



**Division of
Science, Technology
& Innovation**

A Division of Empire State Development

New York Manufacturing Extension Partnership

2020 Report

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PROGRAM OVERVIEW AND PURPOSE

The New York Manufacturing Extension Partnership (NY MEP) is a network of organizations that provide growth and innovation services to small and mid-sized manufacturers in every corner of the state to help them create and retain jobs, increase profits, and save time and money.

NY MEP is part of the National Institute of Standards and Technology's (NIST) Hollings Manufacturing Extension Partnership and is supported through a combination of federal and state funding. NY MEP is awarded approximately \$6 Million dollars in federal funds per year. New York State adds approximately \$3.7 Million dollars in state funding. This funding is awarded to 11 sub-recipients through a competitive process. These 11 sub-recipient organizations—one in each economic development region and one “statewide” center—offer a broad range of services.

NY MEP provides a variety of services including:

- Innovation strategies;
- Process improvements;
- Quality control;
- Manufacturing scale-up;
- Sustainable manufacturing;
- Supply chain assistance;
- Technology acceleration;
- New market strategies;
- Product development and prototyping;
- Workforce development;
- Entrepreneurial and start-up assistance, including financing and grant information; and
- Other services tailored to regional priority industry clusters.

The information provided in this report is a requirement of Public Authorities Law Article 10A Section 3102A related the Industrial Technology Extension Services and Section 3102D related to the Technology Development Organizations.

This report lists each center with required and additional information included. Information about each center includes:

- Activities and accomplishments (including new services developed) taken from the centers progress narrative;
- Types of companies assisted;
- Impacts generated;
- Support of regional cluster;
- Center state, federal and match (other sources) funding; and
- Industry-oriented workforce training.

In the case of the statewide center, FuzeHub, their primary focus is marketing system capabilities, hosting awareness and training events, serving as a trusted advisory, and referring companies to the most appropriate regional MEP or other innovation asset for necessary assistance.

Western New York Technology Development Center, Inc. (dba Insyte Consulting)
Center Director: Benjamin Rand
Western New York Region

Activities and Accomplishments (include new services developed):

Insyte Consulting provided services to the manufacturing and entrepreneurial communities. In 2019 Insyte worked with 49 small and medium size manufacturers, including 26 new manufacturing clients, and completed 54 projects. Insyte also provided a series of workshops to introduce manufacturers to new concepts or practices. A summary of Insyte's activities include:

- Continued strong performance for NIST MEP's impact performance measures. By yearend 2019, Insyte surpassed \$3.1 billion of impact to the region's manufacturers since 2000.
- As partners in Buffalo Manufacturing Works, Insyte and Edison Welding Institute (EWI) continued their SHIFT Program and Advanced Manufacturing Implementation Strategy (AMIS) projects designed to help manufacturers develop a technology strategy and plan for their businesses. The SHIFT program is funded by Buffalo Billion Part 2 (BB II) with the WNY REDC and Western New York Empire State Development.
- Helped a tenant at the Buffalo High-Tech Manufacturing Innovation Hub at Riverbend, improve and expand its supply chain by identifying potential local and regional supply partners and documenting a robust procurement process to be used for qualification of local/regional/ New York State suppliers. The Buffalo High-Tech Manufacturing Innovation Hub at Riverbend is a key component of Governor Cuomo's Buffalo Billion.
- Agreed in principle to facilitate a WNY consortium of manufacturers for the Association for Manufacturing Excellence (AME), a national organization that focuses on operational excellence. The current president of AME is an Insyte client. The consortium will provide a roundtable-like venue for practitioners to share best practices and gain assistance in addressing difficult operational challenges.
- Collaborated with the NYS Pollution Prevention Institute to provide environmental services to WNY companies.
- Worked with National Grid and NYS Electric and Gas Corporation to assist manufacturers with cost reimbursement for project work through their manufacturing productivity programs.

Insyte also worked with Western New York's entrepreneurial community to encourage new business growth in the region.

- Served as the administrator for the WNY Venture Association which hosted five venture forums during the year. Ten companies presented their business plans at those forums.
- Served as the administrator for the Buffalo Angels and facilitated monthly meetings for this angel investor group to explore opportunities for investment in the local startup community.
- Brought expertise in SBIR/STTR assistance to three regional workshops for the Small Business Development Corporation, the State University College of New York at Buffalo and the University at Buffalo. These workshops introduced the participant to funded research opportunities for entrepreneurs engaged in research and innovation. Also, provided assistance to entrepreneurs and companies looking to use this program.

NYSTAR's New York Manufacturing Extension Report (1/1/2019 – 12/31/2019)

- Served as judges or mentors for entrepreneurial programs/competitions at area universities, colleges, high schools, and the 43North business plan competition. 43North is a venture/business plan competition funded through Governor Cuomo's Buffalo Billion initiative.
- Participated in the regional entrepreneurial ecosystem partners meeting hosted by the University at Buffalo in March. Participants included Insyte, the Buffalo Niagara Medical Campus, LaunchNY, the Blackstone Launchpad, 43North, and the UB/Innovation Hub.

Types of companies assisted:

Primarily small and mid-sized manufacturers.

Impacts

	01/01/2019 - 12/31/2019
Number of unique companies served	26
Number of jobs created	196
Number of jobs retained	854
Increased/retained sales	\$288,640,000
Cost Savings	\$10,312,000
New investment	\$81,451,300
Non-job Impacts Total	\$380,403,300

Summary of Centers Support of Regional Cluster:

The priority cluster assigned to Western New York by the REDC is materials and machinery. In 2019, Insyte worked on improvement projects at 23 companies in this cluster. Buffalo Manufacturing Works with Insyte as one of the key partners provided the following to WNY companies:

- As part of Buffalo Manufacturing Works, Insyte and EWI continue the Advanced Manufacturing Implementation Strategy (AMIS) projects designed to help manufacturers develop a multi-year technology implementation strategy & plan for their business, including Innovation Audits (IAs) offered through SHIFT (www.shiftmfg.com).
- Insyte with EWI and NextStreet, continued delivering SHIFT funded by Buffalo Billion Part 2 (BB II) with the WNY REDC and WNY ESD.
 - Through 2019 the partners reached 185 manufacturers, have completed 93 assessments (the first step in the SHIFT process), delivered 55 training sessions and have 11 IAs completed and 4 IAs pending.

Center Funding

01/01/2019 - 12/31/2019	
State Funding	\$290,000
Federal Funding	\$597,590
Matching Funds	\$1,616,134
MEP-Dedicated Employees	12.30

Industry-Oriented Workforce Training

- Insyte completed a project introducing lean manufacturing concepts, using Lean 101 workshops and on-site project work, for a tenant at the Buffalo High-Tech Manufacturing Innovation Hub at Riverbend, a key component of Governor Cuomo's Buffalo Billion project.
- Insyte is a part of the new Northlands Workforce Training Center, a signature initiative of the WNY REDC and of Gov. Cuomo's Buffalo Billion. Ben Rand serves as the Secretary for the Northland Workforce Training Center's (NWTC) Board of Directors. The training center is designed to train advanced manufacturing workers for WNY manufacturers.
- Insyte and the Manufacturing Association of the Southern Tier presented a workshop, Succession Planning for Small and Medium-Sized Manufacturers in May. Various steps that any family-owned or closely-held business owner should undertake to plan for the future were discussed during the workshop.
- Insyte is negotiating with Jamestown Community College (JCC) to be a training partner for their workforce programs. JCC is restarting its economic development efforts in Chautauqua and Cattaraugus Counties.

**NextCorps (formerly High Tech Rochester)
Center Director: Jim Senall
Finger Lakes Region**

Activities and Accomplishments (include new services developed):

NextCorps project activity continued to be very strong in 2019 compared to historical activity with a total of 150 ongoing projects at the end of the year. A total of 187 substantive or non-substantive projects were completed during 2019. Sales activity was concentrated on engaging firms in the Rochester Gas and Electric Corp. (RG&E)/New York State Electric and Gas (NYSEG)/National Grid electric service area to leverage the Manufacturing Productivity Program/Manufacturing Accelerator Program reimbursement. During 2019, NextCorps submitted RG&E/NYSEG Manufacturing Accelerator Program (MAP) applications for 61 companies valued at almost \$2.5 million and requesting reimbursement of nearly \$1.3 million in project costs. The MAP provided a significant boost to MEP project activity in this region.

NextCorps executed the Hardware Scaleup program (NYSERDA's M-Corps program) to assist cleantech firms with the transition from prototype products to full scale production. Eight companies from cohort two were launched in November. Each company completed a six-month action steps to improve their incoming Manufacturing Readiness Level (MRL).

NextCorps hosted representatives of NIST Labs on April 16, 2019, for a very successful panel discussion with executives representing three manufacturing firms to discuss the manufacturer perspective on robotics, cobotics, and additive technologies.

NextCorps was awarded the NYSERDA contract for the proof of concept center that is the follow on to NEXUS-NY.

Types of companies assisted:

Primarily small and mid-sized manufacturers.

Impacts

01/01/2019 - 12/31/2019	
Number of unique companies served	68
Number of jobs created	198
Number of jobs retained	618
Increased/retained sales	\$112,226,548
Cost Savings	\$5,605,000
New investment	\$34,774,032
Non-job Impacts Total	\$152,605,580

Summary of Centers Support of Regional Cluster:

Nextcorps continues to support regional economic development cluster workgroups, AIM Photonics initiatives, outreach to Optics, Photonics, and Imaging (OPI) companies, and active projects within the cluster.

Within the OPI cluster, a total of 70 substantive and non-substantive projects were completed with companies this year and there were 32 ongoing projects at the end of the year.

Luminate completed its second cohort in summer 2019 and selected 10 new companies for cohort three of the accelerator competition in Rochester for the fall. The finalists selected for the new cohort include optics, photonics, and imaging startups, which were selected after pitching their innovative ideas to an advisory panel comprised of industry experts during the Lightning Awards in 2020.

Center Funding 2019

01/01/2019 - 12/31/2019	
State Funding	\$290,000
Federal Funding	\$597,590
Matching Funds	\$2,411,551
MEP-Dedicated Employees	3.43

Industry-Oriented Workforce Training

Nextcorp works with industry partners to address workforce needs in their region.

Alliance for Manufacturing and Technology (AM&T)
Center Director: Carol Miller
Southern Tier Region

Activities and Accomplishments (include new services developed):

- Appointed a new Executive Director, Carol Miller. Carol joined the organization as a consultant in 2004. She has helped clients achieve millions in impact through the application of Lean Thinking Principles and Manufacturing Operations Excellence. Carol has extensive knowledge of the Southern Tier's manufacturing sector and has a proven track record of success.
- Provided support for cohorts one and two of the Hardware Scale Up Program managed by NextCorps. Hardware Scaleup is a new program that helps entrepreneurs develop a comprehensive roadmap for scaling their prototype product into a design that's easy to manufacture and mass produce in New York State.
- Sponsored the ExportNY program in the Southern Tier in partnership with Center for International Business Advancement at Binghamton University. ExportNY is a three-month interactive program on exporting and international business development. Its primary purpose is to assist companies from the Southern Tier, NY region in expanding their businesses through successful exporting and continuous international business development. Five Southern Tier manufacturing companies completed the Export NY program.
- Partnered with MVCC-AIM to conduct several Cybersecurity assessments within the Southern Tier. Four assessments were partially funded with a DOD grant providing 90% of the cost of the assessment. Each client was provided with a remediation report which gave them the necessary actions to become compliant with the NIST 800-171 Standard. After remediation, follow up audits were conducted to provide evidence of compliance and the client was provided a letter of compliance.
- Conducted various Lean Six Sigma process improvement and Quality Management System projects and training sessions.
- Developed a Design for Manufacturing & Assembly program for a medical device manufacturer to support new product development efforts aimed at the explosive growth of the global disposable medical device market.
- Facilitated a two-day Design for Manufacturing/Assembly event focused on an existing product design to support product line scalability and automation.
- Completed a R&D Tax credit consulting project that assisted in the identification, qualification and quantification of R&D activities and expenditures that qualified for R&D tax credits.
- Developed a Risk Management offering for clients to train them on how to recognize risk and how to mitigate its effects. This program provides tools for the clients to use throughout their organization.
- Conducted various training sessions:
 - Completed three Technical Writing seminars. These workshops presented the basics and intermediate concepts of technical writing, including how to create, edit or understand technical reports. It was presented via a combination of slideshow presentation, interactive discussion, Q&A, hands-on exercises, and lecture.

- Conducted one-day Introduction to Project Management training session focused on current best practices and tools from the Project Management Institute.
- Conducted two-hour sales process training sessions focused on identifying new markets & strategies to increase sales. These new strategies will translate into increased quote activity and sales revenue.
- Provided TWI-Job Instruction consulting support to evaluate a client's current state and provide suggestions for moving forward with training and implementation.

Types of companies assisted:

Primarily small and mid-sized manufacturers.

Impacts

	01/01/2019 - 12/31/2019
Number of unique companies served	9
Number of jobs created	62
Number of jobs retained	837
Increased/retained sales	\$110,682,110
Cost Savings	\$1,232,000
New investment	\$58,797,600
Non-job Impacts Total	\$170,711,710

Summary of Centers Support of Regional Cluster:

Transportation and Advanced Manufacturing Products, Components and Systems Control Cluster and Agriculture are key REDC Clusters in the Southern Tier. AM&T continues a special focus on its priority cluster manufacturers supply chain participants in support of the REDC.

AM&T personnel attended various regional meetings, including the REDC Executive Committee, Advanced Manufacturing Workgroup session, and Workforce Development sessions. Also, AM&T attended various meetings and continue to leverage ED partners in a wide variety of assistance to manufacturers including grants and assistance from regional universities, NYMEPs, IDAs, P2I, ESD, TAAC, WDI, MAP, ARC, and NYSERDA.

AM&T performed the following activities:

- Completed a three-month ExportNY program. Its primary purpose was to assist companies from the Southern Tier NY region in expanding their businesses through successful exporting and continuous international business development.
- Attended and exhibited at a one-day Agriculture and Food Summit in Binghamton.
- Involved with local economic development organizations to assist Alstom in Hornell, a recipient of \$2.8B rail contract, in expanding and improving their supply chains.
- Coordinated a day-long bus trip to Buffalo Manufacturing Works. The trip was the first step in a Technology Road Mapping pilot. After visiting, AM&T will conduct Innovation Audits with the companies interested in moving forward. The pilot is part of AM&T's Industry 4.0

initiative, which will help build the technology resources in the region and assist Southern Tier Manufacturers.

Center Funding

01/01/2019 - 12/31/2019	
State Funding	\$195,000
Federal Funding	\$405,429
Matching Funds	\$703,042
MEP-Dedicated Employees	4.50

Industry-Oriented Workforce Training

- Conducted various workforce training sessions as outlined above.
- Hosted a round table session on “What is the SUNY Apprenticeship Program” jointly with MVCC, SUNY Broome and NYSDOL.
- Attended various workforce meetings with NYSDOL, IDAs, Chambers, Workforce NY, University, and Colleges.
- Completed three projects using Workforce Development Institute (WDI) funding and continued to develop our relationship with WDI.

Train Develop Optimize (TDO)
Center Director: James D'Agostino
Central New York Region

Activities and Accomplishments (include new services developed):

TDO provided ISO training and support to aerospace & defense; electronics; medical fiber optics; resin, coating, and adhesive; plastic thermoforming; and lighting and food-warming companies. These companies receive formal certifications, which will eventually allow them to expand their business and grow into new markets.

TDO provided Kata coaching for a purchasing manager at a local manufacturer and facilitated a two-day KPI kaizen event for the purchasing department of that company to assist with better supply chain management.

TDO provided lean training, workforce development, and on-site coaching for sign and millwork companies. The services provided allowed the manufacturers to improve productivity and efficiency in their shop floor operations and allow for future growth.

TDO provided CAD layout and design support to filter and agricultural manufacturers to prepare for an expansion. The services provided allowed the manufacturer to optimize the process flow and layout for their new and existing businesses and allow for even greater future growth.

TDO collaborated with various partners, including Fuzehub, to support a local entrepreneur with his efforts to produce a prototype and market a design that he created.

TDO provided mentoring and troubleshooting support to three maintenance apprentices on a weekly basis during the Q1-Q2 period. Numerous machines were repaired, including kilns, presses, motion control systems, water systems, lithography equipment, sorting equipment systems, lapping and polishing machines, dicing saws, and SCADA systems. TDO also provided engineering assistance to retrofit a Kiln temperature control system and add that to SCADA monitoring, thus reviving a \$60,000 kiln that was no longer usable.

TDO provided onsite mentoring to process engineers for Lean Six Sigma projects, including Design of Experiments, that identified process conditions that allowed for 10X processing efficiency gains. In addition, TDO helped identify a surrogate measurement for a key process parameter that the client had previously been unable to quantify.

TDO provided assistance to an electronics manufacturer as they applied for National Grid grant funding for ongoing continuous improvement work.

TDO continued a successful 8-12 hours per week trusted advisor relationship with a local electronics component manufacturer. Activities included Kata coaching, TPM coaching and technical troubleshooting, Lean Six Sigma Team project coaching, and mentoring.

TDO continued an ongoing coaching relationship (2-3 days a week) with a local OEM focused on Toyota Kata. In addition, focused “tool” based Kaizen events were facilitated as the need for their use arose out of the Kata and Tier meetings.

TDO provided Tech Scouting and TDMI services to an individual interested in development of an automated device to facilitate escape for pets in a fire. TDO performed patent searches, market analysis and provided an assessment of business viability based on findings.

TDO helped coordinate a project with partner P2I (Pollution Prevention Institute) at R.I.T. to provide fully funded work to reduce the negative effects and costs of wastewater and hazardous material management.

TDO facilitated a two-day KPI Kaizen event for a local millwork manufacturer to establish visual key performance indicators and tiered meetings for daily accountability and system performance monitoring.

TDO assisted a startup personal beauty product manufacturer with finding a molding manufacturer in the Central New York region that can provide prototyping and production services.

TDO facilitated a Value Stream Mapping event at a custom molding solutions manufacturer to help employees understand and document their Order to Cash process and to determine actions needed to achieve improvements toward a desired future state.

TDO was embedded at a local boat manufacturing company for over nine weeks and assisted them by providing onsite manufacturing and mechanical engineering services, including 3D CAD/CAM (Computer Aided Manufacturing), Mechanical Engineering support and design services acting as Engineering manager and coordinating with a contract boat designer. This support has enabled them to complete prototyping of a new line of luxury pontoon boats that has the potential to grow their top line by \$5 million in sales. TDO’s expertise has been applied to make the designers concepts manufacturable, improve performance and lower manufacturing costs as well as help mentor various positions in the organization.

Types of companies assisted:

Primarily small and mid-sized manufacturers.

Impacts

	01/01/2019 - 12/31/2019
Number of unique companies served	9
Number of jobs created	70
Number of jobs retained	379
Increased/retained sales	\$43,188,094
Cost Savings	\$5,122,520
New investment	\$16,166,300
Non-job Impacts Total	\$64,476,914

Summary of Centers Support of Regional Cluster:

Central New York's regional cluster is Data to Decisions. TDO assisted numerous companies with projects directly related to this cluster. Additionally, TDO facilitated connections between companies and regional Data to Decisions resources.

TDO performed extensive planning for the 2019 annual manufacturing and technology conference (NEXT) in partnership with NYSTAR assets CASE, NYSSTLC and the CNY Biotech Accelerator.

TDO staff attended seminars and sessions at the MEP national conference and Rochester Innovation conference including five specifically on Smart Manufacturing/ Industry 4.0. TDO became aware of a NIST-funded grant awarded to MEP centers including Michigan, Oregon, and Pennsylvania, who are developing an assessment and training for promoting Industry 4.0. TDO learned that the most successful approach for engaging clients appears to be a free ½ day assessment followed by on project proposals to address gaps and opportunities.

Center Funding

01/01/2019 - 12/31/2019	
State Funding	\$195,000
Federal Funding	\$405,429
Matching Funds	\$530,784
MEP-Dedicated Employees	6

Industry-Oriented Workforce Training

TDO participated on an "Advanced Manufacturing" team specifying, designing and implementing the next generation of fully "smart" automated production lines at a local manufacturer, including subsequent workforce training.

TDO designed automated chemical processing equipment for a manufacturer which included workforce training.

**MVCC Advanced Institute for Manufacturing (AIM)
Center Director: Cory Albrecht
Mohawk Valley Region**

Activities and Accomplishments (include new services developed):

In 2019, MVCC's Advanced Institute for Manufacturing continued to grow in both client outreach, projects and center revenues. AIM continued to leverage the relationships that Mohawk Valley Community College (MVCC) has with both Herkimer County Community College and Fulton Montgomery Community College. This partnership has enabled the MEP center to successfully reach all six counties within the Mohawk Valley Region and keep a transparent image as the manufacturers connect with their local community colleges for education and training. This growth was recognized by The Genesis Group as they awarded AIM with the Outstanding Program Award. This award recognizes an organization that has excelled in education and contributes to the region's growth.

During this period, AIM was awarded the Empire State Development's Department of Defense Cybersecurity Grant. This grant provided funding for defense manufacturing contractors to comply with the Defense Federal Acquisition Regulation Supplement (DFARS).

AIM and the Mohawk Valley Region experienced a significant win in September 2019 when Cree Inc. announced that the company selected the Marcy Nanocenter for expansion of a proposed state-of-the-art semiconductor facility to provide direct product support to the power electronics and RF technologies industries. This estimated \$1 Billion+ investment will create more than 600 jobs in the Mohawk Valley within the first three years. AIM and MVCC are very engaged with Cree as we look to develop customized training programs and construct labs, which can be integrated into Cree's new employee training program. MVCC is also working with Cree to develop the curriculum for the new Semiconductor Technology Program which will offer a direct pathway for future Cree employees.

With the addition of the SUNY Apprenticeship Program, AIM has been able to deliver on technical training projects to the regions' manufacturers. This program has made \$4.5 million available through 2022 to increase the technical skillsets of employees within advanced manufacturing. To date, AIM has approved more than \$1 million in DOL apprenticeship awards to 15 SUNY campuses.

AIM has created the employer technical training fund with additional NIST awarded grant money. These funds will provide our partner employers with direct access to MVCC and AIM training programs. During the 2019 reporting period, more than 10 regional advanced manufacturers received these financial awards from AIM.

AIM continued to plan, organize and host events in 2019 for manufacturers including those within the areas of cybersecurity, manufacturing training/consulting, and workforce development.

- Manufacturing Day 2019. This event held at MVCC attracted more than 800 high school students for career exploration, more than 250 college students and adults for the job fair and more than 50 NYS manufacturers exhibited at the event.

- Support and engagement with the Expertise Project. The Expertise Project is a pilot project that captures short videos of advanced manufacturing professions and displays the videos on a dashboard for students, parents and teachers to view.
- Herkimer County Manufacturing and Agriculture B2B Showcase. The event took place on June 5th and June 6th, 2019, at Herkimer County Community College and was attended by over 35 businesses. Agriculture is a primary focus for the Mohawk Valley Region especially in Herkimer County. This two-day event had some unique components for both manufacturers and statewide resources.
- Workforce Solutions Forum. AIM and MVCC partnered with FuzeHub to host the Workforce Solutions Forum held at the Delta by Marriot in Utica, New York on March 19, 2019. This event brought to light the various issues that manufacturers are encountering in developing their workforce in the Mohawk Valley Region, such as attracting talent, retention and skills growth, so they can accelerate their business. Over 100 people from the manufacturing sector and regional resources attended the event. Keynote speakers from both inside and outside of New York State addressed the challenges facing the manufacturing sector throughout the country and offered solutions for building their skilled workforce. Also, in attendance were Program Speakers from various area resources along with FuzeHub to showcase their capabilities in helping create solutions for the manufacturers.
- AIM developed and hosted a “Manufacturing Field Trip Day” for area high school educators and guidance counseling staff. This event provided a field trip style day filled with many manufacturing tours and group discussions to showcase the area’s premier advanced manufacturing organizations.

In 2019, AIM has introduced new programs and has made new technologies available to the region’s manufacturers in the following ways:

- 3-D Virtual Mapping
- Acquiring Syncrowave TIG Welding Equipment
- Beverage Analysis Program-Gas Chromatography Mass Spectrometer (GCMS) to offer flavor profiling for the food and beverage industry.
- 3-D Metal Printing. This equipment provides the capability to 3D print items using stainless steel, gold, silver, bronze, and platinum using a high-powered laser.
- Portable Electrical Training Systems for on-site electrical training programs
- Partnership with the Expertise Project to create short (five minutes or less) videos that can be utilized by manufacturers and schools to illustrate “a day in the life” of a professional working in advanced manufacturing.

Types of companies assisted:

Primarily small and mid-sized manufacturers.

Impacts

	01/01/2019 - 12/31/2019
Number of unique companies served	129
Number of jobs created	148
Number of jobs retained	260
Increased/retained sales	\$73,540,000
Cost Savings	\$19,033,000
New investment	\$23,996,000
Non-job Impacts Total	\$116,569,000

Summary of Centers Support of Regional Cluster:

Since the establishment of MVCC's Advanced Institute for Manufacturing (AIM), cybersecurity has been at the forefront of the program offerings. The Mohawk Valley Region has a very rich cybersecurity ecosystem. Generously populated with both higher education institutions that have nationally recognized programs in cybersecurity and a very strong government presence with the Air Force Research Lab (AFRL), the Mohawk Valley is a leader in cybersecurity programming.

MVCC's Advanced Institute for Manufacturing's cybersecurity focus for 2019 was centered on the management and delivery of the ESD DoD Cybersecurity Assistance Grant. This grant allowed AIM and the strategic business partners to perform 33 cybersecurity risk assessments for small and medium sized manufacturers throughout New York State. While the majority of the marketing efforts took place in 2018, the implementation of the assessments took place almost exclusively in 2019. The assessments included an in-depth review of NIST 800-171 requirements in comparison to current policies and procedures within the manufacturers, walk-throughs of the manufacturing facilities and conducting employee interviews.

Manufacturers were then provided an initial assessment report outlining needed areas of remediation to meet 800-171 requirements. Follow-up assessments were performed after a remediation period with these manufacturers and see how they have been improving their cybersecurity since the initial requirements. At the conclusion of the follow up assessment, manufacturers were issued a completion letter showing that they have engaged with a third-party assessment for cybersecurity and either were meeting all the requirements of the NIST 800-171, or had a plan of action in place to meet any areas of remediation still needed.

In addition, AIM continued to work with MEP centers throughout New York State, acting as a resource in cybersecurity in terms of education and assessments. AIM coordinated heavily with FuzeHub in an effort to promote their 2019 cybersecurity grant programs and participated in informative cybersecurity workshops held throughout New York State. AIM's Cybersecurity Coordinator, Paul LaPorte, acted as an educator and assessor for companies throughout New York. Paul teamed up with regional MEP centers to perform assessments for manufacturers in the Capital Region, Southern Tier, Central New York Region, and Long Island Regions.

AIM has directed focus towards the future with the forthcoming of the Department of Defense's CMMC requirements. AIM has collaborated with national cybersecurity resources as well as those

constructing the requirements to find out what was going to be needed for New York manufacturers and worked to familiarize themselves with the requirements that would be expected. This research proved very valuable in providing answers to the variety of questions that were being directed by cybersecurity conscience manufacturers that had concerns if they would be able to continue work in the DoD supply chain.

Center Funding

01/01/2019 - 12/31/2019	
State Funding	\$195,000
Federal Funding	\$405,429
Matching Funds	\$1,143,242
MEP-Dedicated Employees	5.15

Industry-Oriented Workforce Training

The Advanced Institute for Manufacturing works with its partners, MVCC, SUNY and its Apprenticeship Program, NYS Department of Labor, MEP Centers, and FuzeHub.

In the 2019 calendar year, AIM oversaw the administration of the SUNY Apprenticeship Program (SAP). MVCC was selected as the lead campus to administer, distribute, and oversee funding awarded to SUNY colleges taking part in the SUNY Apprenticeship Program. SUNY’s Apprenticeship Program works with the New York State Department of Labor to provide structured, documented on the job training programs and related college instruction for Registered Apprenticeship programs. Registered apprenticeship programs are proving beneficial in capturing the knowledge of the older, experienced workforce and passing that knowledge down to the next generation of workers. Eighteen companies in the Mohawk Valley took part in the apprenticeship during 2019 with 93 apprentices collectively taking part in this tried and true training model. SUNY apprenticeship supports different industry sectors such as advanced manufacturing, IT/cyber security, healthcare and “other” sectors, which means other apprenticeable trades that are not considered construction trades. MVCC has been approved as a related instruction provider for 15 trades, some of those trades being Machinist (CNC), Welder (Industrial), Plant Maintenance: Electrician and Electronics Technician. MVCC has been an outstanding technical instruction provider in the Mohawk Valley since 1946 and continues to provide state of the art instruction in cutting edge technologies.

AIM, being the areas designated Manufacturing Extension Partnership Center, fits with MVCC and SUNY Apprenticeship Program. AIM has been providing small and medium sized manufacturers with consulting, training and technology services in the Mohawk Valley Region and has an intimate knowledge of the manufacturer’s needs. The relationships forged through partnerships with AIM and the community’s knowledge of MVCC’s unwavering reputation has added value to the areas main sectors of Metal Machining and Fabrication, Food and Beverage, Electronics, Wood, and Aerospace/Department of Defense Suppliers.

The Mohawk Valley Region has experienced great increases in employee skill levels, retention rates and is starting to refill its surplus of highly-skilled workers due to AIM, MVCC and all of the partners working together in the continuous improvement of the areas workforce. Partnerships such as these are reminiscent of and pay homage of the forbearers who forged technology and manufacturing in the area and shines a light on the current generation of skilled tradespersons who continue to develop, create and support technology and innovation.

CITEC Business Solutions
Center Director: Steve Lockwood
North Country Region

Activities and Accomplishments (include new services developed):

The year 2019, was a solid period for training and consulting for North Country manufacturers. To address constant changes in market realities and available technology, manufacturers need to be more nimble in their project management. They need teams that get on board faster and can come together to execute a wide range of projects on time, under budget and without disrupting workflow. CITEC developed a new training series in Project Management that was delivered to several companies including Swarovski Lighting, which designs and manufactures crystal lighting products in Plattsburgh, NY. Swarovski trained management employees on the basics of project management with goals of improved project completion rate, cost reduction, increased sales, and improved employee skills.

Bottom line growth continues to be the area where clients most need help. At Kingston Pharma in Massena, CITEC facilitated a 5S-based kaizen to facilitate improved productivity. CITEC provided a technical training program to new hires at the International Paper plant in Ticonderoga. This training includes basic engineering principles to help new employees understand their work and how it fits into the whole system more quickly, reducing overall training time.

A kaizen for HiLite Airfield Services standardized water blaster work, which resulted in a cost-saving initiative. HiLite also sought leadership training to standardize team management across units. Barrett Paving also enlisted CITEC in a leadership project; crucial conversations training helped empower Barrett employees to speak up with workplace ideas and concerns.

Essex Industries, based in Mineville, NY, is an integrated workplace where people with developmental disabilities work alongside others with no disabilities to make high quality canoe accessories, which are sold to many top canoe manufacturers and suppliers in the US and internationally. CITEC worked with Essex Industries on value stream mapping and lean training to ensure staff involvement in continuous improvement. Additional continuous improvement projects through CITEC's newly revised Lean White Belt program include, an overall equipment effectiveness evaluation at Mold Rite and a new line throughput project at Fujitsu. Omniafiltra, a Beaver Falls plant producing specialty paper products, engaged CITEC to create and deliver a custom ten-hour safety program to meet the needs of their floor staff, deliver a custom leadership training for management and assist with ISO certification. Corning, Inc. used CITEC process engineering expertise on continuous improvement support for a growth project through most of the year.

Supply chain activities included tightening margins with Essex Pallet and Pellet, which makes custom pallets, working with NY Airbrake to identify and execute workflow process improvements as well as trained staff and management in continuous improvement basics and project management, workflow improvements at Luminator Technologies, and FSMA compliance audit at Lakeside Container.

Transformational projects with repeat clients who continue to build on their success included ISO assistance with Current Apps in Watertown and new machinery installation at Adirondack Fragrance and Flavor Farm in Parishville.

CITEC partnered with CESMII, CAMP and P2I to stage a revival of the North Country Pulp and Paper Roundtable addressing the needs of the regional Pulp and Paper industry. The first event, in May, was wildly successful with around 45 attendees and a robust agenda. The project continues with plans for a webinar series in the fall and in-person events annually.

Types of companies assisted:

Primarily small and mid-sized manufacturers.

Impacts

	01/01/2019 - 12/31/2019
Number of unique companies served	16
Number of jobs created	43
Number of jobs retained	151
Increased/retained sales	\$41,496,597
Cost Savings	\$3,191,620
New investment	\$21,886,200
Non-job Impacts Total	\$66,574,417

Summary of Centers Support of Regional Cluster:

The North Country Regional Cluster is transportation equipment and materials and aerospace. Across the sector, CITEC provided the following: ISO certification audits for Universal Interiors; worked with Camso on a scrap reduction program; through a Lean White Belt training worked with Nova Bus on several projects including a plant walkway layout project, kitting efficiency improvements, some visual controls, and other workflow improvements; trained NY Airbrake staff and management on continuous improvement basics and implemented several projects; and worked with startup Luminator Technologies.

CITEC serves on the NAmTrans (North American Center for Transportation Excellence) advisory board. NAmTrans is integral to the support of the cluster across the region. In 2019, they hosted the first ever Quebec/NY Transportation Rendezvous which allowed companies from both sides of the border explore resources and opportunities to work together.

Center Funding

01/01/2019 - 12/31/2019	
State Funding	\$195,000
Federal Funding	\$405,429
Matching Funds	\$478,977
MEP-Dedicated Employees	8

Industry-Oriented Workforce Training

From simple projects like small events to large capital improvement projects, businesses rely on successful planning, execution and close-out to move forward. Many companies do not know how to properly execute projects that are outside of their everyday operations. CITEC's project management training has become an important new offering with topics that include planning charters, resource allocation, stakeholder analysis, SIPOC maps, change management, time management, risk analysis, failure mode analysis, management software and more.

CITEC's Lean White Belt training was revamped in 2019 to reflect years of participant input and include an in-plant project that offers immediate ROI while imparting the tools and knowledge to develop and support continuous improvement projects and culture moving forward.

Supervisor training continued to be a frequently cited need by companies of all sizes across the region. CITEC's Supervisor Certification Series ensures that a company's best employees also have the tools they need to succeed at leadership.

Safety training continues to be a big need for companies across the North Country. CITEC trains on all kinds of OSHA standards, including Lockout Tagout, Confined Space, Electrical/Arc Flash, Accident Investigation, Job Hazard Analysis, Slips, Trips and Falls, Fall Protection, Ergonomics, PPE, and more. OSHA-10 certification is a requirement at many job sites. This training not only saves lives and injuries, but improves overall bottom line by reducing accident payouts, OSHA fines, lost work time, improves morale, and reduces turnover.

At NY Airbrake, every employee in the chain of command on all three shifts trained in Lean 101 this year, ensuring a shared experience and understanding of what it means to participate and support projects with a continuous improvement mindset. This kind of commitment to Lean manufacturing results in greater teamwork and offers an easier path to success at many levels.

Center for Economic Growth (CEG)
Center Director: Michael Lobsinger
Capital Region

Activities and Accomplishments (include new services developed):

In 2019, CEG stepped up our efforts in the Off-Shore Wind (OSW) supply chain and attraction efforts and helped two ports in Albany county successfully secure contracts with OSW Developers. The efforts also lead to engagements (through webinar, regional conference, direct engagements and an online intake form) with dozens of small to medium sized manufacturers showing interest in participating in the supply chain.

Though CEG also delivered on several projects within the standard Continuous Improvement and Growth services, which were very strong in 2019, CEG also saw increase engagement in the Sustainability and Energy Services with manufacturers showing additional interest in solar power. Additionally, with the significant support from Fuzehub and NYSTAR, the Capital Region delivered on additional Cyber Security Grant projects.

Finally, CEG began to explore in 2019, further interest in automation and robotics by holding a couple of workshops on cobots with Axis NY. A handful of companies have showed interest but have not made any definitive decisions. Going in to 2020 and 2021, CEG will be coordinating efforts around this concept with Axis NY, Rensselaer Polytechnic Institute, Hudson Valley Community College, and Tech Valley Center of Gravity.

Types of companies assisted:

Primarily small and mid-sized manufacturers.

Impacts

	01/01/2019 - 12/31/2019
Number of unique companies served	102
Number of jobs created	76
Number of jobs retained	173
Increased/retained sales	\$144,308,028
Cost Savings	\$1,464,004
New investment	\$11,094,356
Non-job Impacts Total	\$155,866,388

Summary of Centers Support of Regional Cluster:

The Capital Region cluster is R&D and Commercialization. With the broad university research assets in the region supporting several industry sectors this cluster is in good alignment with the regional strategic goal. Within this cluster, CEG also includes support of advanced manufacturing and technology-based entrepreneurship. The 2019 year was busy for CEG. CEG completed efforts with VARA Safety’s product development and launch of their REACH handgun locking system. CEG also began efforts with United Aircraft Technology in development of new light weight wire harness clip for aerospace. Both projects were supported by the Fuzehub Jeff Lawrence Innovation

Fund. CEG also sponsored three Biotechnology companies in a program called HUB-SV as a pilot to engage local companies to Silicon Valley investment groups. CEG also supported Ecolong in several SBIR applications of which they were awarded a Phase I with DOE and likely Phase II for 2020. Also, in 2019, CEG hosted three VentureB Pitch programs, which provided pitch coaching and an opportunity to pitch to local business leaders and investors to 6 startups. CEG and New York State continue to invest in the acquisition of a Stratasys 3D Printer located at the Tech Valley Center of Gravity (TVCOG) by giving access to advanced prototyping equipment and resources to advanced manufacturing and technology startups. CEG continues to look to add resources to the TVCOG to ensure the entire community has access to modern and advanced tools.

Center Funding

01/01/2019 - 12/31/2019	
State Funding	\$195,000
Federal Funding	\$405,429
Matching Funds	\$846,070
MEP-Dedicated Employees	7.87

Industry-Oriented Workforce Training

Continuing from CEG’s Workforce Pathways project in 2018, in 2019 CEG was supported by Key Bank to launch two manufacturing training programs:

- This non-credit introductory course offered through Hudson Valley Community College is intended to quickly skill-up individuals who are new to manufacturing. The program consists of an intensive, hands-on, 80-hour boot-camp that covers a wide array of manufacturing topics.
- The purpose of the Certified Production Technician (CPT) program, offered through SUNY Schenectady, is to recognize, through certification, individuals who demonstrate mastery of the core competencies of manufacturing production at the front-line (entry-level through front-line supervisor) through successful completion of certification assessments.

Also, Through the support of the Manufacturing Association of New York, CEG recently launched the Manufacturing Intermediary Apprenticeship Program in the Capital Region. Under this program, CEG will serve as a group sponsor and operate as the intermediary between participating companies and the NYS Department of Labor (DOL).

In addition, CEG began development of strategies for workforce training and development for the Off-Shore Wind initiative and is working closely with the OSW Developers, OEM’s and Tier1 suppliers to ensure training and pathways are created for this new industry through our educational partners.

Manufacturing & Technology Enterprise Center (MTEC)
Center Director: Thomas G. Phillips
Mid-Hudson Region

Activities and Accomplishments (include new services developed):

Throughout 2019, MTEC worked with over 40 Hudson Valley manufacturing companies to improve their competitiveness and long-term viability. Assistance projects were customized as appropriate to the unique requirements of each manufacturer to improve their productivity, improve quality, reduce costs, improve on time deliveries, and increase market share. A number of various tools and processes, including but not limited to Lean and Six Sigma, ISO Certification and Quality Management, equipment automation, new and enhanced product design, facility design and layout, IT acquisition and implementation, and key technical and management recruiting services were employed by MTEC in the delivery of these projects.

In addition, in response to the rapidly growing incidence of successful Cyber-attacks to both individuals and all business sectors, MTEC launched an initial set of Cyber services to our clients in 2019. MTEC's independent audit is based on standards for cybersecurity assessment by NIST (NIST 800-171) and includes:

- Risk identification and management.
- Comprehensive understanding and awareness of current cybersecurity industry standards.
- External vulnerability testing of firewall protection & internal network exposure.
- Review of current policies related to information security, data protection, and access control.
- A detailed description of the vulnerabilities, prioritized security risks to focus on & maintenance procedures.
- Assessment of current anomaly, event monitoring & response planning for the future.

Over two dozen Cyber projects were performed for manufacturers in 2019 with over 50% active in the DOD supply chain. The projects rapidly became the number one service delivered by MTEC representing almost 30% of our annual local project fees.

Types of companies assisted:

Primarily small and mid-sized manufacturers.

Impacts

	01/01/2019 - 12/31/2019
Number of unique companies served	17
Number of jobs created	10
Number of jobs retained	249
Increased/retained sales	\$86,050,000
Cost Savings	\$1,589,000
New investment	\$4,738,480
Non-job Impacts Total	\$92,377,480

Summary of Centers Support of Regional Cluster:

Recognized by both NYS and the Mid-Hudson Regional Economic Development Council (MHREDC) as a significant growth industry within the manufacturing sector, MTEC continued to focus on expanding and enhancing its level of engagement and services to the Food & Beverage Manufacturing industry within the region and state during 2019.

An additional thirty-two (32) initial meetings were held by MTEC staff with companies within the Food & Beverage sector during 2019 bringing the total number of meetings since the inception of the program to 102. The meetings continue to represent a diverse cross-section of the cluster, including micro-breweries, small food processors, equipment manufacturers as well as the larger food and beverage processors. Entrepreneurial start-ups and longer term established companies are included in this activity. There were nine (9) new contracts for direct services approved by clients during the year bringing the number of open or completed projects with F&B companies to twenty-four (24). One of the projects provided the client with an Independent Audit of their Cybersecurity Vulnerability Risk and recommended remediations using the NIST 800-171 Guidelines as the reference standard.

The bi-monthly newsletter, “The Food & Beverage Corner”, focused on the smaller, emerging food and beverage companies launched in January 2018, completed its 2nd year of publication. Total distribution continues to exceed 1,500 recipients, an increase of 50% since its inception. Open rates are slightly over 20%, well above the industry average.

Center Funding

01/01/2019 - 12/31/2019	
State Funding	\$290,000
Federal Funding	\$597,590
Matching Funds	\$815,709
MEP-Dedicated Employees	15.40

Industry-Oriented Workforce Training

MTEC supported training of the manufacturing-oriented workforce through two distinctively different but equally important programs in 2019.

The first program provided training to incumbent manufacturing workers at their workplace that supported the company's unique requirements to meet both their current and future goals. Most of the projects (over 60%) addressed topics that would improve the productivity and quality or product costs of the company's product and services. Subject matter included the full suite of Lean and Six Sigma manufacturing theories and tools, ISO compliance and certification, Quality Management principles and controls as well as training in the use of advanced software systems (e.g. ERP). In addition to providing the theory behind these subjects, the programs included actual implementation for the trainees at the company. The balance of the projects provided training from our soft skills portfolio. Projects included, but were not limited, to Leadership/Supervisor Skills, Effective Teams, Sexual Harassment Prevention, and IT Security.

Our second program in 2019 provided ten (10) intern opportunities for both undergraduate and graduate students from the region. The attraction and retention of our College graduates, especially STEM graduates, is critical to the future success of manufacturing companies in the Hudson Valley. Interns are mentored by senior level engineers with vast experience in the manufacturing sector. Those interning at MTEC are afforded the opportunity to apply their engineering skills to real world problems, a critical stepping-stone from an undergraduate/graduate education into an engineering career in manufacturing.

Through this unique program, MTEC has demonstrated the technical competencies required to assist companies in both the creation of technologically advanced new and enhanced products as well as the integration of advanced technology into their operations thru equipment automation, sensor technology, advanced control systems as well as major upgrades to operating systems such as ERP, Process Control and Quality Systems.

Over the past two years, upon College graduation and completion of their internship at MTEC, more than 80% of the interns have accepted positions with manufacturing entities, most in the Hudson Valley or other areas of NYS.

ITAC
Center Director: Kinda Younes
New York City Region

Activities and Accomplishments (include new services developed):

- [ITAC’s Ops21](#) program is going strong. After finishing the advanced manufacturing survey and 20+ workshops (awareness + advanced ones), ITAC awarded grants to manufacturers looking to implement advanced technologies.
- ITAC collaborated with the Brooklyn Navy Yard for a third year on their Business Growth and Leadership Cohort. ITAC worked closely with 12 businesses to take them through various workshops with the final objective being for these companies to develop a solid growth plan, increase their revenues and create/retain jobs.
- For Manufacturing Day, ITAC organized a large event around fashion which took place on October 3rd at the [Fashion Institute of Technology](#) (FIT). ITAC partnered with FIT, the [Workforce Development Institute](#) and [Pratt](#). It also worked with three promotional partners including [FuzeHub](#), [NYCEDC](#) and the [New York U.S. Export Assistance Center](#). The two panels were highly successful and included high-profile speakers. The first focused on emerging business models and the second on equity and inclusion (brands offering a wide range of sizes or focusing on groups such as minorities or LGBTQ+). ITAC also had students involved and organized seven factory tours in the Garment District. Over 250 people attended and the feedback received was excellent.
- ITAC’s [RAPID](#) (Manufacturing USA Institute) project initiated a deep dive into supply chains to help manufacturers with sourcing. Also, as part of the RAPID program, ITAC engaged food and beverage manufacturers within NYS to participate in projects that mitigate wastewater issues.
- ITAC is providing export services thanks to an ESD Global-NY award. Some of the funding is being used to subsidize client projects related to export.

Types of companies assisted:

Primarily small and mid-sized manufacturers.

Impacts

	01/01/2019 - 12/31/2019
Number of unique companies served	60
Number of jobs created	188
Number of jobs retained	325
Increased/retained sales	\$86,608,792
Cost Savings	\$18,513,100
New investment	\$98,122,046
Non-job Impacts Total	\$203,243,938

Summary of Centers Support of Regional Cluster:

- To support the Smart Cities cluster as it relates to Manufacturing and Technology, ITAC:
 - Assists small manufacturing and technology companies in scaling up through training, coaching and consulting on manufacturing basics. The ultimate objective is to accelerate commercialization of new products, thereby creating revenue and jobs for NYC and NYS. As an example of such work, ITAC is discussing options for a NYC manufacturer around implementing advanced technology and determining how to modernize production.
 - Partners with workforce organizations to increase the pipeline of available candidates for existing and emerging jobs and continue helping clients with their workforce needs. Given its solid knowledge of local manufacturers, ITAC is always asked to provide input into relevant programs. As an example, ITAC advised a local bakery regarding options to accelerate commercialization by rapidly expanding into the wholesale market with this leading to new hires for the company.
 - Links small and medium-sized businesses with NYC and NYS suppliers. With a recent example being, the connecting a manufacturer with plastic molders/vacuum forming companies for its needs.
 - A member of the [REDC](#), Kinda Younes participates in all meetings and initiatives. She co-chaired the Downtown Revitalization Initiative again in 2019.

Center Funding

01/01/2019 - 12/31/2019	
State Funding	\$315,000
Federal Funding	\$677,012
Matching Funds	\$1,066,823
MEP-Dedicated Employees	9

Industry-Oriented Workforce Training

- ITAC collaborated on two separate workshop series. The first one is a HR Training Workshop covering a range of topics from solidifying employee expectations to the fundamentals of compliance. The second series is about corporate culture.
- ITAC conducted a broad manufacturing industry survey across the five boroughs focusing on workforce needs with the goal of improving the competitiveness of NYC manufacturing and eliminating barriers to skilled employment. The full [report](#) can be found on our website.
- ITAC supports NYC Small Business Services “ApprenticeNYC” via promotion and making valuable connections. The new training model combines traditional workforce education and training with on-the-job learning provided by employers and in 2019, ITAC introduced eight manufacturers to the program.

Manufacturing & Technology Resource Center (MTRC)
Center Director: Dr. Imin Kao
Long Island Region

Activities and Accomplishments (include new services developed):

MTRC closed out a very successfully year in project engagement in 2019. Year to date, MTRC has engaged in a total of 377 projects with 178 unique manufacturing companies within Nassau and Suffolk counties. MTRC has increased company interactions to a total of 287 companies as reported to NIST MEP. This is through program partnerships, supplemental award matches and event sponsorships for engagement and outreach.

The Second Annual Manufacturers' Symposium was a success. MTRC was the main sponsor of this full-day event, bringing together manufacturers from Long Island and highlighted the various resources that exist throughout NYS. With over 100 registered attendees, the event successfully delivered panel discussion on Academic Partnerships, Economic Development programs (CATs and COEs), Industrial Development Agencies (IDAs), local state & federal funding programs, the Manufacturing Extension Partnerships (MEPs), and workforce development resources.

MTRC's work with the Long Island Food Council (LIFC) in 2019 proved to be a success. MTRC has sponsored seven events in partnership with LIFC. MTRC has secured 24 consulting projects of which seven are still active. MTRC has committed \$122,540 to the projects and have requested additional funding be added to the budget to continue the outreach work. Currently, MTRC has twelve new consulting project requests in queue.

- MTRC's Coffee & Connect informational breakfast meetings have been very successful, especially in partnership collaborations. Every month MTRC highlights a program partner or new resources available to manufacturers. MTRC had a total of 182 registered attendees at the end of June 2019 and closed the year off with 288. MTRC is seeing success in reaching out to more companies, most especially manufacturers located in Nassau County. This year MTRC partnered with such programs as the NYS Advanced Robotics Alliance and MCorps SecondMuse to bring additional programs to companies outside of already established program partners.
- Manufacturing Day 2019: The hosted day consisted of a comprehensive program of networking, ongoing collaboration and pooling of all industry and educational resources to continue sustained and economic job growth. The MFG Day was held on the Stony Brook University (SBU) campus at the Student Activity Center, which drew more than 100 registered attendees with a robust program, featuring the MTRC as the main sponsor with SBU as a co-organizer. It included the following panels and talks: Millennials (under 30) in MFG Careers & their Stories, Manufacturing/Technology Industry Overview Trend Towards Additive MFG (3D Printing), Industry Panel: Women in MFG – Opportunities to Excel, MFG Continuous Improvement Savings Case Study, Industry Panel: Long Island MFG on The Move featuring local industry executives, Funding Resources & Manufacturing Grant Overview talk, CEAS Industry Support & Facilities Overview from the College of Engineering all followed by Engineering Shop Tours.

- **Cybersecurity:** MTRC and FuzeHub developed a NY-MEP Cybersecurity fund that ran through the majority of 2019. The \$200,000 cyber grant was available to all NYS manufacturers to offset the costs of cybersecurity gap assessments and implantation to bring manufacturers to full NIST 800-171 compliancy. This campaign has been successful in establishing 26 unique gap assessment projects amongst all of NY-MEP centers.
- **MTRC’s Rapid Prototyping User Facility,** designed to support the needs of MTRC manufacturing client companies and to help them to reduce their costs of product development, located at the CEWIT building in the R&D Park on Stony Brook Road, opened its doors on April 3, 2019.
 - On April 3, 2019, MTRC hosted a successful ribbon cutting and open house event. At the ribbon cutting, MTRC hosted over 50 attendees from 23 companies. Companies had the opportunity to meet the MTRC team of engineering graduate students working in the User Facility where they answered questions and attendees from the various companies got to see live demonstrations of how the various machines worked in printing and scanning prototypes.
 - Of the four companies that have utilized our Rapid Prototyping User Facility, two of the companies used the equipment to 3D-print parts in prototype development. Three are active projects. One prototype was presented at the TechConnect exhibition in Boston in June 2019, with a very successful presentation and demonstration. Others included:
 - Textured Food innovations - custom food molds for puréed meals,
 - CVD Equipment - 3D printed parts for a prototype artificial lung,
 - Sunrise Technology - 3D-print a base for a camera to be mounted on a self-driving prototype car, and
 - Mechanismic - cut customized parts to manufacture robotics kits.
 - The User Facility also provided support to the 2019 Robotics Camp by laser cutting the components for the students’ kits for both the Nassau and Suffolk County camps. Over sixty robotics kits were manufactured. More details on the Robotics Camp is below under “Industry-Oriented Workforce Training”.

Types of companies assisted:

Primarily small and mid-sized manufacturers.

Impacts

	01/01/2019 - 12/31/2019
Number of unique companies served	353
Number of jobs created	80
Number of jobs retained	123
Increased/retained sales	\$13,844,000
Cost Savings	\$2,224,000
New investment	\$18,886,700
Non-job Impacts (New Sales) Total	\$34,954,700

Summary of Centers Support of Regional Cluster:

MTRC supports biotechnology companies with consulting support and qualifying matching supplemental awards to cash investments as well as companies that have received NIH SBIR/STTR funding with a supplemental award to assist the company to move to the next phase of their projects.

Through consulting support, MTRC engaged with over 20 companies. There were several successful activities that led to manufacturing, research efforts and business advances for these companies.

Examples:

1. Applied DNA Sciences (Stony Brook, NY) - Consulting and discussion on ongoing projects.
2. AWE technologies (Bayshore, NY) - Consulted on Hemolysis assay using wave technologies; assist in the submission of grant proposals (April 2020)
3. AB Bioinnovations (Huntington, NY) - Consult for ongoing Animal studies at Stony Brook University for efficacy of compound for wound healing.
4. Textured Food Innovations (Carle Place, NY) - The consultant helped develop business plan and strategy for commercializing diets for hospitalized patients with Dysphagia (Difficulty in swallowing food).
5. Allied Microbiota (Stony Brook, NY) - Consulted on Manufacturing and scale-up consulting for Bacterial cakes and by-products for environmental clean-up applications. Discussed business advantages for acquiring existing equipment available at LIHTI from BioCogent.
6. Cavitation Energy (Haupaugge, NY) - Several components have now been manufactured. The prototype is being readied for energy generation at their Haupaugge, NY Facility. The consultant helped identify OEM manufacturers for components and helped plan for market introduction of the device.
7. inGenious Targeting Labs (iTL) - Has successfully been awarded two SBIR Phase I awards that have each received MTRC supplemental award.
8. DUKAL - In development of medical leg stretcher equipment.

Center Funding

01/01/2019 - 12/31/2019	
State Funding	\$315,000
Federal Funding	\$677,012
Matching Funds	\$3,932,986
MEP-Dedicated Employees	1.50

Industry-Oriented Workforce Training

MTRC works closely with the Center for Corporate Education (CCE) and have invested in multiple educational programs in collaboration with CCE. MTRC looks to sponsor and support regional workshops and webinars.

MTRC works closely with WDI to bring additional support to workforce training projects through either CCE or other local training programs.

Workforce and Education Advisory Committee: MTRC is part of the Long Island Workforce and Education Advisory Committee, which is comprised of public and private sectors of industry throughout Long Island, including Suffolk and Nassau County Community College to leverage

services and collaborate in outreach efforts.

Long Island Apprenticeship and Workforce Development Task Force: MTRC has joined with CCE to be part of the Long Island Apprenticeship and Workforce Development Task Force. Powered by Congressman Tom Suozzi, along with County Executives Laura Curran and Steve Bellone, the mission of the task force is to develop a complete and accurate picture of the apprenticeship and career pathway ecosystems on Long Island including funding, organizations and programs with special emphasis on facilitating a robust program to connect employees to employers who will offer a career pipeline to secure long-term middle-class jobs. MTRC presented the program to the Aerospace defense industry through our program partner, ADAAPT. The program has been welcomed by the industry and has had a very successful launch in September 2019.

K-12 Outreach: Robotics Camp Program– STEM Education and Workforce Development Summary: The MTRC pilot robotics summer camp program was so successful in 2018 that the center sought to host two sessions in 2019 to increase the number of students that can participate in the program throughout Long Island. This summer, that goal was achieved seamlessly with the partnerships of the Center of Excellence in Wireless Information and Technology (CEWIT) and Carle Place High School. MTRC hosted one session for Suffolk County in Stony Brook, NY in the CEWIT building from July 8th – July 19th and one session for Nassau County at Carle Place High School from July 29th – August 9th. In total, 51 students in grades 6th through 12th from 35 school districts were given full scholarships to attend this program this summer. The 10-day curriculum included introduction to practical electronics, programming, sensors and MotionGen. The recap video for 2019 can be found on YouTube (<https://youtu.be/AhpanFMByuk>).

MTRC plans on modifying the program for next summer. MTRC will review the age guidelines for suitability and will look to make the application process a bit more competitive. Either way, the program will be embedded as a workforce development initiative to foster the interest of STEM-based disciplines in the next generation of workforce.

- **2019 Innovator of The Year Award:** MTRC and Mechanismic, developers of the robotics kit, SnappyXO, were named Innovator of the Year in 2019 by the esteemed Innovate LI for MTRC's development of Robotics Camp program. MTRC was honored at a breakfast, along with 15 additional of Long Island's best and brightest, across a broad spectrum of inventive genres.

FuzeHub
Center Director: Elena Garuc
Statewide (Marketing & Matching)

Activities and Accomplishments (include new services developed)

Assistance to companies

In 2019, FuzeHub directly assisted 369 companies through its Solutions Program. For each of these companies, FuzeHub's team of manufacturing and technology experts performed assessments, developed a solutions pathway based on an extensive, vetted network of specialized experts, and provided end-to-end support while the company pursued those partnerships and solutions.

In 2019, 2,312 companies and other organizations participated in 37 FuzeHub events, which were designed to educate manufacturers and start-ups about critical issues affecting industry competitiveness and to facilitate relationships between those companies and relevant innovation assets in the NYSTAR network. This included several of FuzeHub's signature Solutions Forums held in 2019, which had focus areas including medical devices and workforce development, plus a number of events covering issues such as cybersecurity for manufacturers, automation, diversification for defense suppliers, and a B2B showcase focused on manufacturing and agriculture. Additionally, FuzeHub conducted at least 10 webinars in 2019, covering a range of topics including the Industrial Internet of Things, robotics in manufacturing, IP protections for new hardware products, cybersecurity threats and compliance, and marketing for manufacturers.

Through the Jeff Lawrence Innovation Fund, FuzeHub awarded 18 Manufacturing Grants in 2019 totaling \$767,145. These grants supported collaborative manufacturing innovation projects with colleges, incubators, regional Manufacturing Extension Partnership centers, and various NYSTAR assets. At its third annual Commercialization Competition in November 2019, FuzeHub awarded a total of \$400,000 to six New York State entrepreneurs to advance their commercialization strategies. The six winners, picked from 18 finalists that pitched their innovations to a live audience, included innovations in agricultural technology, medical devices, virtual reality, renewable power, and advanced electronics. The Jeff Lawrence Innovation Fund has become a well-recognized resource for spurring technology development and commercialization across New York State.

Marketing

FuzeHub has become a valued source of information for New York State manufacturers and technology companies. As part of FuzeHub's goal of increasing the market penetration and system-wide impact of NYSTAR network, FuzeHub actively promotes the NYSTAR-funded centers' expertise and capabilities through various blog series (including the "Faces of New York State Manufacturing" and "Ask and Expert" series), resource reports, its "New York State Manufacturing Now" original podcast series, other online content, printed collateral, and a variety of events and activities.

FuzeHub organized and hosted the New York State Innovation Summit in Rochester on October 8-9, 2019. Now the premier annual event that showcases the NYSTAR assets to drive increased collaboration with industry, this sold-out conference featured a bustling exhibition hall and insights from industry leaders. Over 550 people participated, which included representatives from about

100 companies that exhibited their novel products or technologies. The event also drew participation from federal agencies.

New services

As the statewide New York MEP center, FuzeHub led several new productive collaborations and new initiatives in 2019.

In July 2019, FuzeHub earned the \$250,000 top prize in the U.S. Department of Energy's American Inventions Made Onshore (AIM Onshore) Prize Competition, allowing FuzeHub to extend and expand its new Build4Scale NY program to help hardware innovators with challenges in design for manufacturing. Since 2018, FuzeHub's Build4Scale NY program has trained 130 companies in how to create manufacturing-ready product designs, supported individual company projects with \$60,000 in funding, and helped entrepreneurs enter into \$175,000 worth of contracts with U.S.-based contract manufacturers. The program is addressing a significant need because without such training, innovators commonly make mistakes that lead to costly product redesign and ineffective supply chain relationships with offshore producers.

The year 2019 saw significant ramp-up of FuzeHub's efforts to expand NY MEP's cybersecurity-related services to New York State manufacturers. Together with NYSTAR and AIM, the Mohawk Valley MEP center, FuzeHub offered a cybersecurity assessment program, provided grants to cohorts of companies to help them evaluate their cybersecurity risks and achieve compliance with new federal requirements, and hosted several related workshops and webinars.

Also, in 2019, FuzeHub entered a cooperative agreement with National Institute of Standards & Technology (NIST) Labs to pilot a federally-developed technology concerning identification and isolation of robot workcell degradation. In partnership with Rensselaer Polytechnic Institute and Buffalo Manufacturing Works, FuzeHub is helping to pilot NIST Labs' test method in manufacturing environments and participating companies are experiencing an advanced technology that will better identify robot degradations prior to quality or productivity losses. This project represents an important step for the national MEP network in helping to facilitate technology transfer of R&D developed in federal labs, while advancing adoption of Industry 4.0 technologies on New York shop floors.

FuzeHub continues to collaborate with the rest of the NY MEP network to keep New York manufacturers apprised of emerging technologies that can increase their competitiveness. In 2019, FuzeHub maintained "embedded" staff in two of the federally-funded Manufacturing USA Institutes: The Advanced Robotics for Manufacturing Institute (ARM Institute), for which FuzeHub also serves as the co-lead for the institute's New York node alongside Rensselaer Polytechnic Institute, and the Clean Energy Smart Manufacturing Innovation Institute (CESMII). As part of this work, FuzeHub leads the Empire State Advanced Robotics Alliance and the embedded staff held many virtual and in-person forums educating manufacturers about automation and smart manufacturing technologies and how to engage with the institutes.

Types of companies assisted

Primarily small and mid-sized manufacturers, including many start-ups and entrepreneurs developing new products and manufacturing-related technologies.

Impacts

	01/01/2019 - 12/31/2019
Number of unique companies served	0
Number of jobs created	28
Number of jobs retained	31
Increased/retained sales	\$5,685,000
Cost Savings	\$1,086,086
New investment	\$65,184,500
Non-job Impacts Total	\$71,955,586

Summary of Center's Support of Regional Cluster:

Under FuzeHub's unique statewide NY MEP designation, FuzeHub does not support a particular regional cluster as defined by a particular Regional Economic Development Council (REDC). However, each of the ten REDCs identifies manufacturing as a priority industry cluster and FuzeHub's work to champion New York's manufacturing sector and increase manufacturing competitiveness therefore supports each of the REDC's strategic plans. Moreover, FuzeHub regularly focuses its trainings, webinars, programs, and events on particular sub-industries that are priorities in various REDC strategic plans; for example food manufacturing, medical devices, or cleantech. Additionally, they support each regions cluster initiative by providing support via marketing, advertising and events.

Center Funding

01/01/2019 - 12/31/2019	
State Funding	\$1,298,000
Federal Funding	\$1,325,721
Matching Funds	\$1,146,890
MEP-Dedicated Employees	10

Industry-Oriented Workforce Training

In its role as a NY MEP center, FuzeHub's work with manufacturers and technology companies frequently involves training incumbent workers and entrepreneurs on a variety of topics related to manufacturing competitiveness. For example, FuzeHub's Build4Scale program trained 130 start-up leaders in how to create manufacturing-ready product designs and how to successfully engage with contract manufacturers. Similarly, FuzeHub's cybersecurity-related work entails training employees of manufacturing establishments on cybersecurity risks, new federal cybersecurity standards, and mitigation strategies. FuzeHub's webinars and workshops are primarily designed to educate manufacturing leaders and manufacturing employees about ways to increase competitiveness, often through use of emerging technologies and Industry 4.0 solutions.

APPENDIX

NIST MEP - National Institute of Standards and Technology's Hollings Manufacturing Extension Partnership provides roughly \$6 million per year to NYSTAR to manage this program.

Impacts - NIST MEP contracts with a third-party survey house to reach out to companies that have received assistance from a NY MEP center to identify impacts that have been realized through the engagement. Impacts captured include, jobs created, jobs retained, cost savings, retained sales, increased sales, and cost avoidance.

Funding Levels-formula - The amount of funding for the regional MEP centers is based on the number of manufacturers with less than 500 employees within each region. For the current NY MEP designation period of 1/1/2016 – 12/31/2020 the funding levels, if state and federal funding remain constant, are set at:

Number of Manufacturers in a Region	Regional Funding Level
0 – 1,000	\$575,000
1,001 – 2,000	\$850,000
Over 2,000	\$950,000