The Center to Advance Manufacturing Monthly News

July 2025

Real workforce development starts where education and industry intersect. That philosophy was brought to life last week during *Powering Ohio's Manufacturing Future – A Panel on Innovation, Talent, and Technology*, an event hosted by Findlay-Hancock Economic Development and the Center.

The event spotlighted the start of a new public-private partnership between Bowling Green State University's College of Engineering and Innovation, Kata Solution, LLC., and IoTco, a collaboration designed to embed engineering students directly into real-world pilot projects with local manufacturers. The goal? To build a hands-on, forward-looking talent pipeline that supports innovation while addressing workforce needs in Ohio's manufacturing sector.

Attendees gathered at the Findlay Country Club to hear from the three leaders at the center of this effort: Dr. Mo Abuali (CEO, IoTco), Dr. Wael Mokhtar (Dean, BGSU College of Engineering and Innovation), and Bryan Little (President, Kata Solution, LLC). The discussion was facilitated by Kassie Cooper, Marketing Projects Manager at the Center. Through their conversation, a clear message emerged: talent development, technological innovation, and industry advancement must move forward together.

"*This is the first of many partnerships to come in the next five years,*" shared Dr. Mokhtar, emphasizing BGSU's commitment to engaging with industry and expanding its reach through experiential learning and workforce development. "*We're upgrading our facilities and portfolio to not just teach, but to assess, help, and train. The timing was perfect for this partnership.*"

Dr. Abuali added, "*Our role is to make it easy for local manufacturers to adopt smart technology, through assessments, training, roadmaps, and pilot implementation, and to use BGSU students as a cornerstone of that process.*"

The approach goes far beyond traditional internships. Students will be placed into live pilot projects with companies, where they apply classroom knowledge to address real challenges—from improving quality control and layout efficiency to implementing smart manufacturing tools. "*That student has now learned what actual manufacturing looks like in a real-world environment,*" explained Little. "*And the manufacturer benefits from improved productivity, more engaged employees, and new ideas.*"

The panelists spoke candidly about the human side of technology adoption. "*We always start with people,*" Little emphasized. "*If you don't engage the folks who will be impacted by the changes, the project won't succeed. Especially with AI, people fear what they don't understand. We have to introduce it in a way that helps them see how it can make their jobs better.*"

Dr. Mokhtar echoed that sentiment, highlighting the value of keeping students local through meaningful work-based learning: "*One of the challenges is you train students, and then they find jobs somewhere else. These kinds of partnerships allow students to build relationships with local companies and see their future here in the region.*"

As part of this partnership's commitment to supporting manufacturers in Northwest Ohio, a complimentary Industry 4.0 Assessment is currently being offered—one of several ways the team is investing in regional innovation and long-term success.

As Ohio remains a national manufacturing leader, the need for a highly skilled and tech-ready workforce has never been greater. To everyone who attended the panel, thank you for your thoughtful engagement and questions. And to those who missed it, please don't hesitate to reach out to the Center if you'd like to learn more about the partnership and how you can get involved. You can click **here** to view an info sheet outlining the goals of the initiative and ways to engage. We're eager to support efforts that move Ohio's manufacturing future forward.

OhioX Hosts Toledo Morning Tech

Center staff attended the *Morning Tech* event in Toledo, hosted at the Toledo Tech Loft. The event featured a conversation with Amanda Miller of Meta, facilitated by Chris Berry of OhioX.

Meta recently announced plans to build an $800 million, 715,000 square-foot data center in Bowling Green. Amanda shared insights on Meta's commitment to long-term community vitality, including investments in sustainability, and regional partnerships.

The project will create approximately 1,000 skilled trades and construction jobs at peak construction, with around 100 operational roles supported once the data center is up and running. These opportunities align closely with Northwest Ohio's manufacturing workforce, demonstrating how large-scale infrastructure investments can drive growth across skilled trades and technical fields.

Amanda also emphasized Meta's work with universities and their support for STEM, STEAM, and robotics education—areas that are essential to preparing the next generation of manufacturing and tech talent.

It's exciting to see global technology platforms like Facebook and Instagram powered in part by local workforce and innovation—reinforcing the critical role Northwest Ohio plays in the future of both tech and manufacturing.

Yarder Manufacturing Celebrates New Facility

In mid-July, Center staff were proud to join a strong turnout of community members, partners, and supporters at Yarder Manufacturing's open house and site tour to celebrate the groundbreaking of their new facility in Maumee.

Yarder Manufacturing, a multi-generational family-owned business and valued board member of the Center, continues to demonstrate leadership in advancing innovation, workforce development, and economic growth within Northwest Ohio's manufacturing sector. The event highlighted Yarder's ongoing commitment to progress, collaboration, and the future of the region's industrial landscape.

Attendees had the opportunity to tour the site and learn more about the company's exciting plans for expansion. The energy and support from those in attendance underscored the strong ties Yarder has built within the community.

Congratulations to the entire Yarder team on this significant milestone. We're excited to see their continued success and the impact of their work ahead!

Curious how many students in your area have the natural talent for manufacturing — but aren't considering it? Join us for an insightful session with Matt Baumgartner of YouScience, where you'll learn about:

- What YouScience is and how it's helping students across NW Ohio explore careers that align with their strengths
- How many students in our region have aptitudes aligned with manufacturing career clusters
- Where the "interest gap" lies for manufacturing and what that means for your future workforce
- How you can use YouScience (a free tool!), to help strengthen your talent pipeline

Register today **here**!

Cross-Cutting Skills: Why Now Is the Time to Invest

Manufacturers are being inundated by the twin forces of dramatic technological innovation and the harsh realities of a declining talent pool. In all cases technological change is impacting the way we work, and in some cases (i.e. automotive) it is changing the very essence of the finished product. Meanwhile, workforce demographics are impacting every aspect of society. Nonetheless, these serious challenges present tremendous opportunities for firms that are agile, responsive, forward thinking, and proactive. This may be the perfect time to strengthen your team in these areas by investing in cross-cutting skills.

Whereas job-specific skills narrowly apply to a defined job such as how to safely operate a particular machine, cross-cutting skills such as leadership, communication, analytical thinking, and problem solving, have broader application; and as their name implies, they are useful in a wide-range of roles and are essential to the success of all organizations. As manufacturers onboard new talent and upskill current employees to adopt new technologies or fill roles left by retirees, the demand for both technical and cross-cutting training continues to rise.

For companies temporarily deferring job-specific training while evaluating investments in automation, artificial intelligence (AI), or machine learning (ML), cross-cutting skills training presents a smart, strategic alternative. A recent Lightcast report, Beyond the Buzz: Developing Skills Employers Actually Need, analyzed job postings requiring AI/ML skills. The findings were clear: the most commonly requested complementary skills weren't technical—they were cross-cutting "human" skills, as noted in the chart below.

The report notes that failing to possess these critical complementary non-technical skills will severely limit the potential benefits of Artificial Intelligence. Workers applying Artificial Intelligence to their jobs *still need to be able to interpret the data, draw insights, connect dots, and communicate this synthesized information to colleagues*. "Training programs that focus exclusively on technical skills while neglecting communication, leadership, and analytical thinking will produce workers who can operate AI tools but cannot integrate them effectively into overall business processes or use them to create lasting careers." (*Lightcast, "Beyond the Buzz")*

Cross-cutting skills remain critical regardless of where you are in your technology journey—whether actively adopting new systems, exploring your options, or taking a more measured, "wait and see" approach. Equipping your team with these foundational competencies now is one of the most future-ready moves a manufacturer can make. The Center is here to help manufacturers identify training opportunities that build resilient, future-ready teams. Reach out to explore how we can assist your workforce development efforts.

Top Skills Required for AI Jobs

Skill	Description
Communication	The ability to effectively interact, convey information, and collaborate with others in a clear and understandable manner.
Artificial Intelligence	The development of algorithms and models that enable machines to perform tasks such as learning, reasoning, problem-solving, and understanding natural language.
Management	A set of skills that involve a variety of tasks, such as planning, organizing, leading, and controlling resources to achieve specific goals.
Operations	A fundamental skill that involves managing and overseeing the day-to-day activities of a business or organization.
Leadership	A skill that involves the ability to motivate and guide a team towards achieving common goals.
Research	A skill that involves gathering and analyzing information to answer questions or solve problems; identifying reliable sources of information, evaluating the credibility of those sources, and synthesizing the information to draw meaningful conclusions.
Machine Learning	A subset of artificial intelligence that involves the development of algorithms and statistical models that enable systems to perform tasks without explicit instructions.
Customer Service	A necessary and common skill in almost every field and industry. It involves effectively communicating with customers to understand their needs, answering their questions or concerns, and providing them with excellent support and service.
Writing	A skill that involves putting thoughts and ideas into words through the use of language. It is an essential communication tool used to convey messages, express thoughts and emotions, and share information.
Problem Solving	The process of identifying, analyzing and resolving problems that can arise in any situation; identifying the root cause of a problem, generating possible solutions, evaluating those solutions and implementing the best one.

Source: Lightcast

Artificial Intelligence Drives Modern Manufacturing Transformation

This feature explores how artificial intelligence is reshaping manufacturing from three distinct perspectives: (1) a concise historical overview linking AI to successive industrial revolutions, (2) current market projections highlighting AI's economic potential and sector-specific adoption, and (3) practical applications demonstrating how AI is reshaping every stage of the production lifecycle. Together, these perspectives illustrate why AI is no longer a futuristic add-on, but a foundational catalyst for advanced manufacturing.

1. From Steam to Silicon: AI and the Journey of Industrial Revolutions

The story of AI in manufacturing reflects the accelerating pace of industrial transformation. The first two revolutions—mechanization and mass production—unfolded over roughly 120 years. In contrast, only 70 years separated Industry 2.0 from Industry 3.0, propelled by breakthroughs in computing that emerged around 1950 and introduced simulation and mechanistic modeling to factory floors. The transition to Industry 4.0 came even faster: within three decades, cyber-physical systems began integrating physical assets with digital intelligence. Now, in less than 20 years, Industry 5.0 is restoring the human element, prioritizing human–machine collaboration enabled by ubiquitous AI and data science. This rapid cadence demonstrates how AI accelerates discovery, scales scientific insight, and enables autonomous experimentation—hallmarks of the modern smart factory.

2. Market Momentum: Trillions in Play

Economic indicators underscore AI's strategic significance. Analysts project a compound annual growth rate of approximately 36% for the global AI market between 2024 and 2030, with nearly half of all businesses expectedto deploy AI tools during that period. Employee productivity gains could exceed 40% by 2035, and PwC estimates that AI could contribute $15.7 trillion to the global economy by 2030. Manufacturing is poised to capture the largest individual share—around $3.8 trillion. However, adoption patterns vary: data intensive sectors such as advertising, finance, and healthcare account for roughly 50% of current AI spending, while embedded AI in automotive, transportation, and broader manufacturing represents about 20%. This distribution highlights AI's versatility, spanning software centric analytics to deeply integrated, hardware based solutions on the factory floor.

3. Practical Impact: Reinventing the Production Lifecycle

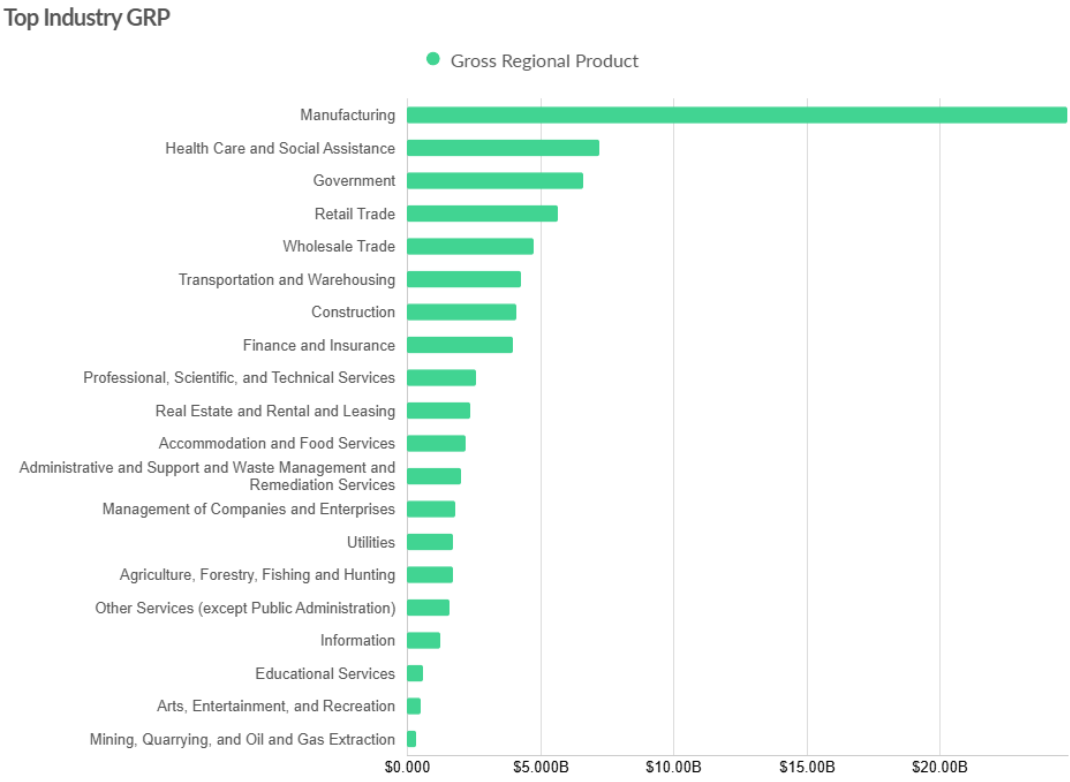
On the shop floor, AI is transforming operations at every stage, beginning with planning and extending through delivery. For instance, predictive maintenance models continuously analyze sensor streams in real-time, thereby cutting unplanned downtime and extending equipment life. Building on this foundation, AI driven quality control systems then detect defects instantaneously, ensuring consistent standards while reducing the manual inspection workload. Meanwhile, end to end supply chain optimization leverages machine learning forecasts to balance inventory levels, smooth logistics flows, and cushion against global shocks. At the same time, intelligent robots and cobots adapt dynamically to changing tasks, augmenting human decision making rather than replacing it. Beyond individual machines, continuous process optimization engines mine production data to streamline workflows, trim energy use, and lower costs. In parallel, AI assisted design tools translate customer feedback into rapid, customized product iterations, closing the loop between market insights and manufacturing. Finally, safety systems powered by real time data provide alerts and decision support, fostering a healthier and more informed workforce. Altogether, these interlinked capabilities signal a shift toward factories that are smarter, more resilient, and emphatically human centric—poised to set new benchmarks for the future of manufacturing.

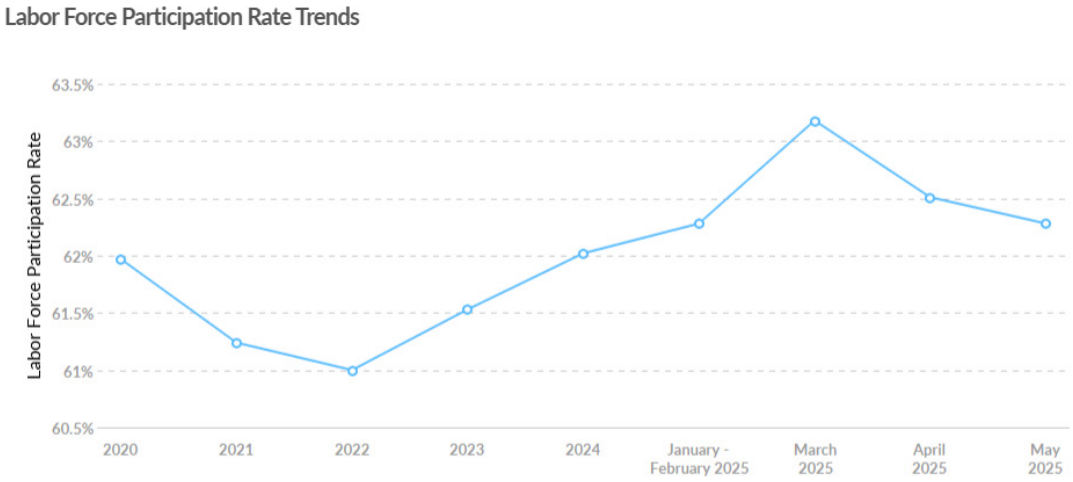
Want to Learn More?

This month's Knowledge Hub feature was authored by Dr. Mohammed Abouheaf, Associate Professor in BGSU's School of Engineering and a founding faculty member of the university's Robotics Engineering program. His article provides a timely and accessible look at how artificial intelligence is reshaping modern manufacturing—from historical context and market trends to real-world applications on the factory floor. As AI becomes increasingly central to competitiveness and innovation, Dr. Abouheaf's expertise helps illuminate both the opportunities and the challenges ahead. If you're interested in learning more about AI, collaborative research, or workforce development in this space, contact the Center and we'll be happy to connect you.

Data included on this page details information for the 17 counties in the Regional Growth Partnership territory and was pulled from labor market data source, Lightcast.

Gross Regional Product (GRP) measures the final market value of all goods and services produced in a region. As shown, the manufacturing industry far exceeds others in GRP in Northwest Ohio.





The labor force participation rate has steadily rebounded since its low point in 2022, climbing from 61% to a peak of 63% in March 2025. While participation slightly declined in April and May, rates remain well above pre-2023 levels, signaling continued strength in the workforce. This upward trend reflects renewed momentum in the labor market and increased engagement across key sectors.

Contact Us

Ford Weber
Program Manager of Econ. Dev. Partnerships
fweber@bgsu.edu

Kassie Cooper
Marketing Projects Manager
kassiec@bgsu.edu

Jeri Steinbrook
Workforce Training Coordinator
jeris@bgsu.edu

Danielle Sidebottom
Assistant to the Executive Director
dsidebo@bgsu.edu