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# 2019 Long Island Manufacturing Snapshot

Prepared by The Workforce Development Institute  
For the Long Island Legislative Manufacturing Task Force



WORKFORCE  
DEVELOPMENT  
INSTITUTE

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# LI Manufacturing Task Force

# About this Report

Long Island's economic and workforce development organizations work with the region's manufacturers in a variety of ways to help grow and keep employers and their jobs on Long Island. Leveraging the expertise of this regional network of partners, the 17-member Long Island Legislative Manufacturing Task Force – created and led by Legislator William Lindsay III and Co-Chaired by Anne Shybunko-Moore, CEO and Owner of GSE Dynamics – sought to deepen the region's understanding of its manufacturing sector, related assets, and opportunities to more fully leverage support for industry.

**“Long Island has a strong manufacturing future. If we can create an environment where we have the necessary employee base, it would be almost impossible for these manufacturers to leave Long Island.”**

*-William Lindsay III, Suffolk County Legislator;  
Chair, Long Island Manufacturing Task Force  
Quoted by Innovate LI*

As defined by the Long Island Manufacturing Task Force, the intent of this report is to secure a strong future for manufacturing on Long Island by:

- Improving the region's understanding of the state of Long Island's manufacturing sector, common needs, areas of concern as well as promising practices in order to guide regional action.
- Providing actionable information to help direct program and policy decisions.
- Raising awareness of the quality and criticality of the industry and the opportunity for jobs as well as any barriers we need to remove to move it forward.

The Task Force empowered the Long Island Regional Office of the Workforce Development Institute (WDI) to carry out the work of researching and compiling the report. WDI compiled and analyzed information from

a variety of economic and workforce data sources, gathered ground-level intelligence through dozens of interviews with company leaders and regional partners, and looked beyond our region for comparisons and practical lessons that we could apply here on Long Island.

For the sake of this report we define manufacturing following the North American Industry Classification System (NAICS): “The Manufacturing sector comprises establishments engaged in the mechanical, physical, or chemical transformation of materials, substances, or components into new products.”<sup>1</sup>

Make-to-Stock (MTS) is a traditional manufacturing strategy that relies on past sales data to forecast consumer demand and plan the production activity in advance. The drawback of this strategy is that it uses past data to predict future demand, which increases the likelihood of the forecasts being off, leaving the manufacturer with too much or not enough stock.

Make-to-Order (MTO) allows customers to order products that are customized and manufactured to their specifications. The manufacturing process begins only after the order is received, so the waiting time for the customer is longer, but the risk of excessive inventory is cut out.

Make-to-Assemble (MTA) is a strategy that relies on demand forecasts to stock the basic components of a product, but starts assembling them after the order is received. It's a hybrid of MTS and MTO approaches. Customers can customize the products and receive them quicker because the manufacturer has the basic components ready, but if orders don't come in, the manufacturer is stuck with a stock of unwanted parts.

Unlike a client on before a tailor's mirror, industry does not stand still to be measured. Close observers of data on Long Island's manufacturing sector will notice companies whose classifications seem outdated, workforce counts that appear to contradict, or other figures that just don't

<sup>1</sup> US Census Bureau, North American Industry Classification System Manual, [https://www.census.gov/eos/www/naics/2017NAICS/2017\\_NAICS\\_Manual.pdf](https://www.census.gov/eos/www/naics/2017NAICS/2017_NAICS_Manual.pdf), 2017.

add up. These concerns are valid. The available data on Long Island's manufacturers is not perfect but it is more than enough to establish its dimensions and importance. The industry is constantly experiencing shifts in workforce through retirements, hiring, transfers, and turnover. Every day, our region's manufacturers are pursuing innovations that push past outdated industry categories or perceptions. Some local companies get bought up by holding companies or national firms. Others are buying out competitors or up-and-coming manufacturers, acquiring their product lines and workforce in the process. These transactions alter the count of companies in our region and have a ripple effect on the count of other regions. All these shifts constitute signs of a vibrant, creative, growing sector.

Intermediaries like WDI do our best to gather accurate data that describes the sector and enables insights on how our region's resources can be leveraged to help.

We consider this report the latest contribution to a regional dialogue that began years ago. In the spirit of that dialogue, we welcome feedback and questions about this report and any other contributions that fortify Long Island's manufacturing sector and its workforce. We encourage you to parse through the data and findings in this report and share with us your questions, your concerns, your additions, and your ideas for how we can come together to provide the resources and advocacy that Long Island's manufacturers deserve.

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# PART I: Long Island Manufacturing Today

## Overview

Long Island is home to approximately 3,000 manufacturers employing over 70,000 people and boasting an annual payroll in excess of \$5 billion with annual earnings close to \$125 billion.<sup>2</sup> Businesses in this sector engage in research and development, design, production, and testing for industries that have the highest global quality, precision, and security standards.

**3,000**

Total Manufacturing Companies

*2nd most in NYS among manufacturing sectors by region*

**\$83,358**

Average Annual Salary

*5th highest in NYS*

**72,000**

Employees

*2nd most in NYS among manufacturing sectors by region*

**\$11 billion**

Supply Chain Purchases

*4th most in NYS*

**\$124 billion**

Earnings

*2nd most in NYS*

**41%**

% of Purchases within Long Island

*Highest in-region percentage of purchases*

**7,642**

Job Openings

(Oct 2018 to Sept 2019)

*2nd most in NYS among manufacturing*

*Source: EMSI, 2019 and Burning Glass Technologies, Labor Insight.*

We are certified and skilled to produce to standards that enable us to be Tier One suppliers for Original Equipment Manufacturers (OEMs) including Boeing, Lockheed, Harris, Northrup-Grumman as well as direct suppliers to the US Department of Defense, NASA, US Department of Energy and select foreign ally countries' aerospace and defense divisions. In addition, our manufacturers possess the global cooperative accreditation for aerospace engineering, welding, composites to qualify for the aerospace, defense, transportation, medical device, and energy sectors.

<sup>2</sup> EMSI 2018.

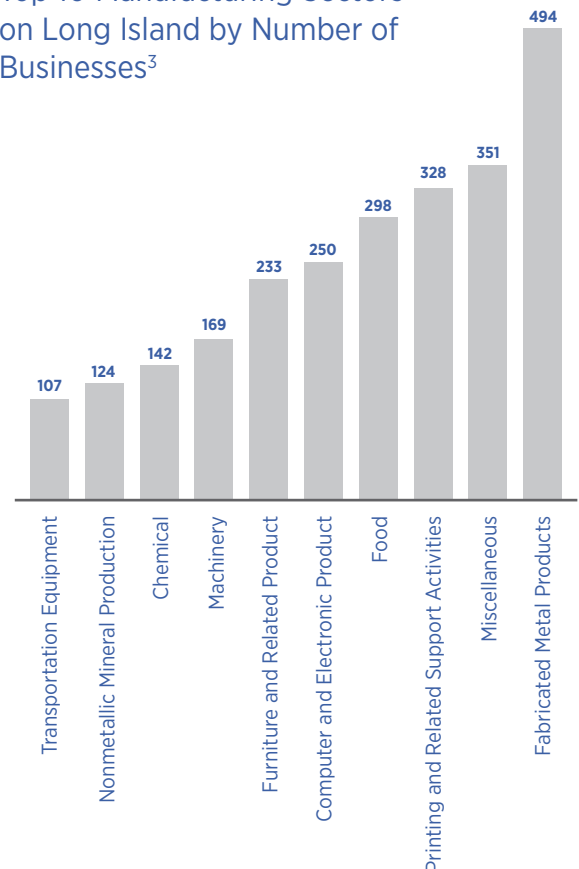
<sup>3</sup> EMSI, 2018, 2 digit NAICS



**“In our laboratory, we test technology designed and produced to advance science and protect our nation every day. This technological growth is in jeopardy if we don’t do better in meeting our workforce needs; developing technicians not just professional engineering talent. These critical technician skills can be established in High School at BOCES or Community College in a certificate program. The work of a good technician fosters foundational engineering skills – and we need these individuals right now.”**

*-Walter Poggi, President, Retlif Testing Laboratories*

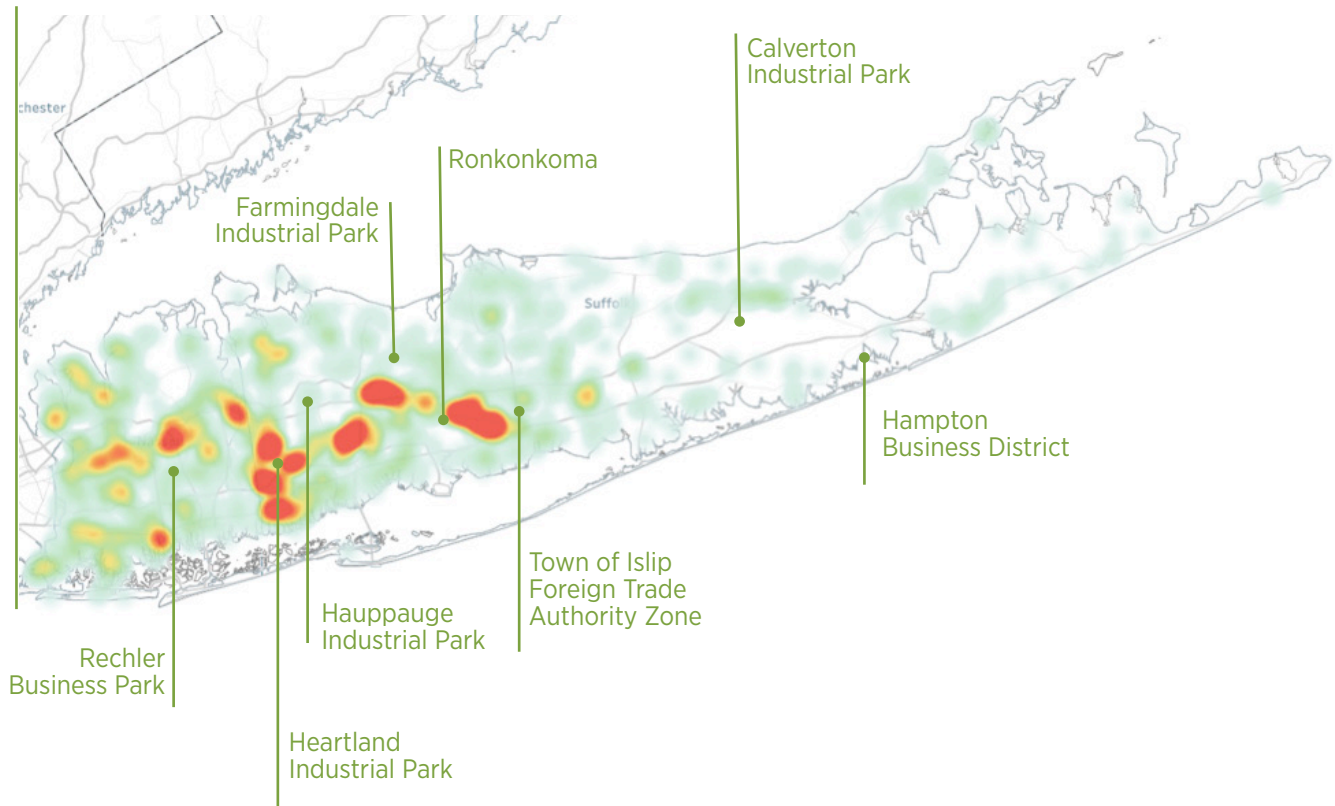
Top 10 Manufacturing Sectors on Long Island by Number of Businesses<sup>3</sup>



Innovation has always been at the core of Long Island's identity, garnering local and domestic recognition for the technology that helped the nation land on the moon and the DNA double-helix structure that helped scientists understand the human genome. Manufacturing and technology have changed over the years. Along with this change, Long Island's role as an innovator has consistently evolved to meet demand. The region's makers don't produce mass quantities of widgets. Rather, they are engaged to advance technologies that solve performance challenges and provide engineering solutions.

Spanning the 118 or more miles of Nassau and Suffolk Counties, manufacturers can be found along the Island's main transit routes as well as in smaller towns and villages, spanning from Mineola to Montauk. The majority of the Island's businesses in this sector make their home in one of several active industrial parks including Hauppauge, Farmingdale, Heartland, Ronkonkoma Industrial District, Calverton, Islip Foreign Trade Zone as well as emerging areas such as Hampton Business District alongside Gabreski Airport.<sup>4</sup>

### Map of Companies By County and City Plus Industrial Parks



<sup>4</sup> Hauppauge Industrial Park (recently renamed the Hauppauge Innovation Park), the nation's first planned Industrial Park and largest outside of Silicon Valley, is home to the highest concentration of makers.



## Number of Manufacturers by Long Island County & City

<b>NASSAU</b>	
Farmingdale	127
Westbury	70
Hicksville	62
Plainview	60
Freeport	55
Port Washington	52
Mineola	38
Oceanside	31
Garden City	30
New Hyde Park	26
<b>SUFFOLK</b>	
Hauppauge	207
Ronkonkoma	154
Bohemia	153
Deer Park	130
West Babylon	83
Bay Shore	82
Farmingdale	69
Amityville	64
Holbrook	59
Copiague	54

Source: WDI Analysis of D&B manufacturing listings

The region's scientists and makers in the biotech, cosmetics, pharmaceutical and nutraceutical categories develop and produce products ranging from nutritional supplements and medicines found in every medicine cabinet to the most common and coveted beauty brands in the world as well as molecular-based supply chain authentication and security solutions for satellites to sheet metal.<sup>5</sup>

Long Islands eight Industrial Development Agencies include: Nassau, Hempstead and Glen Cove; Suffolk, Babylon, Brookhaven, Islip and Riverhead. They are a significant resource for each County's manufacturing sector. They provide tax incentives that help to attract, retain and grow the sector and are often the primary point of contact for companies, facilitating outreach to regional and statewide economic and workforce development or helping them to navigate various government processes.

The diversity of our sub-sectors means that all our eggs, so to speak, don't rest in the basket of a single dominant regional manufacturer. This stands in contrast to years past where a few manufacturing firms dominated the region's identity. Many of our manufacturing sectors employ a balanced mix of workers of all educational backgrounds, underscoring the notion that this industry offers career pathways and rewarding, family-supporting opportunities.

### **Economic Impact: Supply Chain**

While maintaining a standard of excellence for national and international markets, Long Island manufacturers demonstrate a strong commitment to and investment in local supply chain companies. This commitment has resulted in a highly integrated and inter-dependent manufacturing ecosystem. Collectively, our manufacturers spend an estimated \$11 billion annually to conduct their business.<sup>6</sup> This includes purchasing raw materials, marketing services, permits, waste removal, printing, and all the myriad things that go into operating a manufacturing business. Of this \$11 billion, Long Island's manufacturers spend \$4.7 billion within Nassau and Suffolk County. This equates to roughly 41% of spending, the highest share of any region in the state and fourth highest total spending statewide.<sup>7</sup>

<sup>5</sup> To learn more about Long Island's pharma/nutra mfg sector, visit [wdiny.org/Portals/0/PDF/v10%20SuffolkIDA%202019WhitePaper%206-7-19.pdf](http://wdiny.org/Portals/0/PDF/v10%20SuffolkIDA%202019WhitePaper%206-7-19.pdf)

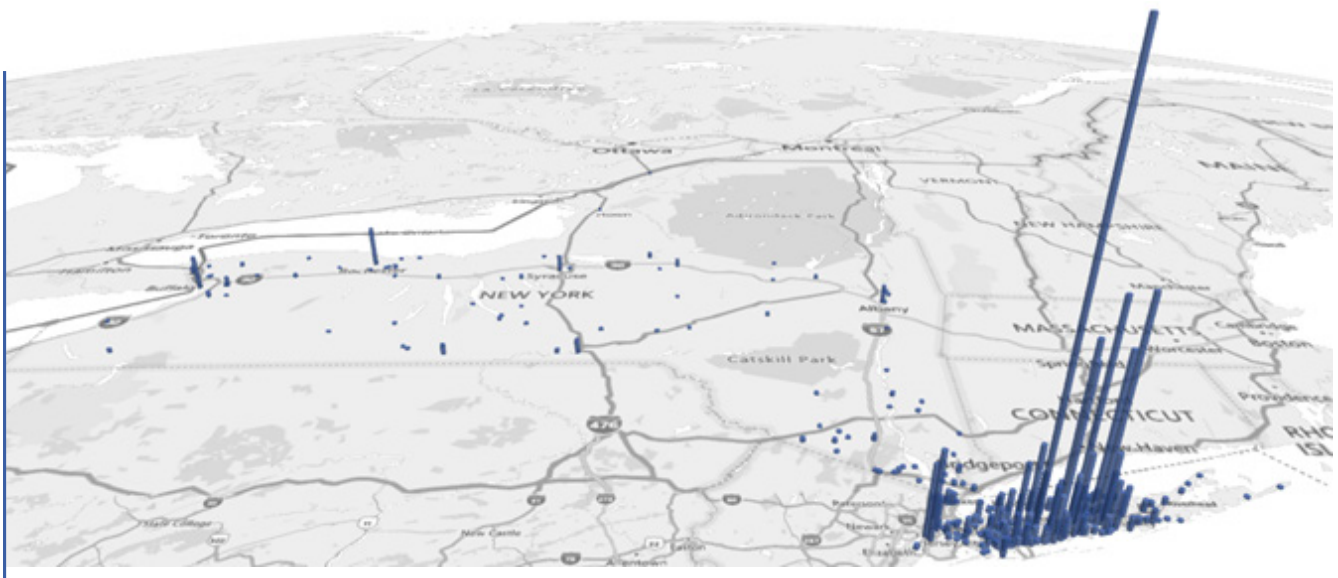
<sup>6</sup> EMSI 2018.

<sup>7</sup> Based on WDI Regions. For more information, visit <https://wdiny.org/Explore-Our-Work/-Regional-Solutions>

## Where Long Island Manufacturers Do Business in NYS

### Number of NYS supply chain relationships by town for 8 select Long Island Manufacturers

Over 80% of the supply chain companies from the eight companies who agreed to supply data for this report were Long Island businesses. The majority of critical work takes place on the Island with a significant portion of the supply chain being shared. The manufacturing sector invests locally and relies on this regional network to maintain and grow their capabilities.



**“Long Island is comprised of thousands of qualified and reliable manufacturing companies who support East/West to meet contract requirements and deliveries. These suppliers have been a trusted force over the last 50 years. We focus on working closely with our local high schools, colleges and BOCES programs for mentoring and certificate programs. Long Island is home to many proactive educational institutions who are willing to partner with industry leaders to shape programs offered to educate and train those looking for a future here on Long Island.”**

*-Teresa Ferraro, President, East West Industries*

## Economic Impact: Employment

Manufacturing is a significant presence on Long Island in terms of employment, identity, and investments within the region. Within Long Island, the sector ranks eighth in terms of workforce and ninth largest in terms of earnings. Since 2006, Suffolk County has had the largest manufacturing workforce among all New York State Counties and the second most manufacturing businesses, trailing only Manhattan. In 2018, Nassau County ranked eighth in terms of employment and fifth in number of manufacturing businesses among all New York State Counties.<sup>8</sup>

Manufacturing employment in Nassau and Suffolk Counties has contracted in recent decades, reflecting the same trend seen statewide and nationally. Between 2003 and 2009, Nassau County manufacturing employment dropped by an estimated 30% while Suffolk County fell roughly 8%. From 2010 to 2017, however, Nassau’s manufacturing employment decline was only 8%, equivalent to a net loss of around 1,500 workers. Suffolk County’s manufacturing workforce declined only 2% between 2010 and 2017.

### “Production jobs provide good opportunities for workers without advanced degrees to earn high wages and good benefits.”

-*Twenty-First-Century Manufacturing: A Foundation of New York’s Economy*, Manufacturing Research Institute, <https://pdfs.semanticscholar.org/a5cc/3fcfdd1a87f981003aafad1243f9c4af0808.pdf>, 2010.

#### NYS Counties with Highest Manufacturing Employment (Top 15, EMSI 2018)

<b>Suffolk</b>	<b>55,822</b>
Erie	44,328
Monroe	40,485
New York	28,389
Kings	24,768
Queens	23,066
Onondaga	20,583
<b>Nassau</b>	<b>20,181</b>
Westchester	14,666
Orange	9,378
Niagara	9,343
Oneda	9,200
Chautauqua	9,169
Saratoga	8,867
Dutchess	8,272

#### NYS Counties with Most Manufacturing Businesses (Top 15, EMSI 2018)

New York	1,970
<b>Suffolk</b>	<b>1,944</b>
Kings	1,769
Queens	1,309
<b>Nassau</b>	<b>1,072</b>
Erie	1,014
Monroe	906
Westchester	607
Onondaga	457
Bronx	330
Orange	316
Niagara	290
Rockland	250
Albany	243
Oneida	232

<sup>8</sup> EMSI 2018.

**“Everyone talks about the 200 people leaving or the 300 people leaving or the 500 people being laid off. But they fail to report that there might be a thousand (Long Island) companies each hiring five people this year. Or maybe 2,800 companies hiring one person each.”**

*-Anne Shybunko-Moore, CEO and Owner of GSE Dynamics;  
CO-Chair, Long Island Manufacturing Task Force; Quoted by Innovate LI*

A closer look at manufacturing employment data for Long Island reveals some causes for optimism and implications for policy and resource allocation. Though net employment growth for most years between 2003 and 2017 was negative, manufacturers have been conducting relatively steady hiring among all age groups and all educational levels. In Nassau County, data from the US Census Bureau shows that the job creation within manufacturing exceeded 2,000 positions per year since 2008. For Suffolk County, the annual job creation figure has averaged 6,400 positions since 2009.<sup>9</sup>

Between September 2017 and August 2019, the region’s manufacturers posted between 15,000 and 20,000 job openings online,<sup>10</sup> the sixth highest by industry for Long Island and equivalent to 7.4% of all job openings despite representing around 5% of the region’s employment.<sup>11</sup>

This data teaches us that net job loss within the region’s manufacturing sector is simply not a matter of a dying industry whose workers are aging out or being downsized week after week. It is a complicated mix of retirements,

resignations, and separations happening simultaneously with job growth, promotions, relocations, and replacement hires. It is insufficient for regional leaders and policymakers to study only the sector-wide job gains and losses. We must look more deeply to see that a significant percentage of Long Island’s manufacturers are hiring, whether to remain “workforce neutral” or to support growth brought about by their innovations and efficiencies. These manufacturers have reported consistently to WDI and others that, while they are eager to hire graduates from the Island’s technical and production programs, they are hungry for more workers at entry, middle, and upper level positions. Their on-ramps and on-the-job training initiatives are intended to broaden the talent pool, but further support and resources are necessary.

<sup>9</sup> US Census, LEH, QWI; NAICS 31-33, Nassau & Suffolk Counties, 2003-2017.

<sup>10</sup>The actual number of job openings for manufacturers is likely to be higher given the limitations of tools that measure the labor market with online postings only and the high number of manufacturers who conduct their recruitment and hiring outside well-known internet platforms.

<sup>11</sup> Burning Glass Technologies, Labor Insight. EMSI, 2018

The manufacturing sector and many of its businesses provide career opportunities with defined career pathways. Career pathways are organized approaches to workforce development that identify a worker's current skill level in the context of an employer's or a sector's employment base, then put in place supports and training so that the worker can improve his or her performance in alignment with available opportunities for advancement. Our local educational institutions provided related classroom instruction to help the local workforce advance along the pathways. In-demand occupations for this sector include:

**Work First (High School Diploma, Certificate program completion for entry)**

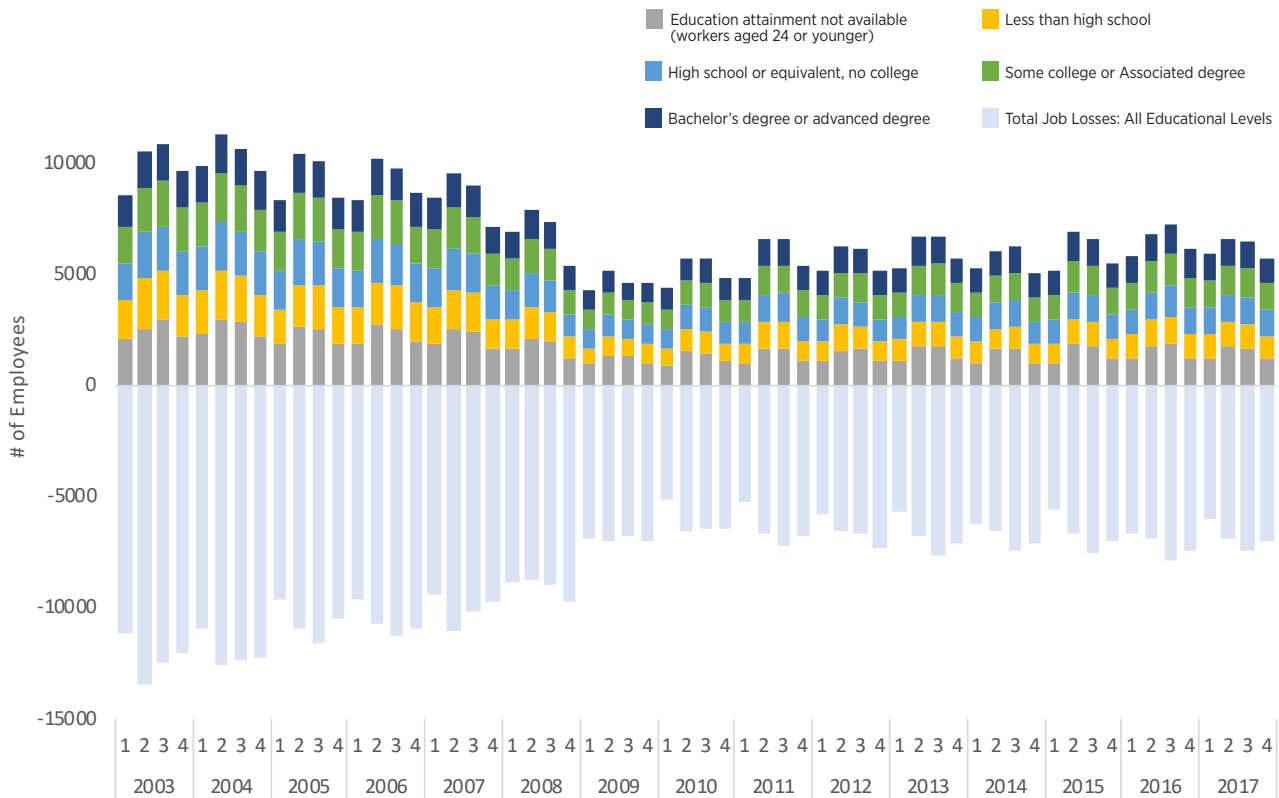
- CNC Machinist
- Industrial Manufacturing Technician
- Electro mechanical Technician
- Quality Inspector/ Technician
- Machine Operator

**College- First (Four-Year Degree +)**

- Manufacturing Engineer
- Quality Engineer
- Mechanical Engineer
- Software Engineer
- Sales & Marketing
- Purchasers/Buyers
- Supply Chain Manager

**Long Island Manufacturing: Hires & Separations by Quarter & Education Level**

Source: US Census, LEH, Quarterly Workforce Indicators, NAICS 31-33, Nassau & Suffolk Counties, NY (2003-2017)





**“Soter Technologies is committed to protecting the health and wellbeing of students and the public with advanced technology and creative solutions. We manufacture our FlySense™ Vaping & Elevated Sound Detector here on Long Island. Monthly we produce and ship thousands of units to schools across the Unites State and the world. Our manufacturing process requires skilled workers who understand technology and production.**

**With a large talent pool and vibrant economy, the region is a draw for those in the tech sector. Despite the high cost of living, taxes and energy, the opportunities for growth are significant for entrepreneurial focused tech and manufacturing companies. Long Islanders are also entrepreneurial, there are tens of thousands of small business here. This drive and determination, is critical for inspiring others and encoring them to innovate and lead.**

**Long Island is home to many great minds and innovators. We need to focus on providing opportunities for young people who find the region too expensive to live and build families. Our future depends on keeping talent here on Long Island and having those in government, academia and the business sector work together.”**

*- Derek Peterson, Soter Technologies*

## **The Face of Manufacturing: Demographics**

The success of Long Island manufacturing rests on the talent, drive, and commitment of its workforce. A diverse workforce is able to reflect its surrounding communities, promote economic equity, and take advantage of a richness and variety of ideas and innovations. Our analysis indicates that somewhere around 13% of Long Island manufacturers are certified as a woman-owned, minority-owned, or veteran-owned business or, in some cases, a combination of those three categories.<sup>12</sup> There exists a substantial number of businesses that are owned by these minorities, women, and/or veterans but do not hold certifications as such from the local, state, or federal government. There are a variety of reasons for this, but regardless of why they do not hold certifications, these manufacturers are worthy of the region’s support.

<sup>12</sup> WDI analysis of Dun & Bradstreet (D&B) data

### **Business Support: Education & Training**

Long Island boasts several exceptional educational institutions whose programs serve the training and credentialing needs of the region's manufacturing sector. Institutions like Eastern Suffolk BOCES, Farmingdale State College, Hofstra University, Nassau BOCES, Stony Brook University and Suffolk County Community College currently report that enrollment is high, if not full, in manufacturing and related programs and that their graduates are finding gainful, meaningful employment in occupational areas aligned with their studies and skills.

Robotics help strengthen the manufacturing talent pipeline by laying the foundation for a career at the cutting edge of science and gives a better understanding of the ways technology can be used to solve real-world problems. Of the 102 school districts on Long Island, our research indicates that 79 have some sort of academic programming that integrates robotics into the curriculum, most commonly at the high school level.

Further, Long Island is making career awareness and exposure for the emerging workforce a focus. Students rarely pursue jobs or careers they haven't seen someone do, be it a parent, a relative, a neighbor, or other associate. For students – particularly those in 8th grade and above – to demonstrate interest in manufacturing careers, they must first know what manufacturing work looks like. The best way to do this is in-person, iteratively, repeatedly, and when

facilitated by trusted adults trained in translating employer experiences into age-appropriate curriculum. Through the efforts of several Long Island partners, in-classroom visits, curriculum/project development, site visits, job shadowing and internship programs continue to grow. The region continues to advance the connection between high schools and manufacturers. Programs like the LI STEM Hub Teacher Training Day, Urban League's Career Ambassador Program, IgniteLI's Adopt-A-School Initiative, and CareerMap LI builds partnerships between local high schools and manufacturers.

### **Business Support: Climate & Services**

Thanks to on-going relationship building and shared organizational missions, Long Island's workforce and economic development partners have been working closely together in support of manufacturers. Their work represents progress that can be continued and expanded.

- Empire State Development (the State's economic development agency) and the Long Island Regional Economic Development Council (LIREDC) have made manufacturing a priority sector for regional investment. ESD has awarded over \$120 million in capital grants and tax credits to manufacturing companies on Long Island to expand facilities and create jobs from 2011 - 2018. Recently, NYS Governor Cuomo created a separate Workforce Development Initiative to support for training with a focus on apprenticeship and industry-education partnerships.

**“In order to remain competitive we have to constantly reinvent ourselves, innovate and become more efficient. We need to have a highly skilled workforce and keep costs down to compete globally. Federal and State support is critical; we have worked with several organizations to help us reduce cost and train our local talent including the Power Authority, Small Business Development Center, Manufacturing Technology Resource Consortium at Stony Brook and the Workforce Development Institute.”**

*- Denise Maroccia, Owner, Clad Metal Specialties*

- WDI has seen first-hand the benefits of support from manufacturing provided by the New York State Legislature as a whole and from specific members of the Long Island delegation. Senators and Assembly Members have demonstrated a practical curiosity and eagerness to understand the sector and connect it to regional resources and educational institutions. Since 2014, through the steady support of the New York State Legislature, WDI has approved over \$800,000 in grants for 78 projects in support of Long Island’s manufacturing workforce. As a condition of approval, each project identified one or more positive workforce outcomes (i.e. job growth, promotion, retention, placement, and/or skill development) that would result from the project. These projects are realized through demand-driven partnerships between WDI, manufacturing employers, and the region’s many assets.
  - The Long Island Federation of Labor (The Fed) has been a steady advocate and ally for the region’s manufacturers, both unionized and non-unionized. The Fed’s ability to convene partners and leverage workforce and training expertise is invaluable to manufacturers and the ecosystem that seeks to support them.
  - The New York State Department of Labor (DOL), alongside the three Long Island Regional Workforce Development Boards and America’s Job Centers (formerly branded/known as “Workforce Development Boards”), have worked hard to create a pipeline of workers for manufacturers. They’ve accomplished this by facilitating the creation and administration of registered manufacturing apprenticeships, hosting job fairs, conducting community outreach with local partners for specific programs, and providing industry training at the region’s BOCES and community colleges in many cases subsidizing all or part of the cost of training.
- The DOL Business Engagement Team encourages all manufacturers to post their employment needs at no cost. DOL’s pool of available manufacturing talent ranges from entry-level workers to executive staff.
- In addition to the DOL, several organizations offer workforce training grants. These include the Manufacturing Technology Resource Consortium (MTRC), the Workforce Development Institute (WDI) and National Grid. These organizations facilitate smaller, targeted funding that can fill gaps and address time-sensitive training needs. In addition, the region’s community colleges and BOCES also offer training grants.
  - Community-based non-profits and umbrella non-profits such as the United Way offer programs like Youth Build and Vets build to establish a pipeline of workers in specific target populations.
  - Manufacturing Technology and Resources Consortium (MTRC) is a NIST sponsored Manufacturing Extension Partnership (MEP) program through New York Empire State Development (NY-MEP, NYSTAR) that works with more than 20 program partners on LI to provide supplemental awards to Long Island small- and medium-sized manufacturers in the areas such as research and development, feasibility study, manufacturing expansion, and workforce development.



# PART II: The Voice of LI Manufacturing

There are several factors driving change and growth within Long Island's manufacturing sector. Below are the shared trends and impressions reported to WDI by manufacturers and those in the region's manufacturing ecosystem. WDI met with these manufacturers and organizations to conduct in-depth interviews and learn about their impressions of what's working and areas for improvement. The items below should serve as a summary transcript from our in-person interviews with Long Island manufacturers. This list is not intended to present an irrefutable picture of the dynamics driving the sector. Instead, it is intended to give voice to many of the prevailing views and concerns that manufacturers share, that the region should know, and is in keeping with the scope of this report.

## Trends & Successes

- Long Island's aerospace, defense, and transportation manufacturers have diversified within the branches of military as well to serve the medical and biotech industries. For medical and biotech, A large majority have become ISO 13485 Certified<sup>13</sup> to meet industry standards. Walking the floor at a manufacturing facility, one can see parts for military aircraft in one area and heart pumps in the other. These expanded capabilities and new markets have resulted in steadier stream of increased work.
- In a reversal of a decades-long trend, firms reported that they have begun to re-shore manufacturing work back to the United States and to Long Island specifically. Companies that once exported their work for reasons driven by cost are now returning home to maintain and protect their intellectual property and produce at the highest quality standards. Long Island manufacturers have made it their calling card to achieve and maintain these high standards across various sub-sectors. There is opportunity for the region to capitalize on this dynamic and promote further re-shoring.
- Within the conversations about reshoring, manufacturers again raised the issue of talent recruitment and retention in terms of the need to deliver products on time in a high-demand environment in order to keep this business on US and Long Island soil. Along these lines, many manufacturers communicated to us that they have limitations when it comes to placing new hires or fresh graduates straight to the production floor or in machine operation roles. To maintain their strict quality standards and adhere to industry requirements, many firms must conduct substantial on-the-job training to get new hires ready for full production roles. Because of this shared issue among firms, the idea of a regional manufacturing training center would be likely to gain traction since it would afford the region the opportunity to provide hands-on, industry-validated experience and close the job readiness gap for many workers coming through the pipeline.
- Manufacturing technology continues to advance, and Long Island manufacturers are advancing with it. Contrary to much of the recent reporting on automation and the workplace, our research indicates that these advances in plant automation have not come at the cost of local labor due chiefly to the nature of production on Long Island. From our interviews and workforce intelligence, this seems to stem from the desire of local manufacturers to retain and upskill their workforce while improving production efficiencies with advanced technology. Every new machine has a person assigned to it to program, set up, operate, and repair it. The innovative nature of this work done on Long Island is less susceptible to automation. We see this finding as cause for equal parts optimism and further inquiry.

## Needs & Challenges

- While the region has many assets to support its manufacturing sector, demand for more workers and

<sup>13</sup> ISO 13485, Medical devices – Quality management systems – Requirements for regulatory purposes, is an internationally agreed standard that sets out the requirements for a quality management system specific to the medical devices industry., International Organization for Standardization, <https://www.iso.org/iso-13485-medical-devices.html>.

specific skill sets continues to grow. The evolving workplace landscape requires on-going investment in technology and skill development. The expertise of their long-term production teams is vital to operations. Legacy employees need to increase digital literacy skills. Non-native English speakers, who account for a large portion of production staff require greater workplace English proficiency due to technological advances and stringent regulatory codes. Current levels of workforce training funding support are finding success. More support is needed.

- During our interviews, many firms reported that they are undergoing a transition in ownership structure. Some were bought by national or global companies while some have grown by acquiring local firms. Others are passing their business to the next generation. This has resulted in a larger overall manufacturing workforce for the Island. Those with large corporate structures often have centralized recruiting outside of Long Island and New York State, resulting in some companies importing their talent from outside Long Island, rather than hiring from the region.
- Long Island manufacturers with facilities outside New York State are frequently exposed to workforce programming they perceive as being effective. These manufacturers express a desire to bring successful solutions back to Long Island to adapt and pilot.
- While Long Island manufacturers recruit from, serve on industry advisory boards for and receive workforce training from local educational institutions, they echo the sentiment that these institutions are not producing enough graduates to meet demand. In addition, many report that educational Institutions in other locales have more capacity and the ability to be flexible; blending credit and non-credit education and working to meet employers specific curriculum or time needs.

**“Business has to be healthy and growing to create jobs. When we get contracts, we hire and develop capable people. What drives business growth on Long Island is participation with prime contractors. This is a business of technology and capability. We need to remove barriers to entry for our Long Island manufacturers.”**

*- Peter Rettaliata, Former CEO,  
Air Industries Group, Board Member, ADDAPT*

Furthermore, they have strategic internships developed by the colleges and tailored to industry – i.e. the colleges are more proactively service-oriented and take on a larger portion of the work in administering workforce development programs, a huge benefit for companies already stretched in time and resources.

- Manufacturing centers across New York State and the nation have associations that are industry-led and financially supported. On Long Island, manufacturing-specific membership associations function with volunteer or minimal staff and no sustainable operating budget. Honest differences of viewpoint from partners on different sides of workforce supply and demand continuum persist. Some manufacturers say that existing industry associations contain too many non-manufacturing members and don't have the infrastructure to promote, and advocate. Associations say that manufacturers are unwilling to invest money to build that infrastructure. Both sides make legitimate points based on experience and a keen understanding of how to spend their limited time and resources. Nonetheless, this chicken-and-egg cycle has resulted in a void.
- Workforce training funding and programs like registered apprenticeships are active in other states and are

subsidized as they are here. Firms report that the system outside New York State is more streamlined with a simpler, single point of entry for all these resources where on Long Island they have to work with several groups to piece together support which comes with “paperwork” for each separate entity.

- It is not news to Long Islanders that the region’s cost of living is perceived as a significant factor when it comes to business growth, family mobility, and career options. There is a general view among the manufacturers we interviewed that cost of living prohibits them from recruiting entry-level or experienced talent from both inside and outside the region. It is easy to imagine that this has an impact on production workers in the lower wage categories. It also has a significant impact on attracting recent graduates. As indicated above, the industry requires significant hands-on training and often very targeted skills for specific products and processes. It takes time to build skills and competencies. During this learning phase of onboarding and skill development, employees are earning lower wages until they can fully participate.
- Larger manufacturers – those with several hundred or more employees – generally have a human resource department with the largest employers able to employ a talent management team with on-going, structured workforce development initiatives and strategic community engagement. Approximately 80% of manufacturers employ 50 or fewer people; 90% have less than 100 employees.<sup>14</sup> In general, the smaller firms

tend not to have dedicated human resource or training departments to handle career pathway design, talent management, or planned employee development. Many of these firms find ways to upskill their workers and provide development opportunities. But, having a busy and lean staff, they often lack the time to engage with regional or industry initiatives that may support them or benefit from their input. The workforce challenges experienced by smaller firms frequently mirror those of larger companies. But without the time or resources to connect with regional intermediaries, smaller firms lose out on training and business development opportunities.

- The local office of the DOL used to offer On-the-Job Training subsidies for the first 90 days of employment when employers on-boarded a referral from the DOL labor pool. This was a critical tool as during those first months there is a lot of training where the employee is not yet contributing to production. The perception among the region’s manufacturers is that this benefit funding was cut or significantly reduced. Manufacturers have relied on On-the-Job Training subsidies in the past and advocate for their reinstatement.
- In the past, Long Island manufacturers relied on high school shop class to cultivate the next generation of talent. Manufacturers attribute the loss of shop class to a key reason for a shortage of young talent for on-ramp positions. Our local manufacturers are now looking to Robotics clubs to fill the void. These clubs develop problem solving, team work and communication skills along with critical

**“We need to invest in our workforce if we want to maintain our competitive edge. It is increasingly difficult to recruit and retain top talent, particularly among millennials, because of the high cost of living on Long Island. This is one reason why we offer company internships, participate in engineering co-op programs with local universities, and support STEM programs at local schools and organizations. We need increased government support in the form of flexible funding for investments in new equipment, manufacturing infrastructure and workforce training.”**

*-Jon Cooper, President, Spectronics Corporation*

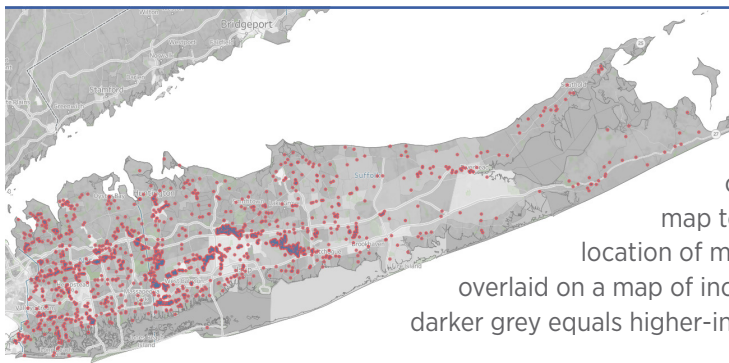
<sup>14</sup> WDI analysis of D&B and Census County Business Pattern data.

**“In every region of the state, manufacturing payrolls support thousands of additional jobs. While specific estimates vary, economists generally agree that manufacturing jobs generate more spinoff employment than positions in other sectors where wages are lower and incomes are based on taxpayer support or local trade, rather than exports to other states or nations.”**

- *Twenty-First-Century Manufacturing: A Foundation of New York's Economy*, Manufacturing Research Institute of New York State, <https://pdfs.semanticscholar.org/a5cc/3fcfdd1a87f981003aafad1243f9c4af0808.pdf>, 2010.

### Map of Manufacturing Business Locations by Income Levels

(lighter grey shows lower-income communities; darker grey equals higher-income communities)

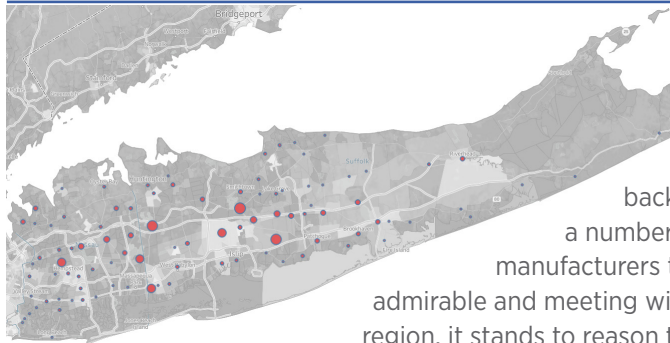


The dispersion of manufacturers on Long Island is such that they are located in areas of population density and in the more rural corners of the Island. Production and innovation come from all types of neighborhoods of affluence as well as lower income communities. The map to the left corroborates this point by showing the location of manufacturers (dots with blue center and red outline) overlaid on a map of income levels by zip code (light grey equals lower-income; darker grey equals higher-income).

It follows that evidence of the employment opportunities within manufacturing would co-locate with the manufacturing businesses, as Map B illustrates below. The dots (red center with blue outline) are scaled relative to the number of online job postings from October 2018 to September 2019 for so-called middle skills jobs and appear largely where the business locations do in Map A.

### Map of Manufacturing Job Openings by Income Levels

(lighter grey shows lower-income communities; darker grey equals higher-income communities)



The combination of the volume of manufacturing openings and their location in communities at all income levels underscores the notion that the industry offers career opportunities to Long Islanders from all backgrounds and economic standing. The region is undertaking a number of initiatives aimed at connecting school districts with manufacturers to promote these career opportunities. This work is admirable and meeting with success. Given the size of the industry's footprint in the region, it stands to reason that further connections and partnerships can be forged.

Source: US Census; D&B; and Burning Glass Technologies, Labor Insight.

design, production and technical capabilities.

- Long Island manufacturing can build on recruitment from our communities in a targeted way, developing industry programs that remove barriers to potential candidates for these maker careers. There are many Long Islanders with skills and credentials relevant to the industry who obtained their training in another country. If the region's economic goals include promoting equity by tapping into underused or non-traditional talent pools, then manufacturers and those representing them must build and maintain mutually beneficial relationships with groups that understand and connect to those talent pools.
- There exists a high level of crossover in skills within manufacturing sub-sectors. This means that skill building in one sector would have the benefit of also increasing the size of the talent pool for another. Workers would improve their options for employment while employers can compete for talent among a larger group. Investing in expanded training capability and a training center will serve multiple sectors.

**“Advanced manufacturing occupations have strong On-the-Job-training (OJT) requirements, with 15 of the twenty core/crossover occupations surpassing the occupational average.”**

*- Center for Economic Development,  
University of Massachusetts, Amherst.*

- The burgeoning offshore wind energy sector surfaces another challenge to Long Island manufacturers. There is no longer a doubt that New York State and Long Island specifically will be a major player in this new sector of energy. To get the industry on its feet and demonstrate Long Island's capacities to the largely European supply chain, regional workforce and labor union partners are working to piece together events and match-making

forums where New York's manufacturers can explore and pursue the many supply chain opportunities offshore wind energy promises. Yet, if we are unable to swiftly adjust to meet workforce demands for the existing manufacturing base, attracting offshore wind manufacturing to Long Island is unlikely.

- STEAM<sup>15</sup> and Maker culture is a focus in our High Schools. The region can create strategic and sustainable partnership with manufacturers and school districts to develop curriculum/work-based learning and career exploration experiences.
- With many global and national manufacturing companies, Long Island has the opportunity to identify and deploy best practices from other locals. Understanding what makes these programs successful and how they can be adapted to our region is key.

### **Vulnerabilities**

Two threats loom over Long Island's manufacturing success

#### **1) Lack of Awareness About and Understanding of Manufacturing**

Lack of awareness about and understanding of Manufacturing falls into two categories:

- 1) Being conscious that this thriving industry exists and is a critical part of the local economy
- 2) Understanding that it offers good paying career opportunities in the STEAM fields.

Parents and educators are key influencers in career awareness and educational choices for our emerging workforce, i.e. current students. Lack of awareness or understanding in this area means students are not exposed to these careers and, more importantly, are missing an opportunity to apply STEAM concepts in creative and hands-on ways. This impacts their post-

<sup>15</sup> STEAM: Science, technology, engineering, arts, and mathematics.

secondary choices. There exists a variety of pathways for someone studying chemistry, research and development, industrial chemistry, or quality assurance. If you are unfamiliar with the industry requirements for the career category, you could be investing in education or training that doesn't match with the employer needs. On a more critical scale, it means we are not preparing the emerging workforce for the jobs on Long Island.

For stakeholders and decision makers like lawmakers, economic and workforce developers – those determining the amount of resources and where they will be deployed, lack of awareness about and understanding of the economic impact and career opportunities results in the industry not receiving enough support in critical areas to maximize competitiveness and growth. As more companies open facilities in other locales, the risk of flight or use of out-of-state talent increases.

## **2) Inability to Meet the Pace of Workforce Demand**

The success of the region's manufacturing and technical educational programs is being swallowed by demand. Many of Long Island's educational institutions report that their credit and non-credit courses related to manufacturing are fully enrolled and their graduates are finding employment opportunities at or shortly after graduation. From the perspective of these institutions, this means the system is working well. However, there is a sense from manufacturers that their demand for workers, especially entry- and middle-level skilled workers, exceeds the levels that the region can supply. In our view, experiences on both sides of this – supply and demand – are valid. We also see opportunity to expand educational opportunities for Long Islanders to enter the quality careers on offer from the manufacturing sector.

The existing manufacturing associations, ADDAPT and Ignite LI, are both operated with volunteers and grants for one-time specific projects. While none of the manufacturers

listed this as a priority, strong attention should be paid to the lack of a manufacturing industry association with full-time paid staff, industry leadership, and financial commitment for a steady budget. These associations provide a unified voice on issues, help manufacturer leverage resources to address training and other needs. They also act as intermediary and administrator for critical programs such as NYS Registered Apprenticeships as well as other state and federal manufacturing programs.

In light of the issues outlined above as communicated by the region's manufacturers, the questions the region needs to ask are:

*Without such an organization who will lead the charge on and carry out a regional manufacturing strategy?*

*Who will lead the charge in executing recommendations from industry and educators?*

# Recommendations

There are many steps Long Island can take to support its manufacturers. Those highlighted below represent solutions we heard during stakeholder interviews.

It should be noted that the region lacks a single, centralized and fully staffed organization to deploy solutions effectively and sustainably. Besides the state and local economic developers and the Department of Labor, there exists entities that are charged with supporting manufacturers and their workforce on Long Island. They are well-intentioned and sometimes well-positioned. However, they are operated by mostly volunteers or short-term or project based funding. The dynamism, growth, and challenges of Long Island's manufacturing sector demand full-time focus with full-time dedicated staff, industry leadership, and a steady budget. Without that the question remains, who will execute plans and develop a dynamic strategy to meet the region's needs?

**“The Estée Lauder Companies is proud of our long-standing presence and more than 50-year history on Long Island. The success of our operations on Long Island depends on building a pipeline of skilled manufacturing workers while retaining talented, hardworking and diverse operators, mechanics, engineers and others at all levels of their careers with a range of educational backgrounds.**

**As someone who started my career as a Production Supervisor in the Melville manufacturing plant, I can confidently say that manufacturing can offer a career pathway to professional growth. Providing the right continuous learning, development and empowerment opportunities throughout that journey is absolutely critical.”**

- George Kuzma, Senior Vice President, Global Supply Chain  
- North America, The Estée Lauder Companies

## Strategic and Targeted awareness campaign

- Promote Long Island manufacturing and career opportunities to parents, students, teachers, superintendents of curriculum, guidance counselors. Support for Career Map LI – web portal to LI career exploration investment from manufacturing sector.
- Promote Long Island manufacturing with a branded campaign at industry trade shows and to emerging markets such as Offshore Wind Energy.

## Fortify Manufacturing Workforce Pipelines

Develop a Regional Workforce Training Center, shared by all educational institutions from HS up and driven by industry. Below are some practical sector-based options.

- Continued support of registered manufacturing apprenticeships
- Develop structured pre-apprenticeship to feed into registered manufacturing apprenticeship with wrap-around support for traditionally underserved communities
- Strategic internships – designed to identify LI students attending off-Island schools who may be interested in manufacturing technology internships during summer breaks at home.
- Regional training center that all schools can use (high school through College) for training. Think High school tech project, contextualized manufacturing ESL at BOCES, special night classes for the third shift of manufacturers, high-level engineering degree programs providing hands-on learning
- Additional funding for On-the-Job training and non-

credit credentials and training to facilitate hiring from One-Stops and offset employer training cost/risks

- Bridging regional automotive, construction, and HVAC training programs to increase awareness of opportunities within manufacturing
- Integrating real-world, hands-on experience into region's technical curricula
- Facilitation of credential transfer for immigrant workforce
- Ensure all school districts, especially those in high-needs districts, have sustainable Robotics programs
- Establishment of a regional sector-based programs for target populations (example "Military-to-Manufacturing") and an industry-led internship program

### **Strengthen Connections to High Schools**

Manufacturing offers good career options for people at all levels of educational attainment. For this fact to resonate with high school students and young people, faculty and staff at Long Island's school districts must be provided the tools and opportunities to connect with local manufacturers and develop win-win partnerships.

Employers must understand the demands on school districts and work with their partners to devise innovative ways to inform curriculum, demonstrate the nature of modern manufacturing work, and introduce the knowledge, skills and abilities that the sector will demand of its workers in the future.

### **Additional Recommendations**

- Workforce housing subsidies to help low-wage workers



# Acknowledgments

Eastern Suffolk BOCES	A&Z Pharmaceutical, Inc.	Topiderm
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Suffolk County Department of Labor	Amneal Pharmaceuticals	Infinity Drain
Long Island Federation of Labor	Applied DNA Sciences, Inc.	Jamco
Suffolk County Workforce Development Board	BAE Systems	Jerome Stevens Pharmaceuticals
Suffolk County Economic Development	BH Precision	Jf Machine
Burton	Biochemical Diagnostics	LNK International
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Ignite LI: The Long Island Manufacturing Consortium	Chembio	Nature's Bounty
Nene Alameda	Cipla/Invagen	Novartis
	Citation Clinical Labs	Orelikin Metco
	Clad Metal	Rechler Equities
	Comco	Retilif Testing Laboratories
	Contract Pharmacal	Rochem International
	Country Life, LLC	Spectronics
	Curtiss Write	Strahl and Pitsch
	CVD Equipment	Velocity Pharmaceutical Development
	E.C. Sumereau and Sons	Vengo Labs
	East West Industries	
	Enzo Biochem	
	Estee Lauder	

# About WDI

Workforce Development Institute (WDI) is a statewide non-profit that works to grow and keep good jobs in NYS. We use a range of tools — including “boots-on-the-ground” information, workforce expertise, and funding — to facilitate projects that build workforce skills and strengthen employers’ ability to hire, promote, and retain workers. Our work often fills gaps not covered by other organizations and is accomplished through partnerships and collaborations with businesses, unions, other non-profits, educational institutions, and government.

Our work is always demand driven in that it often starts with employer or market needs. However, our true focus is on the worker. Although the types of projects we facilitate and support vary, they must all have a positive and measurable impact to the workforce.

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