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Northwest Ohio Automotive Manufacturing Sector Study

Executive Summary

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About the Authors

The Center for Automotive Research (CAR) is an independent, non-profit organization conducting industry-driven research and analysis. Focusing on critical areas like Energy & Sustainability, Technology, and Labor, Economics, and Policy, CAR has been a trusted resource for the automotive industry for over twenty years. www.cargroup.org

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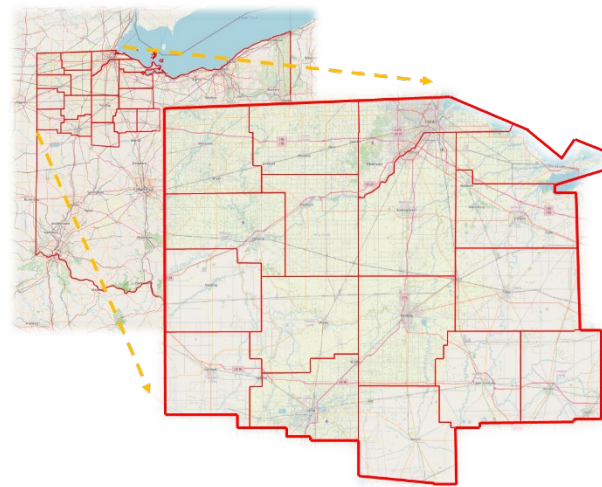
CAR's mission is to inform and advise through independent research, education, and dialogue, enabling a more viable and sustainable automotive ecosystem.

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The Center for Automotive Research (CAR), in collaboration with the Center to Advance Manufacturing (CTAM), undertook an initiative to identify automotive manufacturing organizations in Northwest Ohio and analyze their key business needs. This work aims to support strategic efforts to support and expand the region's automotive sector.

To maximize stakeholder engagement and deliver actionable insights, CAR implemented a collaborative and ground-proofed approach:



1. **Awareness:** Partnering with Economic Development Organizations (EDOs) representing the 17 counties and, where appropriate, several municipalities comprising the study region, CAR developed a collective summary and map of the automotive manufacturers in the area.
2. **Assessment:** Utilizing a tried and tested CAR-developed risk profile, areas of risk and opportunity were identified linked to facility production. This analysis incorporated industry externalities, such as federal policy, electrification trends, energy and grid resilience, automation levels, and workforce preparedness.
3. **Actionable Recommendations:** Informed through assessment and input from industry, EDOs, and subject matter experts through surveys, interviews, and discussions, CAR developed a set of recommendations to consider in development of business retention, attraction, and job-growth strategies in this region.

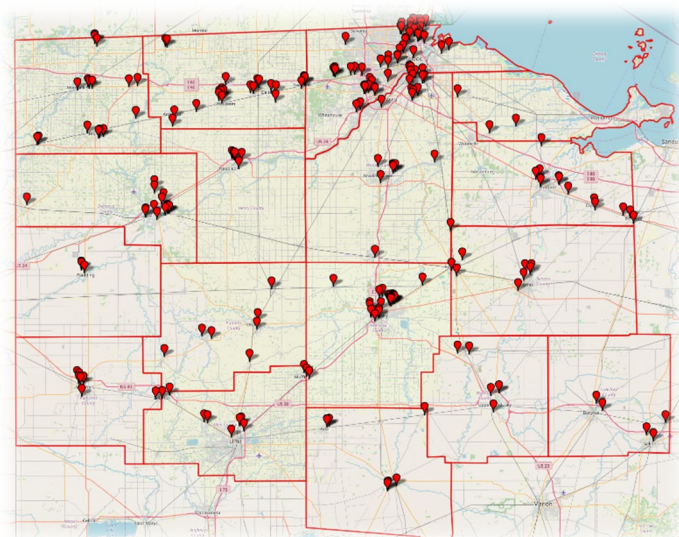
Awareness: Developing a Map of Automotive Manufactures in NW Ohio

Essential to developing any strategic plans to support and grow the automotive sector in this region is understanding who makes up this manufacturing base. While public data through the U.S. Bureau of Economics highlights the significance of the automotive industry in the region, data suppression at the county level and limitations in industry codes undercount this footprint. To capture a more robust and wholistic characterization of the automotive manufacturing sector in the 17-county region, CAR engaged in a collaborative analysis analyzing both public and private data. In concert with EDOs representing each of the 17 counties and select municipalities, CAR compiled a summary of the facilities engaged in automotive manufacturing in this Northwest Ohio region. CAR reviewed each identified facility and assigned a primary industry category based on the automotive product or service, up to two additional industry categories, estimated employee count, and

noted engagement in the electrified vehicle industry as well as diversification outside of automotive¹.

Through this collaborative methodology, CAR identified 230 facilities engaged in automotive manufacturing within this Northwest Ohio region. These facilities are estimated to account for nearly 44,000 jobs in the region – or just over one out of every eleven private jobs in the 17 counties. This suggests over 108,000 additional jobs across the East North Central U.S. are supported by these automotive manufacturing facilities in

Northwest Ohio². Of these nearly 44,000 jobs, the largest subset are engaged in Motor Vehicle Assembly, followed by Metalworking, Stamping, Machining, & Molding, Interior, Engine & Engine Parts, Body & Exterior, and Suspension & Steering. These six industry categories account for over half of the identified automotive manufacturing sector jobs in the region.



It is no accident that such a significant concentration of automotive manufacturing is in this region. Northwest Ohio is centrally located within the tri-state area of Ohio, Michigan, and Indiana, which is collectively home to seven vehicle manufacturer headquarters and 80 manufacturing plants – six of which are in Northwest Ohio³.

Assessment: Understanding Risks and Opportunities

After developing an awareness of the automotive manufacturing sector within Northwest Ohio, a tried and tested CAR-developed risk profile was applied based on assigned industry categories to assess areas of risk and opportunities within the region. The risk profile considers a bill-of-materials view of the automotive supply chain and categorizes components into three groups based on their potential for future growth, consistent performance, or risk of decline.

Industry categories with the potential for growth include advanced driver assistance systems (ADAS) and automation, audio and telematics, electronics and electrical,

¹ Data sources include the MarkLines supplier database, Elm Analytics, Dunn & Bradstreet Hoover, company websites, facility factsheets, media reports, and data provided by EDOS

² Based on CAR Research: [Economic Contribution of the U.S. Automotive Industry](#) (July 2024); East North Central U.S. includes OH, IL, IN, MI, and WI

³ MarkLines OEM Plant locations

and vehicle electrification components including electric drive motors, electric axles (e-axles), power electronics, and electric vehicle (EV) batteries. These categories see growth potential as advanced technology and new materials are adopted and the industry transitions to electrified propulsion systems.

Low to moderate risk areas – those likely to remain comparatively unaffected by the electrification trend – include passenger restraint systems, interior systems (other than instrument panel), windows, body/chassis, wheels and tires, steering, suspension, and braking, systems, and thermal management. There is potential opportunity in these low to moderate risk categories as the industry electrifies, particularly in structural components, braking, audio and telematics, and climate control systems.

Of highest risk are conventional internal combustion engine (ICE) components – engines and engine parts, fuel systems, and exhaust and emission control. These components will be phased out as the industry transitions to all-electric battery electric vehicles (BEV). Transmission and driveline components also see heightened risk through reduced dollar content per vehicle with electric propulsion systems.

Applying this risk profile to the 230 facilities identified in the awareness analysis, 18 industry categories were characterized. Acknowledging that facilities may engage in more than a single product or service, up to two secondary industry categories were identified. Furthermore, engagement EV-related production was noted. This information allowed a facility engaged in a primary industry category considered to be at heightened risk to transition to a lower risk profile as this indicates engagement in or movement towards lower risk industries. Over the course of this study, four facilities announced closure plans. These facilities were given a high-risk rating regardless of identified primary industry category.

In the 17-county region, engine and engine parts, driveline, and transmission and transmission parts were identified as the most vulnerable industries. These account for 25 facilities and an estimated 7,276 jobs, or about 16.6% of the nearly 44,000 jobs captured in this study. On the other hand, battery, electric motor and motor parts, electrical and electronics, and industrial chemical, painting, & coating are areas of potential growth, accounting for 20 facilities and an estimated 4,528 jobs in the region. One engine/engine parts and one transmission/transmission parts facility noted the introduction of EV components, shifting an estimated 1,650 jobs to low to moderate risk. Facilities announcing closures impacted an estimated 1,183 jobs

NW Ohio Automotive Employment Risk Assessment

Industry Category	Risk Profile	Updated Risk Profile	Establishments	Active Electrification	Employment*
Aftermarket, Part Distribution, Packaging, Logistics	Moderate Risk	Moderate Risk	9		737
Battery (incl. materials, components, systems)	Growth Potential	Growth Potential	3	3	1,485
Body and Exterior	Moderate Risk	Moderate Risk	14	1	3,752
Climate Control	Moderate Risk	Moderate Risk	3	2	708
Driveline	High Risk	High Risk	6		1,697
Electric Motor and Motor Parts	Growth Potential	Growth Potential	3	3	155
Electrical and Electronics	Growth Potential	Growth Potential	3	1	448
Engine and Engine Parts	High Risk	High Risk	16		3,779
	High Risk	Moderate Risk	1	1	130
Engineering Service	Moderate Risk	Moderate Risk	2	1	48
Glass	Moderate Risk	Moderate Risk	7		1,657
Industrial Chemical, Painting, Coating	Growth Potential	Growth Potential	10		1,947
	Growth Potential	High Risk	1		493
Industrial Equipment Manufacturing	Moderate Risk	Moderate Risk	21	4	2,335
Interior	Moderate Risk	Moderate Risk	29		4,255
	Moderate Risk	High Risk	1		175
Metalworking, Stamping, Machining, Molding	Moderate Risk	Moderate Risk	61	2	6,150
Motor Vehicles Assembly	Moderate Risk	Moderate Risk	6	3	6,623
Small and General Parts	Moderate Risk	Moderate Risk	19	2	2,101
Suspension and Steering	Moderate Risk	Moderate Risk	12		3,246
	Moderate Risk	High Risk	1		235
Transmission and Transmission Parts	High Risk	High Risk	1		150
	High Risk	Moderate Risk	1	1	1,520
Total			230	24	43,826

*Employment numbers are estimates based on publicly available information and subscription databases

Northwest Ohio Automotive Manufacturing Survey

As part of the assessment, CAR and EDOs contacted over *977 automotive businesses in addition to the economic development organizations, EDOs* in the 17-county region of Northwest Ohio to gather awareness about automotive manufacturing needs. A total of *21 participants* from *83 counties* responded to the survey (with 38 businesses and 16 EDOs participating). Businesses represented *97 different automotive industry sectors*—

The survey focused on key dimensions⁴:

- Automotive industry shifts impacting business
- Impact of policy on current and future business
- Resources in Demand
- Opportunities and challenges
- Business strategies
- Workforce readiness (roles and skills in demand, challenges)
- Industry automation and artificial intelligence/machine learning utilization
- Business development resources and EDO utilization
- Community characteristics
- Familiarity and engagement with CTAM

⁴ A select group of key dimensions are outlined in this summary, a full description of findings can be found in the report.

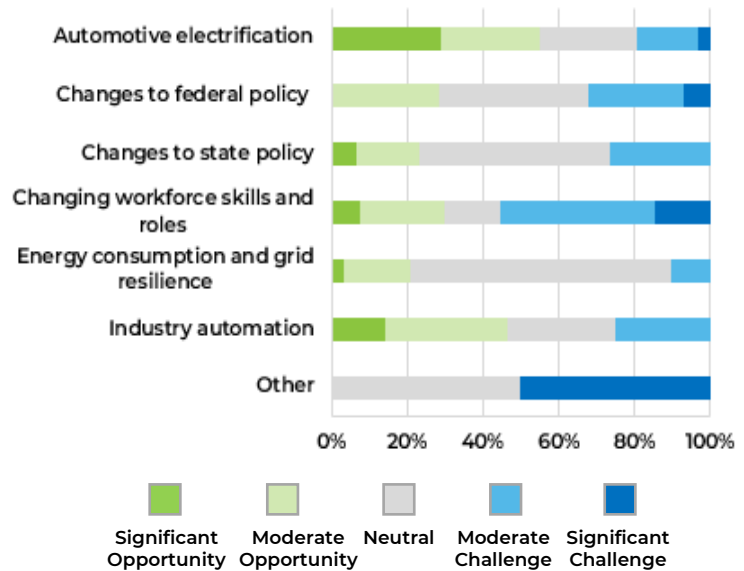
Automotive Industry Shifts with greatest impact reported by businesses included automotive electrification, workforce preparedness, and changes to federal policy had the greatest impact on their organizations. EDOs noted that workforce preparedness, industry automation, and automotive electrification and grid resilience had the greatest impact on businesses in their region.

Resources in demand include continuous improvement; talent recruitment; apprenticeships, internships, or co-op resources; and access to new technologies and systems. By contrast, EDOs noted similar needs for businesses in their region along with workforce support services; education and training resources; and access to new technologies.

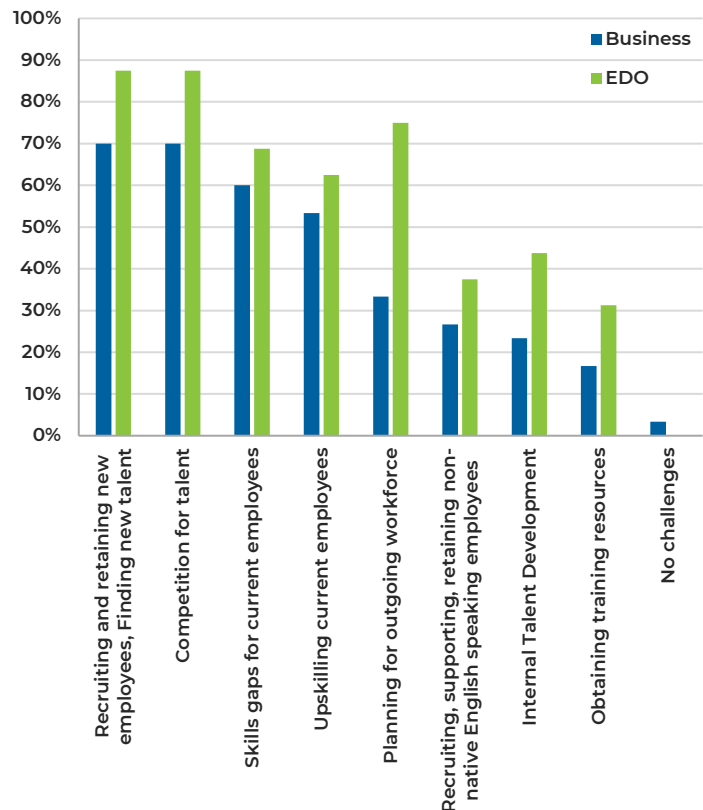
Opportunities and Challenges reported by businesses highlighted automotive electrification and industry automation as the greatest opportunities while changing workforce skills and other factors were noted as most challenging. EDOs noted that industry automation and automotive electrification present the greatest opportunities, while energy consumption and grid resilience and changing workforce skills and roles pose the greatest challenges.

Workforce needs reported by businesses included roles in maintenance and repair positions, operators, quality management, continuous improvement, management, and critical thinking skills. EDOs reported that the greatest roles and skills in demand were in advanced manufacturing, mechanical engineering, and computer and information technology/ software engineering.

**Opportunities and Challenges
Business Perspectives**



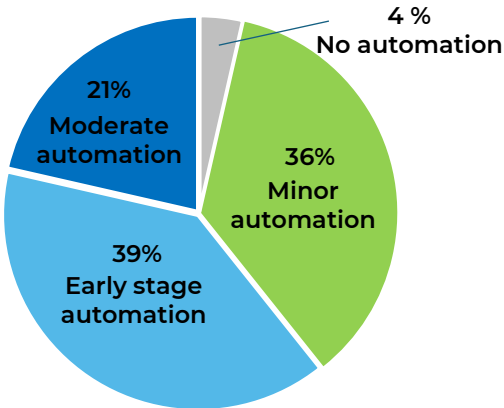
**Workforce Challenges
Business and EDO Perspectives**



Workforce challenges reported by businesses reported that the greatest workforce challenges were related to recruitment and retention, competition for talent, and skills gaps for current employees. EDOs also reported that recruitment and retention and competition for talent were critical, followed by planning for outgoing workforce (e.g., retiring workers).

Utilization of Automation reported by businesses showed a range of minor to moderate automation utilization in operations, with 39% of businesses noting moderate, yet early stages of automation, followed by 36% reporting minor automation use. Only 4% of businesses reported using no form of automation, and no business reported significant automation usage. In contrast to business perspectives, EDOs reported that local businesses utilize more significant levels of automation.

Utilization of Automation



Utilization of Artificial Intelligence (AI) / Machine Learning (ML) reported by most businesses was no utilization of AI/ML (63%) or only minor, recent use (33%). Only a small proportion of businesses reported moderate, yet recent usage of AI/ML, and no businesses reported moderate, specific or significant utilization of AI/ML. Generally, EDOs report businesses use more significant and mature levels of AI/ML than businesses self-report.

Industry Interview Highlights

CAR conducted eight confidential interviews with automotive original equipment manufacturer (OEM) plants and automotive suppliers. Interviews focused on similar key areas noted in the survey, including industry shifts impacting business, operational strategies, changing technologies, workforce and equipment needs, and community characteristics. Interview feedback for a select group of focus areas is highlighted below⁵.

Industry shifts of greatest concern reported by businesses include concerns about changing product offerings in response to electrification (e.g., among facilities focused on internal combustion engine system (ICE) manufacturing); increasing complexity and precision required in EV manufacturing impacting workforce needs; concerns about the pace of the EV transition; the impact of new administration on industry directions, policies, and geopolitics; and the automotive industry shift to the Southeastern U.S.

⁵ A select group of key dimensions are outlined in this summary, a full description of findings can be found in the report.

Operational strategies include optimizing resource allocation across production facilities, internal cost reduction programs, maintaining a local workforce, diversification, and process improvement.

Workforce readiness feedback included a focus on the limited labor pool, partnerships with job placement agencies for recruitment, internal career support for non-native English-speaking employees, early career training for employees, standardized work instructions, and boosting knowledge transfer between experienced employees and newer workers. Skills needed include basic software knowledge, interpersonal and conflict resolution, leadership, problem solving, negotiation, and project management. Roles in demand include administration, accounting, materials engineering, product development, and process engineering.

Equipment and training needs included anticipated demand for tooling among larger manufacturers during product and process adjustments (presenting an opportunity for collaboration with local small and medium sized tool and die shops) and conducting hands on training with high schools and community colleges in occupations and advanced computing.

EDO Listening Session Highlights

CAR conducted two virtual listening sessions with EDOs to gather direct feedback about specific considerations for the automotive manufacturing organizations in Northwest Ohio. Feedback focused on industry shifts impacting business, opportunities and challenges, resources in demand, workforce-related considerations, and community characteristics. Listening session feedback for a select group of areas is highlighted below⁶.

Industry shifts of greatest concern reported by EDOs included uncertainty over automotive electrification, timing and scale of capital investments for new vehicle propulsion systems, impact of EV transition on regional manufacturers, impact of new business development on energy consumption and grid resilience (and need to increase awareness for local businesses), manufacturing technology shifts, and auto assembly plant layoffs.

Opportunities reported by EDOs included the regional capabilities in automation and robotics, potential for growth in the technology supply chain, and utilizing electric substation equipment to address energy supply issues.

Challenges included changing workforce skills and roles, regional talent shortage, energy consumption and grid resilience, changes to federal policy, determining the pace and proportion of investments between ICE and EV production, lead times for equipment in retooling efforts, auto assembly and large suppliers in distress, housing for the local workforce, energy consumption for automation and AI.

⁶ A select group of key dimensions are outlined in this summary, a full description of findings can be found in the report.

Resources needed for businesses include workforce upskilling and credentialing, aligning businesses with CTAM and colleges for education and training, retaining a skilled workforce for the state, training resources for advanced manufacturing and AI, foreign-born workforce development, attracting talent to automotive manufacturing, policy to support affordable housing, campaigns and programs for apprenticeships, internships and co-op positions, connecting businesses with adult education and trade schools for technology conversion, energy infrastructure support and expansion, and managing energy capacity and rates.

Actionable Recommendations: Findings and Conclusions

Following analysis of the collaborative and comprehensive dataset of facilities engaged in automotive manufacturing in the study's 17-county region, collecting business and EDO stakeholder input through survey, interviews, and listening sessions, and independent research into the major trends and externalities impacting the automotive industry, CAR developed findings and recommendations to support strategic efforts to retain, grow, and, in some cases, diversify automotive manufacturing in Northwest Ohio.

Manufacturers in the region are already responding. The top strategy noted by business survey respondents – **diversifying or increasing product offerings**. This aligns with analysis of collaborative dataset where nearly half of the businesses noted diversification outside of the light vehicle value chain. Other top strategies include supply chain or business model adjustment.

ICE to EV Transition

Manufacturers specific to ICE powertrain are at the greatest risk—Within the 17-county region, engine and engine parts, driveline, and transmission and transmission parts are the most vulnerable industries. As the industry transitions to electrified propulsion, engine, fuel, and exhaust systems will see diminishing volume and eventual phase out as BEVs grow in market share. Transmissions and transmission parts can see reduced dollar content per vehicle as EVs typically utilize simpler, single-speed, transmissions. The drivetrain sees changes as electric motors and e-axles are incorporated into vehicle design.

For manufacturers currently engaged in higher-risk industries, transitioning to growth areas is key to future security in automotive manufacturing. ICE-focused manufacturers may benefit from reviewing their products and processes **for overlap with the EV value chain**. Manufacturers in this space may benefit from **increased awareness** of the EV transition and its potential risks to their ICE-specific products as well as aid in pivoting toward electrification or diversification outside of the automotive industry. Support for facility retool and expansion can help small and medium sized manufacturers who may otherwise struggle to secure the capital needed to convert production to EV components. The recently released EV conversion playbook developed by the U.S. Department of Energy and Argonne National Laboratory could be an asset in this

endeavor⁷. At least one facility has mitigated some of this risk, shifting from higher to low-to-moderate risk, announcing a transition into EV component manufacturing (electric drive units).

Manufacturers focused on ICE technology can extend their viability by securing a role in **hybrid[plug-in hybrid]and potentially extended-range EV programs**. Hybrids and plug-in hybrids, which contain ICE powertrains, have seen sales increase by 37% and 8% in 2024 compared to 2023⁸. Extended-range EVs, while similar to fully electric BEVs, incorporate an onboard combustion engine which functions as a generator for the battery rather than directly driving the wheels. These electrified vehicles rely on ICE powertrain components and could gain market share as the industry turns to them as a practical bridge between traditional gas-powered vehicles to fully electric models. Furthermore, ICE vehicles will continue to comprise a significant portion of the vehicles on the road for the coming decades – presenting potential opportunities for manufacturers to pivot toward or expand into **aftermarket products**. Alternatively, manufacturers may consider **diversification** outside of the light vehicle market to supplement diminishing volumes – a strategy many businesses in Northwest Ohio are currently pursuing. Examples of diversified markets served by engine and engine parts manufacturers in the region include oil and gas, defense, power transmission, heavy truck, agriculture and construction, hydraulic components, aerospace, and medical devices. In Northwest Ohio, two industries that may hold opportunity for suppliers diversifying outside of automotive include the semiconductor supply chain and defense – both seeing major investments within Ohio.

Opportunities for growth in the EV Market primarily lie in **electrification and advanced technology**, in areas such as battery, electric motor and parts, electrical and electronics, and industrial chemical, painting, & coating as new technology and lightweighting call for new materials and processes. However, manufacturers engaged in these identified **growth areas are not without risk**. The failure of EV adoption to meet early, optimistic, market share forecasts has led to delayed vehicle programs and a rethinking of OEM strategies impacting capital investment plans and powertrain portfolios. Uncertainty faced by OEMs is multiplied for suppliers – many of whom rely on large orders to fund the factory investment in retooling required for EV components. With the market failing to meet early, optimistic forecasts for EV sales, suppliers that did invest in the transition to electrification can struggle to see return on that investment. This impact can be seen today – with program delays and reductions leading to layoffs and even plant closures. Support for these facilities to weather a bumpy and slow transition is critical until the market for EVs begins in earnest. To this end, **public education campaigns** on the potential benefits of EVs and implementation of a robust charging network may facilitate this transition. Arguably most critical is clear and **consistent regulatory policies** for electric vehicles. Support for expansion and retooling is critical, as well as

⁷Argonne National Laboratory, Business Opportunities in Clean Energy Supply Chains: Guidebook for Small and Medium-Sized Auto Suppliers, December 2024, [193158.pdf](#)

⁸ Wards Intelligence, U.S. Light Vehicle Sales December 2024

partnerships with local education organizations to help train and retrain the workforce for electromobility roles.

Products with Opportunity

Electrical heating and cooling[digital display]and battery system thermal control provide opportunities for suppliers currently conducting business in thermal management, engineering services, electrical and electronic devices, and fluid systems (e.g., tubes and pumps for liquids and gases).

Industrial equipment manufacturing and metalworking[stamping[machining]molding may see an increase in demand as new models, both ICE and EV, are introduced requiring new tools, dies, and machinery. Flexibility is critical in the face of uncertain EV demand and gradually reduced ICE volumes.

The **semiconductor industry** provides an opportunity for some suppliers to diversify and capitalize on the growing industry in Ohio. Opportunities exist in equipment and parts like vacuum pumps, sensors, valves, tubes, seals, etc., and engaging in subsystems (e.g., process and control, thermal control, fluid management, power management) Building relationships and entering the semiconductor manufacturing supply chain as a lower-tier supplier can be an entry point for manufacturers to engage in this industry.

Record investment in **battery manufacturing** provides opportunity in both the up- and downstream supply chain. While battery cell and pack production capacity are forecasted to outpace demand through the end of the decade, battery material and components are still an area of potential investment. Furthermore, the proximity of NW Ohio to vehicle assembly plants and battery manufacturing facilities provides opportunity to grow in the down-stream battery recycling industry. Outside of automotive, the battery industry may see further growth in stationary storage spurred by demand for more power and grid resiliency.

Automation and equipment manufacturing are a potential area of growth as the automotive manufacturing sector shifts toward Industry 4.0. Automated processes can streamline production, increasing productivity and helping relieve some of the workforce challenges felt across the industry.

Workforce and Partnerships

A concern highlighted in Northwest Ohio that reflects an issue impacting automotive manufacturing businesses nationwide is workforce preparedness. Limited labor pools, the need for new skills both in existing and upcoming workers as technology changes, and impending loss of experience as much of the current workforce retires pose significant challenges.

- **Automation and AI** can help mitigate some of these challenges by increasing productivity with the same or smaller workforce, but it brings its own needs for new skills and education. Opportunity lies in both helping facilities fund the purchasing of new equipment and providing training in these new technologies.

- Some companies have found success working with *staffing organizations*, relocating workers to the region to fill vacancies – a critical strategy in a region with a shrinking population.
- Implementing *time tracking systems* provides visibility into the hours spent on projects. This can inform future quotes and support efficient resource allocation.
- State support for *affordable housing* as a workforce issue can help build communities people want to (and can) move to.
- A disconnect between business workforce needs and what educators provide was identified by EDOs in the region. Forming *partnerships between industry and academia* and the development of *industry advisory boards* can ensure clear and consistent communication to ensure upcoming graduates are entering the workforce with the skills the industry needs. This bridge between industry and educators was identified as a key role for EDOs to fill.
- Partnerships with education providers can build *pipelines for co-ops[apprenticeships]and internships* attracting upcoming workers to manufacturing and communicating industry needs to educators.
- The transition to electrification necessitates development of *new core competencies* within the organization – unlike in ICE programs, suppliers have seen less overlap in needed skillsets and expertise among EV programs.
- *Credentialing programs* such as TechCred⁹ can be used to upskill current employees and be built around a working schedule.
- Engagement should not wait until college – programs have been successful *engaging with K₁₂ students*, debunking misconceptions around manufacturing. This can open the minds not just of students, but also educators on the opportunities within manufacturing. Furthermore, programs like College Credits Plus can enable high school students to earn college credits, providing opportunities for college-ready students¹⁰.

To prepare the Ohio businesses for the future demands of our industrial economy in general and the automotive sector in particular, CAR observes the need for a "co-design" of the education and training needs and the capital investment needs of the businesses. While large businesses have several means of investing in self-training and finding access to capital, the small and medium sized businesses are the ones who are most at risk without tangible State or Federal Government support. Ohio's RAPIDS¹¹ and Super RAPIDS¹², along with TechCred and College Credit Plus, are excellent programs to strengthen the education and training of the Ohio workforce. Working with the Business Advisory Council to CTAM, CAR observes pathways to a discussion with the

⁹ [TechCred | Ohio.gov](#)

¹⁰ [College Credit Plus | Ohio Department of Education and Workforce](#)

¹¹ [Regionally Aligned Priorities in Delivering Skills \(RAPIDS\) | The Ohio Department of Higher Education](#)

¹² [Super RAPIDS | The Ohio Department of Higher Education](#)

mid-cap investment banks that could help fulfill the capital needs of the small and mid-sized businesses that in turn will be the primary beneficiaries of the Ohio Department of Higher Education.

Energy & Grid Resiliency

Grid resilience is a major concern voiced by EDOs – who can have a wider view of the region’s needs than an individual facility or business may. To mitigate concerns as new business looks to invest in the region (e.g., data centers), more EVs are on the road, and automation and AI demand more energy in existing manufacturing, there is one clear answer: ***Build more power generation and transmission capacity***

Businesses can look for ways to decrease their energy needs and may potentially lower costs by engaging in ***demand response programs*** – a voluntary program working with PJM Interconnect where customers “*can reduce their electricity consumption when wholesale prices are high or the reliability of the grid is threatened, receiving payments for the reductions they make. Common examples of reductions are turning up the temperature on the thermostat to reduce air conditioning, or slowing down, or stopping production at an industrial facility temporarily.*”¹³

In interviews with industry, one concern was the perceived migration of the automotive industry to the Southeastern U.S. One contributor to this is likely energy availability and cost, a key component of attracting investment and, according to Area Development’s top states for doing business (Q3 2024), seven of the top ten states for this category are in the South¹⁴. Interviews identified the South as an area to emulate – with diversified power generation and large projects coming online, such North Carolina announcing over 14 GW being added as a combination of gas, solar, battery, wind, hydropower, and nuclear, and Georgia recently doubling the output of a nuclear plant¹⁵. ***Capacity and reliability are critical to remain competitive with other regions for investment–***

The latest PJM Interconnect capacity auction (July 2024) saw prices hit a record high – nearly ten-times the price per MW-day as the previous auction. These results will likely spur new investment in power generation and transmission in the PJM region which poses a business opportunity for manufacturers in NW Ohio.

Long lead times for equipment can be the deciding factor for investment site selection – proactive efforts to prepare sites and streamlined processes may help secure projects.

EDOs, local universities, and colleges can help by engaging with small and medium-sized manufacturers, providing outreach and education to industrial customers about the energy situation (Utility companies typically meet directly with OEMs).

¹³ [PJM Learning Center - What is Demand Response?](#)

¹⁴ [Top States for Doing Business in 2024: A Continued Legacy of Excellence - Area Development](#)

¹⁵ North Carolina: [North Carolina OKs Duke Energy plan to add 3.6 GW gas-fired capacity, 7 GW renewables | Utility Dive](#); Georgia: [Plant Vogtle Unit 4 begins commercial operation - U.S. Energy Information Administration \(EIA\)](#)

Communication between businesses and EDOs, and EDOs and the Public Utilities Commission of Ohio are key to voicing and addressing reliability concerns

Conclusion

The automotive manufacturing sector in Northwest Ohio represents a critical component of the region's economy with its unique strengths in workforce, proximity to key industry hubs, and a robust manufacturing base. However, as the industry faces the transition toward electrification and advanced technologies, stakeholders must navigate significant challenges and seize emerging opportunities to ensure long-term competitiveness.

This study, made possible through collaborations between CAR and the Center to Advance Manufacturing, and economic development organizations and manufacturers across the 17-county region, underscores the urgency of supporting manufacturers as the industry faces challenges in the shift from ICE to EV, workforce readiness and availability, implementation of automation and AI, energy and grid resilience, and inconsistent policy initiatives. Strategic partnerships among businesses, educational institutions, and economic development organizations will be key in fostering innovation, upskilling the workforce, and creating a pipeline of talent. Retool and training support for businesses expanding production into the EV value chain will be critical to survival in the evolving automotive industry. Those already making the transition may need aid as the road to EVs will be bumpy, with a slowdown in EV adoption posing risks to scalability and jeopardizing returns on investment. Finally, some businesses may see opportunities for growth and stability in diversifying out of the automotive market to fill production capacity as ICE vehicle volume declines and EV volume ramps up.

By proactively addressing these challenges through collaborative efforts, Northwest Ohio can strengthen its position as a leader in automotive manufacturing, attract new investments, and drive sustainable economic growth for the region. This report provides the awareness and assessment necessary for automotive manufacturing stakeholders to strategically work together toward a resilient and prosperous future.