The State of Manufacturing In Northeast Ohio 2021

Team neo

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Research Methodology and Overview

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TEAM NEO

Methodology: Our analysis is based on Q4 annualized national and local projections to employment and GDP derived from Moody's Analytics, and aggregated by Team NEO. The projections make several assumptions, including:

- Some level of continued federal stimulus (with similar target audience)
- Interest rates maintained until 2022
- No additional significant shutdowns
- Continued Fed quantitative easing
- Vaccine availability 2021

All projections are subject to some level of change.

Overview: Manufacturing continues to be one of, if not the most, critical sector of the Northeast Ohio economy. Directly, it represents 20% of all regional output, and indirectly, nearly 40% of everything we produce in Northeast Ohio. Moving forward, manufacturing, and its success in the region, will continue to define who we are, and how successful we are, as a community.

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MANUFACTURING CONTINUES TO BE ONE OF, IF NOT THE MOST, CRITICAL SECTOR OF THE NORTH-EAST OHIO ECONOMY.

Manufacturing Productivity

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DESPITE DECLINES IN EMPLOYMENT BETWEEN 2001 AND 2019, NORTHEAST OHIO MANUFACTURING PRODUCTIVITY GREW BY MORE THAN 50%

While the "Rust Belt" narrative has driven much of the conversation around Midwest manufacturing, the reality is that in Northeast Ohio, we are producing as much as we ever have, but with fewer total workers. Despite declines in manufacturing employment between 2001 and 2019, Northeast Ohio manufacturing productivity grew by more than 50%. Most people are familiar with historical declines in manufacturing employment, since the job losses have been visible and highlighted by the media. However, most are not aware there has been an increase in productivity and output despite the overall job losses.

How are Northeast Ohio manufacturers producing more with less workers? Manufacturing has become more capital intensive and less labor intensive. As a result, manufacturers have invested in new machinery, replacing old machines with new machines, as well as improving processes using Big Data, 3D printing, robotics and the Internet of Things (IOT). This investment in capital and technology has led to increased productivity and the ability to produce more with less workers.

Finding ways to increase productivity in manufacturing includes adopting technology and streamlining processes that leads to improved efficiency. When productivity and efficiency come together, the quantity and quality of the product should lead to increased revenues and result in additional capital that can be reinvested in the business. As we work with manufacturing clients and tour operating facilities, we see investments in new machinery or changes in the plant floor layout from previous years, demonstrating the proactive approach to maximize productivity. We also see companies investing in new machinery in lieu of extending the useful life of old machinery. Utilizing new machinery and its technology (predictive maintenance, for example) helps avoid or minimize machine down time, which keeps productivity levels at their optimum.

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The Labor Shortage Hits Home

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Nationally, the manufacturing industry is facing a significant labor shortage within the next decade. It has been projected that nearly 3.5 million jobs will be needed, yet 2 million of those will not be filled. With Ohio being home to the third largest manufacturing labor force in the United States, we know that a significant amount of replacement workers will be needed soon.

Manufacturers need to plan for the reality that they will be operating with a pared down labor force in the future. As part of that plan, they need to work on preserving the "domain knowledge" that exists in employees' minds and begin documenting those processes and procedures. In addition, with the retiring baby boomer generation, manufacturers need to find creative ways to engage the upcoming labor force and attract students into a career in manufacturing. By working collaboratively with other businesses, nonprofits, government, high schools, community colleges and trade schools, manufacturers will need to change the perception in people's minds that these are good, higher paying careers and demand a skilled labor force.

By planning now, manufacturers can start preparing for the projected labor shortage. Part of that long-term plan will need to include an investment in technology and automation. Marketing will also need to play a key role in changing society's current image of manufacturing into one of innovation, technology, and exciting careers. The solution to the labor shortage rests in the hands of the manufacturing industry.

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COVID-19 Impact on NEO Manufacturing Employment

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Many manufacturers have faced increased challenges due to COVID-19. From February 2020 to April 2020, Northeast Ohio saw a decrease of almost 100,000 manufacturing jobs. By August 2020, that number was still at approximately 40,000.

Some subsectors felt the impact more than others, with estimates that it could take until 2025 for manufacturing employment in NEO to recover. In the next 18-24 months, those producing PPE, food & beverage manufacturing, IT, paper and corrugated fiber manufacturers and warehouse, storage & distribution centers should see increased demand. Meanwhile, chemical manufacturing, fabricated & primary metals production, headquarters and oil & gas extraction & petroleum production are projected to see continued declines resulting from demand shortages and market uncertainty.

Subsector and consumer demand affected how well businesses faired. Other factors included adapting to decreased employee capacity and/or employees working remotely, COVID-19 restrictions affecting productivity, absenteeism due to sickness & quarantines, difficulties rehiring and finding new workers, increased costs for PPE gear and complying with added safety measures, supply chain issues and related financial constraints from decreased revenue and higher costs. However, some businesses were able to shift production to support increased demand for PPE gear, diagnostic testing and supplies as well as medical care equipment such as ventilators, reducing the impact of reduced demand for other products.

While the full impact of COVID-19 on manufacturers is still evolving, one thing is clear: those that were able to pivot and innovate were able to adapt to the challenges and sustain operations.

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SINCE 2001, manufacturing productivity has **GROWN** by more than **50%**

ANNUALLY, we could see job openings for more than **40,000** production and transportation workers for **the next FIVE YEARS**

New manufacturing technologies like **smart manufacturing** could **increase** manufacturing **GDP** by **$13 billion**

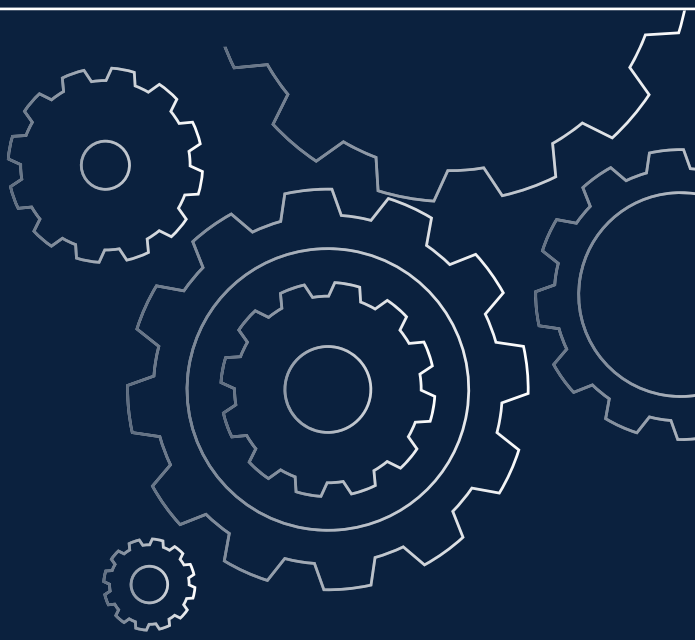
In 2019, manufacturing represented **267,000** workers, the **SECOND HIGHEST SECTOR** of private employment

In 2019, manufacturing represented **$43 billion** in GDP, nearly **20%** of total GDP

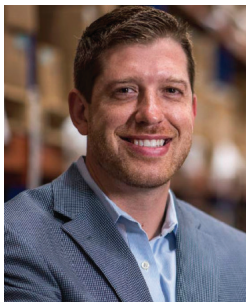
Industry 4.0

As we look through history, one thing is constant – change. Everything evolves and manufacturing is no exception. Since the 1800s we have seen 3 industrial revolutions from the steam engine to the assembly line to the speed of the computer. Now we have the 4th – Industry 4.0. Powered by the IIoT (Industrial Internet of Things), it encompasses the entire supply chain from smart manufacturing and factories to warehousing and logistics. Big data and analytics powered by artificial intelligence (AI) and machine learning allow for unprecedented insights, decision-making capabilities and automation in every area from planning through procurement.

According to research by Team NEO and partners, NEO manufacturers could see manufacturing GDP grow by $4-$13 billion more than currently projected, by adopting its relative share of new IIoT technologies.



Case Study: Technology 4.0



MICHAEL DELIS
DIRECTOR,
CUSTOMER SERVICE &
SUPPLY CHAIN
FASTENER TOOL & SUPPLY, INC.

We felt we had no choice but to fully embrace technology 4.0. Manufacturing is an ancient industry and the physical nuts and bolts of haven't changed much in 50+ years. Materials have evolved, and product offerings have changed, but our customers want more than just parts today – they want more than just a re-boxer / distributor. They want a solutions provider.

Our competitors (both small ma & pa shops, and large conglomerates made of many small to mid-size distributors,) have had a hard time embracing change to grow with their customers. We have embraced technology, analytics, and new solutions to hone in on each customer's specific needs. We listen, observe, and leverage best practices to bring solutions to our customers, rather than waiting for them to ask for continuous improvement.

WE'VE EMBRACED THE FACTORY OF THE FUTURE, UTILIZING TECHNOLOGY (LIKE DIGITALBINS) TO REALLOCATE TIME FOR OUR SALES STAFF FOR MORE VALUE-ADDED SERVICES.

We've implemented a core network of PowerBI and the IOT to predict our customer's needs and behavior – taking a proactive vs. reactive approach to distribution. We've embraced the factory of the future, utilizing technology (Like DigitalBins) to reallocate time for our sales staff for more value-added services.

This has allowed us to become extremely efficient in our core competency. That core continues to evolve as our customers have said, "if you are solving all of these problems for me today with your current offerings, could you help me here with XY and Z?"

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FTS Fastener Tool & Supply