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BUILDING AMERICA'S INDUSTRIAL BASE

Case Study: How Michigan Manufacturing is Evolving Through Industrial Transition

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SECTION I: BACKGROUND

Michigan is navigating one of the most consequential industrial transitions in the country. For more than a century, the state's OEMs, supplier networks, skilled workforce, and production infrastructure have anchored U.S. automotive manufacturing and shaped the broader American economy. During World War II, Michigan demonstrated this capacity most vividly by retooling its factories to become the "Arsenal of Democracy," producing the material that powered the Allied war effort.

Michigan's industrial foundation, however, has undergone significant strain. Decades of plant closures, job losses, and population decline have forced Michigan to confront the limits of its manufacturing model amid intensifying global competition and offshoring. Today, a new set of pressures—including shifting supply chains, trade volatility, and uncertainty surrounding the electric vehicle (EV) transition—is forcing Michigan's businesses, workers, and communities to rethink long-term growth strategies and explore new markets beyond traditional automotive production.

Meanwhile, Michigan's industrial capabilities position the state to compete across a broader set of critical industries. The engineering expertise and manufacturing capacity that support automotive production can also meet the growing demand in emerging critical industries, including advanced manufacturing, defense and aerospace, energy systems, frontier and strategic technologies, and pharma and health tech.

Here we examine how Michigan can build on its automotive foundation to strengthen its industrial base and expand participation in emerging critical sectors. This case study explores the state's manufacturing ecosystem, institutional assets, and supplier support infrastructure, as well as opportunities to better connect small and mid-sized manufacturers to new buyers, capital, workforce systems, technical assistance, and infrastructure needed to compete in the next wave of industrial growth.

Research Series Context

This case study is part of "Building America's Industrial Base," a research series focused on examining the dynamics that shape how suppliers and their workers participate and scale within U.S. industrial supply chains. The series is organized around five industry pillars critical to long-term U.S. competitiveness: Supply Chain and Advanced Manufacturing; Defense and Aerospace; Energy Independence and Resilience; Frontier and Strategic Technologies; and Pharma and HealthTech. Michigan is the first regional case study, selected because it illustrates the opportunities and challenges of industrial transition: deep legacy capabilities, significant market demands, and systemic gaps between the two.

SECTION II: SUPPLIER CAPABILITIES AND INDUSTRY TRANSITIONS IN MICHIGAN

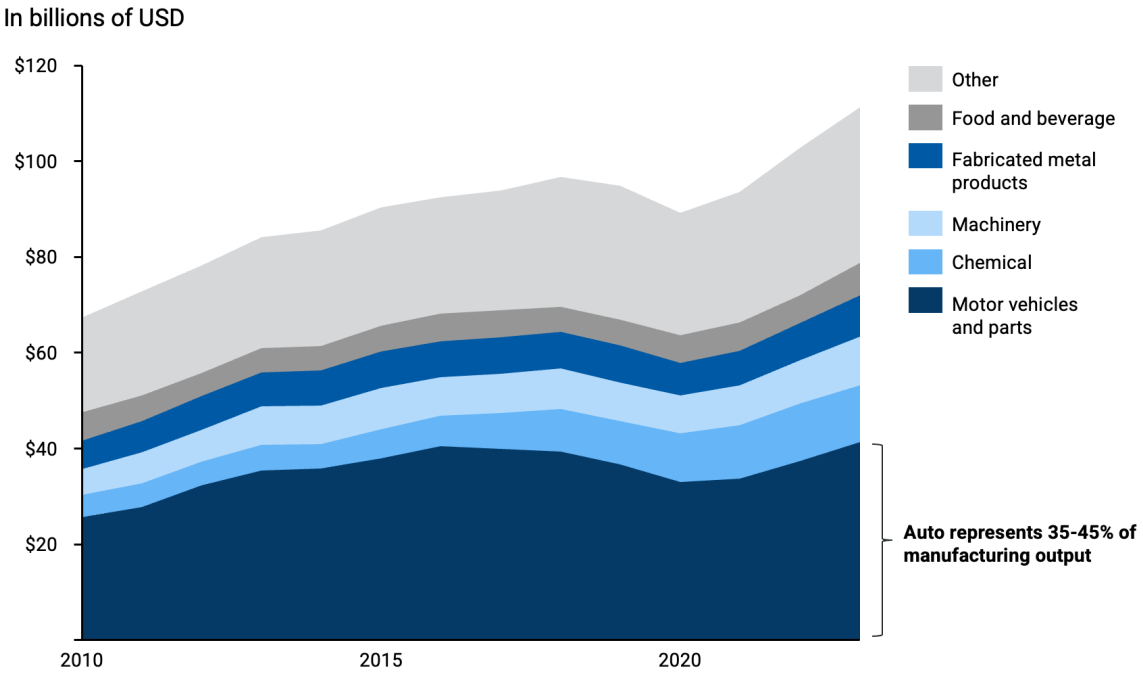
Michigan's supplier ecosystem is among the most robust and technically capable manufacturing networks in the world. Suppliers possess deep expertise in engineering, tooling, precision manufacturing, and materials fabrication, supporting Michigan's core automotive industry as well as a range of other critical sectors.

Historically, Michigan's industrial base has been heavily concentrated in automotive manufacturing. Home to Ford, General Motors, and Stellantis, the state's manufacturing economy has long been organized around OEM supply chains that created stable demand for suppliers. Motor vehicles and parts manufacturing account for 35-45% of the state's manufacturing output, as shown in Exhibit 1. And the industry's influence extends well beyond vehicle assembly. Motor vehicle parts manufacturers, together with the fabricated metal and machinery sectors that predominantly support automotive production, represent nearly half of Michigan's 12,000 manufacturing establishments (Exhibit 2).

Across Michigan's entire supplier landscape, small and mid-sized manufacturers account for more than 99% of all Michigan manufacturing firms, employ most of the manufacturing workforce, and contribute more than half of the state's manufacturing output (Exhibit 2).

Today, Michigan's automotive suppliers are facing growing pressure from global competition, supply chain disruptions, rising costs, and slowing vehicle demand. The U.S. share of global automotive vehicle sales fell from 23% in 1995 to 14% in 2022, reflecting the continued globalization of automotive manufacturing. Supply chains have also become more globally dispersed: vehicles sold in the U.S. contained 38% American- or Canadian-made parts in 2007, compared to 18% in 2023.[2.1] At the same time, shifting trade and tariff policies have increased costs and uncertainty for manufacturers.

Exhibit 1: Manufacturing output in Michigan, by sector



Source: U.S. Bureau of Economic Analysis, GDP by State and Industry 2010–2023

Exhibit 2: Michigan manufacturing establishments by sector and business size

	# of businesses	< 100 employees	100-500 employees	Output per business
Fabricated metal products	2,899	94%	5%	$3.0M
Machinery	1,913	92%	7%	$5.3M
Motor vehicle and parts	815	62%	28%	$50.7M
Chemical manufacturing	455	85%	13%	$26.2M
Food and beverage	1,325	92%	7%	$5.1M
Other manufacturing*	4,785	85%	12%	$6.8M

* Other manufacturing includes plastics and rubber, printing, wood products, primary metals, computer and electronic products, electrical equipment, furniture, and remaining NAICS 31–33 subsectors
Source: U.S. Census Bureau County Business Patterns, 2023; U.S. Bureau of Economic Analysis, 2023

Uncertainty around the transition from internal combustion engine (ICE) vehicles to EVs has created additional challenges for Michigan suppliers. More than 300 suppliers and 46,000 workers in Michigan are estimated to be directly at risk as electrification reduces demand for traditional components such as engines and transmissions while increasing demand for batteries, electronics, and software.[2.2] Slower-than-expected EV adoption and shifting policies have further complicated investment decisions for suppliers.

Meanwhile, significant opportunities are emerging for Michigan suppliers beyond the automotive industry, accelerating growth in sectors such as defense, energy systems, semiconductors, medical technologies, and other frontier industries. Since 2022, Michigan has attracted more than $26.6 billion in clean energy investments and yielded over $5.5 billion in annual Department of Defense contract activity.[2.3, 2.4] The state is also emerging as a semiconductor hub, supported by the CHIPS Act award to Hemlock Semiconductor and by private investments from companies such as SK Siltron CSS.

Together, these investments are generating significant demand across critical supply chains. Much of that demand, however, currently flows to large firms outside Michigan rather than the small and mid-sized suppliers that comprise the majority of the state's industrial base. Capturing a greater share of this growth will require helping suppliers access new markets, develop new capabilities, and navigate increasingly complex industry requirements. Ultimately, the competitiveness of Michigan's industrial base will depend on the extent to which its suppliers can participate in and grow alongside its core and emerging industries.

SECTION III: MICHIGAN'S ECOSYSTEMS SUPPORTING SUPPLIER NEEDS

Preparing suppliers to compete in Michigan's core automotive industries and other emerging sectors requires more than individual programs or isolated investments. It requires an integrated ecosystem that helps manufacturers build new capabilities, access talent, secure capital, and connect to new customers. Michigan possesses many of the foundational assets needed to support this transition, including a dense network of business support organizations, workforce institutions, research universities, economic development agencies, and capital providers. Exhibit 3 maps the relationship between supplier needs arising from industry transitions and the products and services offered by the ecosystem supporting Michigan's small and mid-sized manufacturers.

Despite its strengths, Michigan's supporting ecosystem is not yet fully aligned around the shared goal of helping suppliers compete across critical industries. As a result, gaps in accessibility and specialization continue to limit their collective impact and make it more difficult for manufacturers to navigate the resources available to them.

Whether Michigan suppliers can compete and grow in both core and emerging industries will depend on how well business support, workforce development, and capital systems work together to support industrial transition.

Exhibit 3. Supplier Needs and the Ecosystem Supporting Michigan Manufacturers

	Business Support	Workforce Development	Capital and Financing
Overview	• Management assistance for suppliers to adapt growth strategies and operations	• Training and recruiting workers required to build supplier capabilities	• Capital for suppliers to invest in growth strategies and retool their operations
Supplier Needs	• **Corporate strategy guidance** to adapt business models • **Product and process retooling** to optimize production to demand • **Back-office support** for corporate functions • **Access to customers** in critical industries	• **Employee development and training** for new products and production • **Recruitment** to fill key skills needs • **Corporate leadership development** to facilitate change management	• **Capital investments** for retooling facilities • **R&D investments** for developing new products • **Strategic investments** aligned to corporate strategies, including M&A • **Working capital** for day-to-day operations
Range of Products and Services	• Strategic business advising and planning • Facility diagnostics and technical assistance • Procurement navigation and buyer connections • Certification and compliance support	• Employee development and training • Apprenticeships and work-based learning • Industry-workforce recruiting platforms	• Working capital loans • Equipment financing • Contract and supplier financing • Growth equity • Business grants
Representative Organizations	• Business support organizations • Manufacturing Extension Partnership (MEP) centers • Industry associations • Management consulting companies	• Workforce development agencies and boards • Community colleges and research universities • Apprenticeship and credential providers • Sector-based workforce partnerships	• Banks, credit unions, and community lenders • Private equity and venture capital investors • Government-backed funds and agencies

Business Support and Management Assistance

Michigan suppliers face growing pressure to adapt their business models and production processes. Many small and mid-sized manufacturers possess deep technical expertise in machining, tooling, fabrication, and systems integration, yet lack the internal capacity to redesign their business strategies, pursue new customers, or navigate the organizational change required to evolve within core markets and enter new industries. As demand shifts across sectors, suppliers increasingly need support with strategic planning, market diversification, procurement navigation, and facility and production retooling.

The challenge becomes even more complex when suppliers seek to enter industries such as defense, aerospace, semiconductors, or advanced energy systems. These markets often require certifications and compliance standards such as ISO 9001:2015, AS9100, Cybersecurity Maturity Model Certification (CMMC), and International Traffic in Arms Regulations (ITAR), all of which require investments in systems, documentation, and operational processes before a company can compete for contracts. For many suppliers, these requirements represent a significant barrier to entry.

Michigan's business support ecosystem offers a strong foundation to address these challenges. Organizations such as **Automation Alley**, the **Michigan Manufacturing Technology Center**, and the **University of Michigan's Advanced Mobility Supply Chain Transformation Center** offer support in lean manufacturing, quality control, and Industry 4.0 adoption, as well as higher-touch advisory services for suppliers navigating industry transitions.[3.1] **The Michigan Economic Development Corporation's (MEDC) Connex Michigan** and other supply chain resiliency initiatives connect manufacturers to buyers across automotive, defense, and adjacent industries, while helping suppliers navigate procurement requirements and build the compliance capabilities required to compete for contracts.

Yet Michigan's business support ecosystem faces challenges in meeting the growing demands of manufacturing suppliers at scale. Existing services are largely concentrated on improving business operations and production capabilities rather than the higher-order strategic support increasingly required for industry transitions. Advisory services focused on business model redesign, market strategies, and multi-sector growth remain limited outside of specialized management consulting firms, reflecting concentrated subject matter expertise and few mechanisms for broader delivery. Support is also dispersed across dozens of organizations, making it challenging for suppliers to identify the right resources at the right time. As a result, the manufacturers most in need of support are often the least connected to the ecosystem designed to assist them.

Workforce Development

Workforce capabilities are central to Michigan manufacturers looking to modernize operations and compete in emerging industries. Suppliers require workers with specialized skills to operate digital manufacturing systems and advanced equipment and to support production across multiple industries and product lines. They also need managers and supervisors capable of leading organizational change and implementing new production models.

Michigan possesses substantial workforce development assets to support industrial transitions. The state's workforce development ecosystem includes nationally recognized research universities, a strong community college network, workforce development boards, apprenticeship programs, and employer-driven training initiatives. The University Research Corridor, consisting of the **University of Michigan**, **Michigan State University**, and **Wayne State University**, ranks among the country's leading research ecosystems and is a major source of engineering, technical, and manufacturing talent. Community colleges provide a critical pipeline of technicians, machinists, and skilled trades workers, while programs such as the **Michigan Department of Labor and Economic Opportunity's (LEO) Going PRO Talent Fund** and **Michigan Advanced Technician Training (MAT2)** help employers train workers and expand talent pipelines. Federal programs, including the U.S. Department of Energy's support for the **MI Auto Workforce Hub**, have further strengthened training capacity in advanced manufacturing and other critical industries.

Despite these assets, significant workforce challenges remain. Only 11% of auto suppliers in Michigan and across the country report sufficient in-house expertise to operate and expand automation systems, while 62% report partial capability.[3.2] Many training programs are designed for new entrants to manufacturing rather than incumbent workers who need reskilling in automation, controls, and advanced production processes. Partnerships between employers and educational institutions also tend to be episodic rather than sustained, particularly for small and mid-sized manufacturers. At the same time, workforce and business support systems often operate independently, limiting their ability to align training with firms' evolving operational needs. As a result, Michigan faces a gap between the workforce capabilities suppliers need to compete and the systems designed to develop those capabilities.

Capital and Financing

Manufacturers seeking to modernize facilities, automate production, secure certifications, or diversify into new industries often face substantial upfront costs long before new revenue materializes. These investments are essential for suppliers to compete, yet the capital required to finance them frequently falls outside the scope of traditional financing products and capital markets.

Michigan benefits from access to a robust capital ecosystem that supports business and industry growth. Banks, alternative lenders, venture capital funds, and private equity investors collectively provide financing across different business stages and profiles. These institutions help finance business expansion, equipment purchases, technology adoption, and new product development.

Government programs supplement private capital markets through direct funding and incentives that encourage private investment. **MEDC's Capital Access programs** help reduce lender risk and expand financing opportunities for businesses that may not meet conventional underwriting standards, leveraging federal resources through the U.S. Treasury Department's State Small Business Credit Initiative (SSBCI). The **Michigan Supplier Conversion Grant Program**, administered by LEO and funded by the U.S. Department of Energy, provides auto suppliers direct support for facility modernization and production retooling, helping finance large-scale operational changes associated with industry transitions.

Despite these efforts, access to capital remains one of the most persistent challenges facing suppliers. Michigan manufacturers face an estimated $4 billion annual capital gap, with an average financing shortfall of approximately $330,000 per business.[3.3] Many fall into a "missing middle" where their capital needs exceed the limits of conventional commercial lending but remain too small or operationally complex for private equity and institutional investors. Traditional debt products are often poorly suited to the long timelines and uneven cash flows associated with supplier diversification and modernization. At the same time, private capital markets remain concentrated in larger transactions, leaving many small and mid-sized manufacturers without appropriately sized financing options.

Michigan manufacturers face an estimated $4 billion annual capital gap with an average financing shortfall of approximately $330,000 per business.[3.3]

As a result, suppliers in Michigan frequently struggle to secure the flexible capital they need. These financing gaps can delay or prevent transitions that would otherwise strengthen business competitiveness, expand participation in emerging industries, and improve supply chain resilience.

SECTION IV: PROMISING MODELS AND PUBLIC-PRIVATE PARTNERSHIPS

Michigan's leading industry initiatives connect manufacturers to identifiable demand in growing sectors, coordinate resources across institutions, and build on the state's existing industrial assets. Rather than treating supplier development, workforce training, capital access, and procurement as separate challenges, these initiatives integrate them around specific industry opportunities. A list of these collaborative initiatives supporting Michigan manufacturers is included in Exhibit A1 in the appendix.

Demand-driven partnerships are among the most promising approaches to helping suppliers compete in both established and emerging industries. Rather than offering generic business support, these initiatives begin with a clear market opportunity and align resources around helping suppliers compete for that demand. **The Global Epicenter of Mobility (GEM)**, led by the Detroit Regional Partnership and supported by the U.S. Economic Development Administration, brings together business support organizations, workforce partners, and industry stakeholders to help manufacturers participate in advanced mobility supply chains. Similarly, the partnership among **Consumers Energy, DTE Energy, and LEO's Community and Worker Economic Transition Office (CWETO)** combines supplier development with procurement commitments in energy supply chains, directing demand to Michigan-based businesses.

Michigan's industry-workforce partnerships offer another promising model. Rather than developing talent in isolation from industry needs, these initiatives align training investments with specific employer demand and sector opportunities. The **Michigan Maritime Manufacturing (M3) Initiative** brings together employers, workforce organizations, and educational institutions to provide accelerated training aligned with the requirements of maritime manufacturing and naval supply chains. The **Michigan Semiconductor Talent and Technology for Automotive Research (MSTAR) initiative** applies a similar approach over a longer time horizon, coordinating universities, industry partners, and public agencies to build Michigan's semiconductor talent pipeline.

Moreover, capital programs are most effective when they reduce risk and attract private investment. Programs such as **MEDC's Capital Access initiatives** expand financing opportunities for manufacturers that may not meet traditional underwriting standards while encouraging lenders to invest in local manufacturers and suppliers. **The Make It in Michigan Competitiveness Fund** uses a comparable model, matching public resources with federal and private investment opportunities to help businesses, universities, and economic development organizations compete for investment in strategic industries. These programs demonstrate how public capital can be used to unlock larger pools of private investment and support industrial development.

Navigation platforms help reduce fragmentation across complex support ecosystems in Michigan. Even well-designed programs often fail to reach manufacturers when resources are dispersed across multiple agencies and organizations. Platforms like the **MI Hub for Manufacturers** address this challenge by providing a centralized entry point to capital, business support, and workforce programs, helping suppliers more easily identify and access available support.

The most promising initiatives begin with a specific market opportunity, designate a coordinating institution to align public and private actors, and integrate supplier development, workforce training, capital access, and procurement support around a shared objective. For Michigan, the opportunity is to expand and better connect these models across additional industries and regions. More broadly, these initiatives offer practical examples of how states and regions can build supplier-centered ecosystems that translate industrial investment into long-term economic competitiveness.

SECTION V: LESSONS LEARNED

Michigan's experience offers several lessons for the country's reindustrialization and regional manufacturing ecosystems navigating economic change. The state demonstrates that industrial transition is not simply a workforce challenge or a technology challenge; it is also fundamentally a business challenge. As industries evolve with automation, reshoring, and shifting supply chains, manufacturers require coordinated support to adapt business models, modernize operations, and compete in new markets.

- **Build from existing industrial assets:** Michigan's experience shows that legacy manufacturing capabilities are transferable across sectors such as defense, energy systems, semiconductors, and other critical industries. Industrial strategies are most effective when they build on existing supplier capabilities and regional strengths.
- **Wraparound support matters:** Reindustrialization requires high-touch advisory support, particularly for small and mid-sized manufacturers. Many suppliers possess strong engineering and production expertise but lack the internal capacity to redesign business strategies, pursue new customers, retool production lines, and identify sites for new facilities and growth. Sector-specific technical assistance and strategic planning are as important as workforce training or capital.
- **Business and workforce development must be integrated:** Manufacturers adapting to new markets often need corporate strategy support, production planning, worker retraining, and recruitment support, all simultaneously. Workforce systems are most effective when they align directly with operational needs within firms rather than operate independently of the realities that small and mid-sized businesses face.
- **Flexible capital remains a major opportunity:** Michigan's experience highlights how traditional capital markets often fail to meet the needs of manufacturers, particularly those seeking to retool or diversify their businesses. Many suppliers require patient, flexible financing for equipment upgrades, facility modernization, and working capital before new contracts materialize. Regional industrial strategies will likely require more innovative financing models and public-private vehicles to support access to capital.
- **Regional competitiveness is a long-term strategy:** Michigan demonstrates that industrial transitions should be viewed as a regional competitiveness challenge. Regions that pair strong industrial capabilities with public-private partnerships will be best positioned to compete in evolving industries. Long-term competitiveness depends not only on attracting major investments but also on ensuring that local suppliers and workers are positioned to participate in and benefit from those investments over time.

APPENDIX

Exhibit A1: Representative Initiatives and Models Supporting Manufacturing in Michigan

REPRESENTATIVE INITIATIVES	DESCRIPTION
Consumers Energy and DTE Energy – CWETO Supply Chain Partnership	A CWETO-led public-private partnership in which Consumers Energy and DTE Energy have committed to directing a combined $3.5 billion in annual procurement toward Michigan-based businesses, creating demand for local businesses transitioning into energy supply chains
Global Epicenter of Mobility (GEM)	A Detroit Regional Partnership-led initiative that supports Southeast Michigan's mobility economy across six pillars — including supply chain modernization, talent transformation, and startup acceleration — with a Supply Chain Transformation Center assisting small and mid-sized manufacturers transitioning into the EV market
Going PRO Talent Fund	A grant program administered by LEO that funds employers, primarily small businesses, to upskill their current workforce through the Michigan Works! network via workplace learning
Innovation Alliance Michigan	Michigan's statewide initiative, launched in May 2026, connects investors, universities, corporations, and startups into a coordinated ecosystem, aligning capital networks, supporting commercialization, and strengthening Michigan as a destination for innovation
MEDC Capital Access Programs	A suite of small business capital programs designed to reduce lender risk so that banks and credit unions can extend financing to small businesses that conventional lenders would otherwise bypass. Administered by MEDC and funded through the U.S. Treasury Small Business Credit Initiative (SSBCI)
Michigan Hub for Manufacturers	A free, public-facing digital platform co-developed by CWETO and Next Street that connects small and mid-sized manufacturers to grants, loans, advisors, training programs, and sector-specific resources in one place
Michigan Maritime Manufacturing (M3) Initiative	A Navy-led workforce training initiative that prepares Michigan workers for careers in naval manufacturing through an accelerated, no-cost program at Macomb Community College, drawing on Michigan's existing base of naval supply chain businesses to connect workers to a growing national demand for maritime industry talent
Michigan Semiconductor Talent and Technology for Automotive Research (MSTAR)	A multi-institution initiative co-led by KLA, imec, University of Michigan, Washtenaw Community College, and General Motors to build the semiconductor talent pipeline needed for next-generation EVs and autonomous vehicles, supporting students from K–12 through graduate level
University of Michigan Battery Lab & Ford Robotics Building	Two flagship public–private research facilities at the University of Michigan—one focused on battery cell fabrication and testing for industry partners, the other enabling student–industry collaboration in advanced manufacturing automation—anchor the university's role in Michigan's clean energy and mobility innovation ecosystem

FOOTNOTES AND REFERENCES

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