
Center of Excellence in Materials Informatics (CMI)

Buffalo Institute for Genomics and Data Analytics (BIG)

Center for Advanced Technology in Big Data and Health Sciences (UB CAT)

START-UP NY

Center of Excellence in Bioinformatics and Life Sciences (CBLIS)

University at Buffalo Business and Entrepreneur Partnerships

WIN. WIN. WIN.
It’s a win for industry.

It’s a win for UB.

It’s a win for the region and beyond.
10 Where it happens

6 How we build winning partnerships

26 What winning partnerships look like
UB Business and Entrepreneur Partnerships

6 How we build winning partnerships

10 Where it happens

26 What winning partnerships look like

40 What goes in to measuring the impacts

42 WIN. WIN. WIN.

46 Appendix
How we build winning partnerships

Together we work to earn everyday victories thanks to our business-friendly approach.

Connect.
Engage faculty and students with industry to collaborate on research, business development and experiential learning.

Commercialize.
Support the commercialization of inventions to drive them from idea to market.

Grow.
Enable NYS startups and existing businesses to grow.
To talent, state-of-the-art equipment, and world-class researchers.

With business expertise, entrepreneurial support and funds.

By leveraging resources and knowledge from UB.

The University at Buffalo’s Business and Entrepreneur Partnerships team, a division of the Office of Research & Economic Development, works to enable and nurture the innovation economy. We serve as the bridge between academia and industry supporting partnerships to commercialize new technology, advance existing technology and provide pathways for students to experiential learning and jobs. With new programs, policies and incentives focused on facilitating industry engagement and technology commercialization, we make it easy to partner — a win-win for all involved.

Our centers and programs

Center of Excellence in Bioinformatics and Life Sciences (CBLS)

Center of Excellence in Materials Informatics (CMI)

Center for Computational Research (CCR), NYS High Performance Computing Consortium

Center for Advanced Technology in Big Data and Health Sciences (UB CAT)

Buffalo Institute for Genomics and Data Analytics (BIG)

WNY Incubator Network (WIN), NYS Innovation Hot Spot

START-UP NY
Hundreds of companies have partnered with us to connect, commercialize and grow their business...

...with plenty of everyday victories along the way.

No matter the size, age or industry, we want to see our partners succeed. For some companies that means connecting them to equipment and facilities, for others it’s helping them advance their technology products through faculty expertise.

Many of our industry partners are young.

INDUSTRY PARTNERS BY AGE

- Less than a year - 4 yrs: 114
- 5 - 19 yrs: 148
- 20 - 99 yrs: 47
- 100+ yrs: 12

Most of our partner companies are small to mid-sized.

INDUSTRY PARTNERS BY NUMBER OF EMPLOYEES

- 1-4: 141
- 5-9: 52
- 10-19: 32
- 20-49: 16
- 50-99: 19
- 100-199: 13
- 200-499: 10
- 500-999: 4
- 1,000-4,999: 6
- 5,000-9,999: 2
- 10,000-49,000: 5
- 50,000+: 2
We help companies across sectors, especially in manufacturing.

The majority of our industry partners are privately owned.

INDUSTRY PARTNERS BY INDUSTRY

118 Manufacturing

76 Scientific & Technical

64 Therapeutic, Diagnostics, Medical Device

25 Information Services & Computer Software

16 Software Applications & Data Analytics

INDUSTRY PARTNERS BY LOCATION

WNY 60%

NYS, OUTSIDE WNY 20%

US, OUTSIDE NYS 13%

OUTSIDE US 7%

Our industry partners are primarily in NYS, with more than half in WNY.

WIN. WIN. WIN. | UB Business and Entrepreneur Partnerships Impact Study 2017

Data Source: Data on companies reflects findings from a company partner survey conducted in 2017 for the 2016-2017 fiscal year. Data from D&B Hoovers and Infogroup Inc. was also used to supplement survey findings.
Where it happens

Our centers, programs and people. Ready to win you over.

We can connect you to faculty expertise, cutting edge technology, incubation space, mentoring, funding resources and networking to grow your business.

Center of Excellence in Bioinformatics and Life Sciences (CBLS)

Center of Excellence in Materials Informatics (CMI)

Center for Computational Research (CCR)

Center for Advanced Technology in Big Data and Health Sciences (UB CAT)
When you win, we win.
Ready for a victory?

Buffalo Institute for Genomics and Data Analytics (BIG)

WNY Incubator Network (WIN)

START-UP NY
Center of Excellence in Bioinformatics and Life Sciences (CBLS)

We’re on a mission to foster new biomedical discoveries by connecting academia and industry.

CBLS is a catalyst for life sciences innovation and commercialization. Our assets include faculty and staff and some of the latest equipment and technology in the Western New York region for research, including the Center for Computational Research, the Genomics and Bioinformatics Core, and the Proteomics and Bioanalysis Core. It is a hub for the region’s growing life sciences industry cluster and supports the entrepreneurial ecosystem while cultivating collaborative opportunities among UB faculty, students, clinicians and industry. The Center is a focal point for our startup community and welcomes those with new ideas looking to engage with the university. It also serves as a hub for students exploring STEM through K-12 outreach programs. CBLS is one of 12 New York State Centers of Excellence.

Connect to Expertise, Equipment and Facilities
- 25,000 square feet of BSL2 lab space
- Industrial chemistry hoods
- Genomics and Bioinformatics Core
- Proteomics and Bioanalysis Core
- ISO 7 Certified Clean Room
- Shared Equipment and Software
- High-Performance Computing
- START-UP NY Designated Space

From mature companies to innovative startups, some of the world’s leading life sciences companies choose to partner with CBLS.
What winning partnerships with industry looked like in fiscal year 2016-17:

<table>
<thead>
<tr>
<th>A WIN FOR INDUSTRY</th>
<th>A WIN FOR NYS</th>
<th>A WIN FOR UB</th>
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<tr>
<td><strong>$41.9M</strong>&lt;br&gt;Funding Raised (from federal, state or non-governmental funds)</td>
<td><strong>Total Employment in NYS</strong>&lt;br&gt;1,087 jobs Including <strong>239 new jobs</strong></td>
<td>Faculty gain access to industry resources, knowledge and critical collaboration that drives breakthroughs for licensing or investment. Students gain hands-on experience, preparing them for the workforce.</td>
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<tr>
<td><strong>$23.2M</strong>&lt;br&gt;Spending in NYS</td>
<td><strong>$23.2M</strong>&lt;br&gt;Spending in NYS</td>
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Source: Data reflects findings from a survey of 42 company partners conducted in 2017 that collected economic impact data for the 2016-17 fiscal year relating to their interaction with UB Business and Entrepreneurship Partnerships’ centers and programs.

Funding Raised reflects the total federal, state, or non-governmental funding raised by companies (not including revenue from the sale of goods or services). Jobs Supported reflects full-time equivalent employment at industry partners who are living in New York State. (1 full time job = 1 FTE, 1 part time job = 0.5 FTE) New Jobs reflect permanent, full-time positions created as a result of business expansion resulting from UB program efforts. Spending in NYS reflects estimated spending by industry partners on the purchase of goods and services in NYS excluding payroll.
Companies collaborate with CMI to solve R&D problems, discover new materials and processing methods and create high-technology jobs.

We’re on a mission to leverage innovative materials science, big data analytics and advanced manufacturing expertise to drive critical research and development activities that support industry growth.

CMI is a network of over 100 UB faculty members engaged in innovative materials-related research with broad applications, including new techniques for 3D printing of metals, safer and longer lasting hip implants, low-cost solar cells and more. The Center’s scientists and engineers work directly with industry partners to solve R&D problems and discover new materials and processing methods. Through CMI, businesses have access to UB’s faculty expertise, advanced scientific and engineering equipment, funding resources and student interns. CMI is one of 12 New York State Centers of Excellence.

Connect to Expertise, Equipment and Facilities

- Shared Equipment and Software
- High-Performance Computing
- Research Areas
  - Biological and Biomedical Materials and Devices
  - Continuum and Multiscale Modeling
  - Data Analytics and Machine Learning
  - Digital and Additive Manufacturing
  - Inorganic Materials Synthesis and Processing
  - Materials Characterization and Spectroscopy
  - Photonic and Electronics Devices
  - Polymeric and Macromolecular Materials Synthesis and Processing
  - Quantum, Atomistic and Molecular Modeling
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<td><strong>$60.5M</strong> Funding Raised (from federal, state or non-governmental funds)</td>
<td><strong>129 jobs</strong> Total Employment in NYS Including <strong>31 new jobs</strong></td>
<td>Faculty become engaged in industrial research and development projects and build critical collaborations through seed grant projects that help faculty secure larger federal grants and sustained industrial support for research.</td>
</tr>
<tr>
<td></td>
<td><strong>Spending in NYS $11.6M</strong></td>
<td></td>
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<td>Source: Data reflects findings from a survey of 20 company partners conducted in 2017 that collected economic impact data for the 2016-17 fiscal year relating to their interaction with UB Business and Entrepreneurship Partnerships’ centers and programs. Funding Raised reflects the total federal, state, or non-governmental funding raised by companies (not including revenue from the sale of goods or services). Jobs Supported reflects full-time equivalent employment at industry partners who are living in New York State. (1 full time job=1 FTE, 1 part time job =0.5 FTE) New Jobs reflect permanent, full-time positions created as a result of business expansion resulting from UB program efforts. Spending in NYS reflects estimated spending by industry partners on the purchase of goods and services in NYS excluding payroll.</td>
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We’re on a mission to help companies grow by enabling data-driven discovery and analysis.

CCR maintains a world-class computing infrastructure for NYS companies and faculty. The Center’s computational scientists and software engineers are experts in modeling and simulation, software engineering, bioinformatics, machine learning, data analytics, parallel computing and medical visualization. CCR provides NYS businesses access to advanced computing resources to help them innovate, reduce time to market and support their R&D activities. The Center also offers educational programs like a summer workshop for high school students, and higher-level training in areas such as parallel computing, data analytics, R, and Python programming.

For expertise in advanced computing and data analytics, companies partner with CCR.

Connect to Expertise, Equipment and Facilities

Computing Resources & Infrastructure
Computational Scientists & Software Engineers
High-Performance Computing
High-Speed Networking
Modeling & Simulation
Machine Learning
Data Warehouse & Analytics
VADER SYSTEMS
3D printer manufacturer

By collaborating with UB, Vader Systems accessed expertise and state-of-the-art computational electromagnetic and fluid dynamic (CFD) modeling capabilities needed to help optimize performance of the Vader Systems 3D printer. The results generated include simulations to form 3D printed structures and new methods for monitoring and controlling the 3D printing process. This work has supported the creation and commercialization of the Vader Systems’ technology.

SENTIENT SCIENCE
Digital platforms used to enhance operational efficiencies

CCR is a key partner for Sentient Science, enabling the company to deploy their models and services to commercial and government customers. The Center provides access to its supercomputing infrastructure to host the computationally demanding DigitalClone models and run simulations, which allows Sentient Science to rapidly scale to meet increased commercial demand. This capability has led to a series of commercial tools and services to help manufacturers and operators of rotating equipment predict and extend their products’ life and performance.

What public-private partnership wins look like:
UB CAT provides matching grants for faculty and industry to collaborate on big data projects in health sciences.

NYS companies and UB researchers can partner to access funding for collaborative projects focused on the intersection of big data and health sciences. Applied research and R&D projects supported by the CAT enable industry partners to tap into UB’s outstanding faculty expertise and facilities to take their product or technology to the next step on the path to commercialization. In addition to projects related to healthcare IT, diagnostic, drug or medical device development, the CAT also facilitates programming geared toward entrepreneurs, workforce development, and technology transfer. The UB CAT is one of 15 competitively awarded Centers for Advanced Technology in New York State, dedicated to leveraging university resources to drive economic growth through strategic technology-based industry sectors.

Connect to the UB CAT Technology Focus Areas

Healthcare / IT
Diagnostics
Drug development
Medical device development

We’re on a mission to help NYS life sciences companies bring their technologies to market.
What winning partnerships with industry looked like in fiscal year 2016-17:

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<tr>
<td>$52.5M</td>
<td>Total Employment in NYS 403 jobs Including 114 new jobs</td>
<td></td>
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<tr>
<td>Funding Raised (from federal, state or non-governmental funds)</td>
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<td></td>
<td>Spending in NYS $20.4M</td>
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Source: Data reflects findings from a survey of 24 company partners conducted in 2017 that collected economic impact data for the 2016-17 fiscal year relating to their interaction with UB Business and Entrepreneurship Partnerships’ centers and programs.

Funding Raised reflects the total federal, state, or non-governmental funding raised by companies (not including revenue from the sale of goods or services). Jobs Supported reflects full-time equivalent employment at industry partners who are living in New York State. (1 full time job = 1 FTE, 1 part time job = 0.5 FTE) New Jobs reflect permanent, full-time positions created as a result of business expansion resulting from UB program efforts. Spending in NYS reflects estimated spending by industry partners on the purchase of goods and services in NYS excluding payroll.
From startups to large companies, BIG catalyzes growth by providing access to technical expertise, specialized equipment and data analysis capabilities.

We’re on a mission to put NYS at the center of the intersection of life sciences and big data by promoting public-private partnerships.

The Buffalo Institute for Genomics & Data Analytics (BIG) is a strategic economic development initiative supported by New York State. BIG catalyzes the growth of Buffalo-based big data and life sciences companies by partnering with industry interested in: a) externalizing specific R&D challenges to the most comprehensive research institution in the State of New York, b) accessing a high-performance computer at the Center for Computational Research and c) having BIG provide financing for equipment for an industry partners’ use. Current partners have engaged with BIG to develop machine-learning algorithms, run computationally intensive models and access UB’s biobank and sophisticated equipment in the proteomics and genomics cores. BIG enables partners to reach their next growth milestone at an accelerated pace.

BIG connects companies to expertise, specialized equipment and state-of-the-art facilities to enable growth.

- Genomics and Bioinformatics Core
- Proteomics and Bioanalysis Core
- Next Generation Sequencing
- High-Performance Computing
- High-Speed Networking
- Analysis of Large Volume Data
- Genomics Data Warehouse
What public-private partnership wins look like:

BIG provides customized solutions, access to expertise, research capabilities and supercomputing resources to advance new discoveries in biotech, pharma, and medicine to create rewarding, high-tech jobs in Western New York.

GARWOOD MEDICAL
Smart medical device manufacturer

Partnering with BIG provides the company with robust university engineering expertise to accelerate development and commercialization of its programmable, monitored medical devices. This partnership drives Garwood’s and UB’s technologies through development, by performing aspects of research, device modeling, rational product design and prototyping, verifications, validations and characterizations of the applications and imbedded technologies by leveraging high performance computing and bioinformatics.

CIRCUIT CLINICAL
Online clinical research site network

Partnering with BIG enables the company to expand its technology platform and enhance clinical trial opportunities throughout the Buffalo Niagara region. Circuit Clinical, a research site network dedicated to rapid, high-quality patient recruitment and enrollment, works to bring new patients and physicians into clinical trials. The process significantly improves outreach to doctors and their patients and simplifies enrollment and participation in trials.
Collaborating to expand entrepreneurial services across Western New York to help technology startups grow.

WIN (WNY Incubator Network) is a collaborative of business incubators that fosters startup growth through programs and services.

WIN, a NYS designated Hot Spot, supported by UB, provides connections and networking to spur startup growth. UB’s partner incubators in WIN share resources and best practices to produce custom programs for incubator companies. WIN offerings include: in-person and online programming to help companies prepare to raise capital (Pitch Prep); subsidies for incubator ventures to retain outside experts to lead them past significant development milestones (Embedded Consultants); a network of vetted, trusted service providers offering discounted rates to incubator companies (Deals & Discounts); a set of state incentives for early stage companies (Innovation Hot Spot Tax Incentives); and connections with outside experts to submit timely, high-quality proposals to relevant federal agencies (SBIR/STTR Assistance). WIN is an active partner in attracting other entrepreneurship programs to WNY, such as Critical Path Life Sciences Accelerator, UB’s I-Corps site program, and targeted programs for women and minority outreach.

WIN Incubator Partners

43 North (Buffalo)
The Thomas R. Beecher, Jr. Innovation Center (Buffalo)
Fredonia Technology Incubator (Dunkirk)
Harrison Place (Lockport)
Incubator Works (Alfred)
Olean Business Incubator (Olean)
UB BioSciences Incubator (Buffalo)
UB Technology Incubator (Amherst)
Z80 Labs (Buffalo)

WIN helps incubator companies grow, achieve greater profitability and become attractive to investors. Collectively, our incubators are home to more than 200 ventures, directly served by WIN programs.
What winning partnerships with industry looked like in fiscal year 2016-17:

**A WIN FOR INDUSTRY**

$44.9M

Funding Raised
(from federal, state or non-governmental funds)

**A WIN FOR NYS**

Total Employment in NYS
148 jobs
Including
110 new jobs

Spending in NYS
$6.7M

**A WIN FOR UB**

WNY Incubator Network provides a direct bridge between students and incubator ventures, facilitating job and internship opportunities.

Source: Data reflects findings from a survey of 33 company partners conducted in 2017 that collected economic impact data for the 2016-17 fiscal year relating to their interaction with UB Business and Entrepreneurship Partnerships’ centers and programs.

Funding Raised reflects the total federal, state, or non-governmental funding raised by companies (not including revenue from the sale of goods or services). Jobs Supported reflects full-time equivalent employment at industry partners who are living in New York State. (1 full time job = 1 FTE, 1 part time job = 0.5 FTE) New Jobs reflect permanent, full-time positions created as a result of business expansion resulting from UB program efforts. Spending in NYS reflects estimated spending by industry partners on the purchase of goods and services in NYS excluding payroll.
Attracting businesses and jobs to New York State through START-UP NY.

START-UP NY is a tax incentive program connecting universities with companies that will create new jobs in New York.

START-UP NY provides tax incentives to eligible new and expanding businesses. UB, a program leader, offers qualified companies the opportunity to enjoy a range of valuable benefits. The university designates vacant space as Tax Free Areas on or near the school’s three campuses. Approved companies enjoy up to 10 years of no NYS income tax for the company and its eligible employees, and sales tax relief on company purchases. These incentives enable companies to grow in the state and attract top talent. With the connection to UB, the companies provide internships for students, recruit graduates, collaborate with faculty on research and offer mentoring and guidance on curriculum. By aligning with UB’s academic mission, creating new jobs, and making significant capital investments, UB-sponsored START-UP NY companies contribute to the revitalization of Western New York.

Eligibility Requirements

- Will create new jobs in the first year
- Will bring positive economic benefits to the community
- Will support the academic mission of the University at Buffalo
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<td><strong>$65.4M</strong>&lt;br&gt;Funding Raised (from federal, state or non-governmental funds)</td>
<td><strong>Total Employment in NYS</strong>&lt;br&gt;403 jobs&lt;br&gt;Including 229 new jobs</td>
<td><strong>START-UP NY companies are providing a great pathway for UB students to internships and jobs, helping retain more of our talent in NYS.</strong></td>
</tr>
<tr>
<td><strong>Spending in NYS</strong>&lt;br&gt;$17.6M</td>
<td><strong>Spending in NYS</strong>&lt;br&gt;$17.6M</td>
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Source: Data reflects findings from a survey of 47 company partners conducted in 2017 that collected economic impact data for the 2016-17 fiscal year relating to their interaction with UB Business and Entrepreneurship Partnerships’ centers and programs.

Funding Raised reflects the total federal, state, or non-governmental funding raised by companies (not including revenue from the sale of goods or services). Jobs Supported reflects full-time equivalent employment at industry partners who are living in New York State. (1 full time job = 1 FTE, 1 part time job = 0.5 FTE) New Jobs reflect permanent, full-time positions created as a result of business expansion resulting from UB program efforts. Spending in NYS reflects estimated spending by industry partners on the purchase of goods and services in NYS excluding payroll.
Meet the company that won investors over after tapping into UB’s entrepreneurial smarts. Learn how UB’s supercomputer catapulted a local company to the next level. Get to know the first life sciences or biotech company to use university technology to become a player on the global stage. Discover a UB spin out company that made a winning idea a reality after being pointed in the right direction for funding and grants. See how UB students and faculty revolutionized the vaccine industry. Learn how UB’s business-friendly approach helped a young startup flourish and thrive.
investors over after neurial smarts. Learn how alted a local company to the first life sciences or biotech echnology to become a Discover a UB spin out ng idea a reality after being n for funding and grants. See y technology revolutionized how UB’s business-friendly tartup flourish and thrive.
How UB builds a winning partnership

Irfan Khan, MD, was considering locating his startup in Denver, Colorado when he learned about the initiatives New York State introduced to attract new companies. He reached out to the START-UP NY program – which exempts employees from paying state income tax for 10 years – and “they were incredibly supportive and efficient,” Khan said. “It gives us the ability to recruit the best and brightest.”

The company then linked up with UB’s Buffalo Institute for Genomics and Data Analytics (BIG), a relationship that further connected the promising Circuit Clinical to Western New York. “We were then awarded a $1.1 million grant to get us through our early stage growth, and it has all led to a much deeper relationship with UB,” Khan said.

How industry wins

Circuit Clinical was an active participant in Buffalo’s entrepreneurial ecosystem and was encouraged by UB to participate in the National Council of Entrepreneurial Tech Transfer (NCET2) and then the 43North competition where Circuit finished as a semifinalist. “Both experiences raised our profile so much with investors outside New York State that we closed a round of investment and brought money in from the outside,” Khan said.

How the region wins

“We would like to think that we have played a role in having brought the value of Western New York to the attention of large pharmaceutical companies and billion dollar contract research organizations. We’re unapologetic about it,” Khan said. “It’s a bit of a challenge early on teaching large companies that Western New York is a vibrant, active life sciences community. Buffalo has deep strategic partnerships and a deep vision to be excellent. I absolutely see UB as an out-front leader. UB’s leadership is so pro-growth and pro-partnership; it is certainly at the vanguard of what is happening with the economic vitality of Western New York.”
UB’s leadership is so pro-growth and pro-partnership; it’s certainly at the vanguard of what’s happening with the economic vitality of Western New York.”

Irfan Khan, MD FACC FHRS, Chief Strategy Officer, Circuit Clinical
How UB builds a winning partnership

The company created a multi-physics computer program to predict when rotating machines will fail. That mission connects with two of UB’s areas of expertise: computer programming and materials science. The viability of Sentient’s product, called DigitalClone, has been proven accurate by NASA and manufacturers such as Boeing, GE and Honeywell. The predictive system has been installed on 20,000 wind turbines, and the company expects to reach 100,000 turbines in the future.

By using it, companies can greatly extend turbine lifespan from about eight years to 30 years, said company President and CEO Ward Thomas. Sentient Science was wooed by numerous universities but selected UB in 2011. The company uses the supercomputer located in downtown Buffalo within the Center for Bioinformatics and Life Sciences (CBLS). “We would not be able to commercialize our technology, especially at the rate and effectiveness we have, without the University at Buffalo’s Center for Computational Research,” Thomas said.

How industry wins

The company’s need for significant advanced computer power to run its predictive programs made UB’s Center for Computational Research (CCR) a vital partner. The CCR provides access to its 3,400 processor-computing infrastructure to run hundreds of simulations, putting the company at the forefront of the industry.

How the region wins

The presence of Sentient Science has drawn attention to the region’s sophisticated capabilities. “Our global customers fly here from China and Spain, so they get to see Buffalo,” Thomas said. “And as we hire people, they buy houses and cars and pay utilities, so we have a direct local impact, as well.”
Our global customers fly here from China and Spain, so they get to see Buffalo. And as we hire people, they buy houses and cars and pay utilities, so we have a direct local impact, as well.”

Ward Thomas,
President and CEO,
Sentient Science
How UB builds a winning partnership

One of the first life sciences companies spun out of the university, Athenex helped spark an entrepreneurial movement that has grown into robust support programming such as pre-seed workshops, training, academic advisory opportunities and funding mechanisms to help startups move forward. Company founder David G. Hangauer, PhD, said that when Athenex (previously known as Kinex) started, the ecosystem was very new, “At that time, Kinex had access to UB’s CBLS state-of-the-art chemistry labs—the only labs available capable of combinatorial chemistry. We also used the CBLS biology lab space and the clean room facility to develop processes for manufacturing clinical drug products.” Besides UB’s facilities, Athenex benefitted from multiple CAT projects and financial support that made its investors’ money go further.

How industry wins

Hangauer, who came to UB after a decade in the private sector, said the university was supportive of his pioneering efforts to discover new kinase inhibitors. UB continued to provide programs to set research and licensing terms at the project planning stage. “This kind of collaboration made it possible to get other investors interested and motivated,” said Hangauer.

How the region wins

“Athenex is proof that you can start a life sciences company in Buffalo and take it all the way to an IPO. Having office and lab space in the Center for Bioinformatics and Life Sciences (CBLS) building allowed us to hire scientists quickly. We were a virtual company up to that point. Today, we are a rock on the medical campus and we are building a brand new manufacturing facility in Dunkirk, NY.”
This kind of collaboration made it possible to get other investors interested and motivated.”

David G. Hangauer, PhD, Founder, Athenex
How UB builds a winning partnership

Two UB professors, Glenna Bett, PhD, and Randall Rasmusson, PhD, launched Cytocytbernetics and designed a machine called the CytoCyte that delivers a missing electrical charge to newly created heart cells, making it possible to test the impact of new drugs on the heart. The process can save hundreds of millions of dollars in the drug discovery process. “We found there was a piece of machinery that didn’t exist, so we made it,” Bett said. After describing the device at an annual meeting of the Biophysical Society, people asked where they could get one, “So we came back to UB and started a company,” she said. The university assisted with applying for a patent, getting grants and even providing entrepreneurial training, all of which made the company possible. “We’ve really benefited and it has been one super supportive journey with UB,” Bett said.

How industry wins

“Without having the support, it wouldn’t have been possible,” Bett said. UB has helped in securing UB CAT grants, encouraging the new company to apply to the 43North business plan competition and getting the company into the START-UP NY program, which helps Cytocytbernetics recruit because employees pay no state income tax for 10 years. Between grants and contest winnings, the company has raised nearly $2 million.

How the region wins

The company is helping build the region’s life sciences economy and creating high paying, technical jobs. “I am very proud to say our first employee was a Buffalo native who had gone to Silicon Valley, and he was looking to come back to the region,” Bett said. “We’ve always felt good about that.”
"I am very proud to say our first employee was a Buffalo native who had gone to Silicon Valley and he was looking to come back to the region."

Glenna Bett, PhD, Founder and CEO, Cytocybernetics
Abcombi Biosciences

Leading the charge in the vaccine industry

How UB builds a winning partnership

Abcombi Biosciences is on the verge of a vaccine revolution. The company, launched out of a UB lab, takes a novel approach to attacking diseases caused by bacteria. Traditional vaccines attack bacteria when it tries to colonize in the human body, and if the bacteria survives, there is nothing left to combat it. Abcombi’s vaccine attacks the bacteria only when it has been disturbed and transformed into its virulent state. Founder, Charles Jones said, “There are close to 100 variants of the pneumococcal bacteria. The current vaccine tackles only 13 variants. We can cover all of them.” Embraced by UB he said, “The reality is that UB, and Buffalo in general, is a highly supportive entrepreneurial ecosystem.” Disappointed with other universities and the cursory and cold financial review he received, Jones states, “We found that other universities are not grounded in reality with their valuations. It’s about the money. Although there is a financial motive at UB, there seems to be a genuine desire for the companies to succeed.”

How industry wins

“It’s hard for me to envision a future, or where we are today, without UB’s assistance,” Jones said. Abcombi utilized many programs available through UB, including funding from the Bright Buffalo Niagara business competition, Critical Path and National Science Foundation (NSF) programs. “All the key events for the company were all initially orchestrated by the university,” Jones said. Abcombi, still active with UB’s research labs, is developing an alternative to Tamiflu.

How the region wins

Jones pays it forward. He searches out venture capitalists to come to Buffalo. “I am actively recruiting,” Jones said. He explains to them how working in Buffalo brings “the most bang for the buck,” including lower rents and salaries. “They hear that and they perk up,” he said. “We want to stay in Buffalo. It’s the most efficient deployment of the capital that we have.”
The reality is that UB, and Buffalo in general, is a highly supportive entrepreneurial ecosystem.”

Charles Jones, PhD, Chief Executive Officer, Abcombi Biosciences
How UB builds a winning partnership

Brendon Dever’s technology idea hatched at Buffalo’s Startup Weekend. The company now sells a tiny device that attaches to work glasses to monitor environmental threats, like noise, and alerts wearers when things approach dangerous levels. “This company would not exist without the help we received from UB,” said Dever, president of the company.

Dever states, “UB was the first line of support for our young, emerging company. People were willing to listen and took us to the next level.” The help appeared in various forms, from mentorship, business training, grant opportunities and a welcoming mentality. “It’s a safe place to share your ideas,” Dever said. Heads Up participates in the START-UP NY program and works out of The Innovation Center on the Buffalo Niagara Medical Campus. “We’ve received over $80,000 in grants from UB, including three CAT grants. Our first grant, available through UB, allowed us to build a prototype to take to market,” he said.

How industry wins

Dever considers UB’s entrepreneurial ecosystem, “fundamental to the success of the development of the product. No way could we have made it this far without that early support.” Dever also participated in classes from UB’s Center for Entrepreneurial Leadership, which provided mentoring to help steer the young company forward.

How the region wins

When Dever presents the company to potential customers, partners and investors, he knows he is an ambassador for the region. Dever states, “We don’t hide the fact we’re from Buffalo. In a lot of ways it helps us, people can see how capital efficient we’ve been.” “There’s definitely a buzz that Buffalo has advantages, especially talent in computer science and engineering,” he said. The company has deployed technology with 30 companies in five industries in seven countries. “We’ve made a name for ourselves. We’re seen as thought-leaders in the industry of wearable mobile technology with advanced analytics,” he said.
UB was the first line of support for our young, emerging company.”

Brendon Dever, President, Heads Up Display Inc.
What goes in to measuring the impacts

UB Business and Entrepreneur Partnerships’ impacts are broad and far-reaching. By working with hundreds of companies, UB Business and Entrepreneur Partnerships supports economic activity and employment across Western New York, New York State and the globe. New York State funded centers, programs and services support the development and growth of innovative companies and entrepreneurial ventures.

The success of these centers, programs and services is measured by the impact they have on individual companies and the economy as a whole. This report provides measures of success—both by the numbers and beyond the numbers—that describe the collective impacts UB Business and Entrepreneur Partnerships and its partner companies had in the fiscal year 2016-17 (July 1, 2016 – June 30, 2017).

The impacts measured in this assessment focus on the ecosystem of companies that work with UB Business and Entrepreneur Partnerships. Economic impact is measured by the total economic output and employment resulting from spending on materials and services for production, business development services, capital investments, and employee compensation. All economic impact measures focus on economic activity in Western New York and New York State as a whole. Data pertaining to partner companies were gathered from several sources including D&B Hoovers, Infogroup Inc.’s Reference USA database, and an annual survey of companies performed by UB Business and Entrepreneur Partnerships.

Additionally, six case studies explore impacts beyond the numbers for individual companies that worked with UB Business and Entrepreneur Partnerships in recent years. Case studies describe the motivation for working with UB and how these collaborations affected the development of innovative technologies.
How economic impacts happen

Dollars are generated and spent by partner companies

Dollars spent by partner companies and their employees have a ripple effect, creating economic impacts along the way.

Total Economic Impact
(Direct spending plus the multiplier effect)

in the region in the state
It’s a win for New York State.

UB’s industry partners...

...supported 1,936 jobs in NYS, by directly employing 1,302 people, and supporting 634 additional jobs through new economic activity.

...had a collective economic impact in NYS of $257.4 M resulting from the direct spending of $137.4 M and the generation of new economic activity that added $120.0 M to the state’s economy.

It’s a win for Western New York.

UB’s industry partners...

...had a collective impact of $228.3 M in WNY and supported 1,883 jobs. Jobs at partner companies paid an average annual salary of $63,254. That’s over $18,000 more than the average salary across all industries in WNY.

Economic impact in NYS was calculated by the UB Regional Institute using IMPLAN, an input-output model that incorporates state and regionally-specific trade flows for more than 500 industry sectors. Total economic impact reflects total output, with additional economic activity representing the difference between total output and direct spending. Direct employment reflects full-time equivalent jobs. (1 full time job=1 FTE, 1 part time job=0.5 FTE)

Average annual salary for industry partners is based on the average wages of workers in industries (defined by NAICS 3-digit classifications) that partner companies represent. The calculated annual salary is weighted by the number of workers that companies employ in each industry. It is also weighted for the percentage of workers living in WNY using the average wage for industry partners in WNY and the percentage of workers living in NYS, outside of WNY using the statewide average wage for industry partners. Average wages for WNY and NYS are calculated using the 2018 Quarterly Census of Employment and Wages (QCEW) from the NYS Department of Labor.

UB helped industry partners...

...raise $120.8 M in federal, state and non-governmental dollars.

...boost company revenues by $5.4M.

...realize $2.3M in cost savings.

Source: Data reflects findings from a survey of company partners conducted in 2017 that collected economic impact data for the 2016-17 fiscal year relating to their interaction with UB Business and Entrepreneurship Partnerships’ centers and programs. 93 companies responded to this portion of the survey. Boost in company revenues reflects increases in company revenues attributable to support provided by UB Business and Entrepreneurship Partnerships resulting from product sales, contacts or other sources. Cost savings reflects savings attributable to support provided by UB Business and Entrepreneurship Partnerships resulting from production process improvements, value of accessing specialized equipment at UB, value of UB expertise or analytical testing, or other sources. Total amount raised reflects federal, state, or non-governmental funding acquired.
It’s a win for UB.

UB Business and Entrepreneur Partnerships connected...

...92 interns with opportunities to gain first-hand work experience at our partner companies.

...144 UB grads with employment at partner companies.

Additional wins...

Industry shared valuable insights by giving lectures, hosting workshops and conferences.

Industry had advisory roles at UB that helped align academics with company needs.

Industry guided students’ personal development through mentoring.

Data reflects findings from a survey of company partners conducted in 2017 that collected economic impact data for the 2016-17 fiscal year relating to their interaction with UB Business and Entrepreneurship Partnerships’ centers and programs. Intern number reflect industry partner hiring of UB student interns during 2016-17. Employment number reflects industry partner employment of UB graduates for full-time or part-time positions during 2016-17.
Whether you’re just starting out or have an established business, we can help you grow. Connect with our vast network of resources to move your efforts forward. Collaborate on R&D projects, access state-of-the-art equipment, leverage student talent or partner with world-class researchers to support the commercialization of your ideas and drive innovation to market. Everyday victories happen here!
Commercialize.

Grow.
Appendix  
Summary of Economic Impacts of UB Industry Partners, FY 2016-17

Funding

Outside funding brings new dollars to the Western New York Region and New York State which leverages additional spending and economic activity. In total, partner companies attracted over $119 million in funding (in addition to sales revenues).

<table>
<thead>
<tr>
<th>Funding Source</th>
<th>Amount</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal</td>
<td>$7,060,029</td>
<td>6%</td>
</tr>
<tr>
<td>State</td>
<td>$1,893,292</td>
<td>2%</td>
</tr>
<tr>
<td>Non Govt</td>
<td>$111,868,519</td>
<td>93%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$120,821,840</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Source: Figures include funds from sources other than sales or gains from investments and are derived from data provided by 53 companies in responses to UB Business and Entrepreneur Partnerships’ annual economic impact survey. Percentages add up to slightly more than 100% due to rounding.

Spending

Spending benefits the economy, both directly and indirectly, as dollars recirculate and support additional spending by businesses and their employees. Spending by partner companies totaled $192 million. This spending includes $135.5 million on payroll and $56.6 million on all other expenses related to the production of goods or delivery of services.

<table>
<thead>
<tr>
<th>Spending</th>
<th>WNY</th>
<th>NYS, outside WNY</th>
<th>Outside NYS</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payroll (including benefits)</td>
<td>$90,913,783</td>
<td>$9,525,865</td>
<td>$35,106,474</td>
<td><strong>$135,546,122</strong></td>
</tr>
<tr>
<td>Goods and Services</td>
<td>$31,048,345</td>
<td>$9,140,053</td>
<td>$16,428,917</td>
<td><strong>$56,617,315</strong></td>
</tr>
<tr>
<td><strong>Total Spending</strong></td>
<td>$121,962,128</td>
<td>$18,665,918</td>
<td>$51,535,391</td>
<td><strong>$192,163,437</strong></td>
</tr>
</tbody>
</table>

Source: Figures include spending on payroll (wages and benefits) and the purchase of goods and services by partner companies. Spending amounts are derived from data provided by 81 companies in responses to UB Business and Entrepreneur Partnerships’ annual economic impact survey.
## Impacts on NYS Economy

UB industry partners generated a total economic impact of $257.4 million on NYS’s economy in 2016–17, supporting 1,936 direct and secondary jobs across the state. Direct purchases and payroll spending of UB industry partners totaled $137.4 million and directly supported 1,302 jobs.

<table>
<thead>
<tr>
<th>Type of Impact</th>
<th>Spending</th>
<th>Employment</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct impact of UB Industry Partners</td>
<td>$137,396,210</td>
<td>1,302</td>
<td>$137,396,210</td>
</tr>
<tr>
<td>Indirect impacts</td>
<td>N/A</td>
<td>235</td>
<td>$55,917,430</td>
</tr>
<tr>
<td>Induced impacts</td>
<td>N/A</td>
<td>399</td>
<td>$64,085,049</td>
</tr>
<tr>
<td>Total Impact</td>
<td>N/A</td>
<td>1,936</td>
<td>$257,398,689</td>
</tr>
</tbody>
</table>

Source: University at Buffalo Regional Institute analysis of UB partner spending data using IMPLAN with NYS-specific trade flow data. Direct impacts reflect employment and spending by UB industry partners, as reported on a survey of industry partners conducted during 2017. Indirect impacts reflect secondary industry sales within NYS’s economy, while induced impacts reflect the re-spending of wages within the state. Total economic impacts reflect direct impacts plus secondary (indirect and induced) impacts in NYS.

## Impacts on WNY Economy

UB industry partners generated a total economic impact of $228.3 million on the regional economy in 2016–17, supporting 1,883 direct and secondary jobs across the region’s five counties. Direct purchases and payroll spending of UB industry partners totaled $122 million and directly supported 1,266 jobs in WNY.

<table>
<thead>
<tr>
<th>Type of Impact</th>
<th>Spending</th>
<th>Employment</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct impact of UB Industry Partners</td>
<td>$121,962,128</td>
<td>1,266</td>
<td>$121,962,128</td>
</tr>
<tr>
<td>Indirect impacts</td>
<td>N/A</td>
<td>228</td>
<td>$43,926,806</td>
</tr>
<tr>
<td>Induced impacts</td>
<td>N/A</td>
<td>388</td>
<td>$62,438,923</td>
</tr>
<tr>
<td>Total Impact</td>
<td>N/A</td>
<td>1,883</td>
<td>$228,327,857</td>
</tr>
</tbody>
</table>

Source: University at Buffalo Regional Institute analysis of UB partner spending data using IMPLAN with regionally-specific trade flow data for the five counties of Western New York. Direct impacts reflect employment and spending by UB industry partners, as reported on a survey of industry partners conducted during 2017. Indirect impacts reflect secondary industry sales within WNY’s economy, while induced impacts reflect the re-spending of wages within the region. Total economic impacts reflect direct impacts plus secondary (indirect and induced) impacts in WNY.
Connect.
Commercialize.
Grow.

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Business and Entrepreneur Partnerships

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