to play a leadership role in this field on the national and international stages. We currently have 50 faculty members engaged in materials science research who have extensive funding from federal agencies and private industry. These faculty are already working on exciting innovations with broad applications, from smart windows designed for energy efficiency to new techniques for rust-proofing steel, longer-lasting and safer hip implants, and shape-shifting materials research funded by the United States Air Force. And thanks to NY SUNY2020, UB will be hiring upwards of 25 new faculty members who specialize in materials science research, and who will add depth and breadth to UB's existing expertise in materials science. They will be recruited across disciplines vital to advancing innovation including engineering, physics, chemistry, medicine, and computer science.

With the \$200,000 in start-up funds received from the state last year to help launch our Center for Materials Informatics, we have hired a full time business development officer from the private sector who is working with companies to maximize the Center's value to industry. Our corporate partners are repeatedly telling us that what we intend to offer will be of value to them and will help us succeed in meeting our initial objectives of:

- Capturing outsourced business
- Accelerating new product and new market development
- Facilitating start-ups and supporting early stage companies
- Becoming the "go to" for existing medium and large materials firms, and
- Assisting company co-location and re-location efforts

There is no question that these are exciting times full of opportunity for Western New York's economy. However, our ability to positively – **and sustainably** – impact economic development is hindered should we not continue to receive critical operating funds from New York State.

I am here to advocate for increased funding for the New York State Centers of Excellence program. Many of you have worked with the Centers across the state over the years to ensure continued operational funds, which are key to our activities. The Centers of Excellence program is rooted in the belief that by strengthening the research and technology capabilities of our universities and colleges – investing in core competencies and strengths at the local level – we will create the intellectual capacity that drives high-technology growth across the state.

You just heard a few moments ago about some of the contributions that our Center of Excellence in Bioinformatics and Life Sciences has made to the regional economy. This important work is not possible without basic operational support from the state. We have seen the level of this support decrease over the years, but I must emphasize that these funds are critical, and it yields – dollar for dollar – some of the best return on investment that the state receives.

Public research institutions have a unique mission. Due in large part to the investment made by our states, it is understood that public research institutions will deliver on vital programs important to regional and state communities. But without adequate resources, we cannot properly innovate and in turn deliver on these expectations.

While I do not presume to speak for all of the Centers of Excellence, I can tell you that we are collaboratively requesting \$1M in operating funds for each of Centers in this year's budget. The first year the Centers received operating dollars from the state, each one was awarded \$1.4M. Please note that this amount does not cover the total costs of running a center, but provides crucial assistance in our efforts to operate top-notch innovative facilities, which benefit industrial partnerships in each of our regions.

This year's Executive Budget proposal provides Buffalo with \$872,000 in operating funds to be shared between the two centers. This was the level of funding received by the Bioinformatics and Life Sciences center alone last year – and note that this level of funding is decreased from the original investment of \$1.4M. In order to fulfill our vision, which is closely aligned with the state's strategies, and to continue to build on our successes, more funds are needed. I urge you to please increase the allocations for the Centers of Excellence across the state and fund each center at the \$1M level.

We are also requesting \$50 million in capital funding for a new facility for our Center of Excellence in Materials Informatics. A new state-of-the-art facility for research is necessary in order to achieve our goals. It would provide testing spaces for industry partners, accelerate the transfer of technology to local industry, as well as draw faculty, students, and industries to our region. In addition, it will put UB on the cutting-edge nationally, allowing the university to attract additional federal funding.

We have a planning team talking now about the array of issues involved in determining an optimal site for the new facility. They are considering all the elements involved—from the research, education, and training to private sector collaborations—to ensure that the facility is located in an optimal place.

Thank you for your time this afternoon and for giving me this opportunity to speak with you about the New York State Centers of Excellence in Bioinformatics and Life Sciences, and Materials Informatics. I am happy to answer any questions you may have.