Future Ready

Advancing Indiana's productivity through critical manufacturing subsectors

CONEXUS INDIANA

AEROSPACE | AUTOMOTIVE | LIFE SCIENCES | MICROELECTRONICS

2025

CONTENTS

Mission
Accelerate Indiana's advanced manufacturing and logistics industry success by engaging a diverse network of industry, academic, philanthropic and public-sector partners aligned and activated around a unified vision.

Vision
Affirm Indiana as the center of innovation and digital transformation for advanced manufacturing and logistics.

Develop
Connections, Networks and Ecosystems
Collaborate as an industry in unprecedented ways and grow the sectors that are critical to the health of Indiana's economy.

Maximize
Talent
Optimize potential for the existing AML workforce and build the talent we need to meet the demands of an evolving industry.

Conexus Indiana's **4 Areas of Focus**

Drive
Innovation
Scale digital adoption and build a world-class innovation ecosystem to pioneer new products and compete in a global market.

Deliver
Thought Leadership
Seek to understand critical trends, challenges and opportunities, and share the innovative work of Indiana AML with the world.

Charting Indiana's Industrial Future

As the Crossroads of America, our state has long been a leader in making and moving the goods that power our nation's economy. Today, Indiana stands at the forefront of innovation in advanced manufacturing and logistics (AML).

As advanced technologies and strong federal investments reshape what's possible in manufacturing and logistics, Indiana has an unparalleled opportunity to lead the Fourth Industrial Revolution, or Industry 4.0.

Landmark federal initiatives are already catalyzing investment and growth, with Indiana poised to see more than 178,000 new AML jobs by 2033. Complementing these national efforts, historic state-level investments have further fueled economic momentum and job creation across key sectors. Yet we face a critical challenge: ensuring we have the skilled workforce to meet this demand. Without a strategic, coordinated effort to close the skills gap and build career pathways in automation, data analytics and smart manufacturing systems, nearly half of these essential jobs could remain unfilled.

This report, Future Ready: Advancing Indiana's productivity through critical manufacturing subsectors, dives into the four subsectors driving transformative industry growth in Indiana — aerospace, automotive, life sciences and microelectronics. Through these lenses, we uncover the shared challenges and opportunities that connect these industries, highlight the most critical and emerging occupations and offer actionable insights to ensure Indiana continues to thrive in an increasingly competitive global economy.

At Conexus Indiana, we believe collaboration is the key to success. Addressing the challenges outlined in this report will require partnerships across industry and state lines to build the workforce of tomorrow.

We invite you to explore the findings, join the conversation and take action, including by partnering with us to shape the future of Indiana's AML workforce. Together, we can ensure Indiana remains not just a hub for AML but a leader in innovation and economic opportunity for decades to come.

Sincerely,

Jay Wirts
President & CEO Conexus Indiana

In this report, we uncover shared challenges and opportunities and offer actionable insights to ensure Indiana continues to thrive.

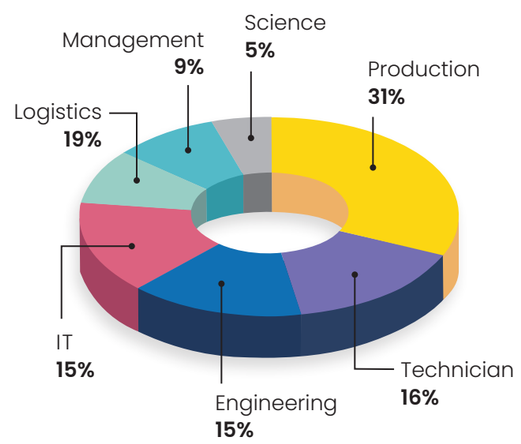
Key Findings

Indiana's advanced manufacturing and logistics (AML) sector is undergoing significant transformation, driven by substantial investments and innovation across key subsectors. To sustain this progress, workforce development and Industry 4.0 adoption are critical. Our analysis, which this report details, revealed these key findings:

This report aims to guide decision makers in fostering workforce development, shaping policy and strengthening partnerships to ensure Indiana remains a leader in advanced manufacturing and logistics.

1. **Transformational investments are helping Indiana's manufacturing sectors grow and innovate, but workforce gaps must be addressed to sustain the momentum.**
   Federal investments in areas like semiconductors, clean energy and biomanufacturing are driving economic growth, strengthening supply chain resilience and creating jobs. To fully capitalize on this momentum and maintain Indiana's competitive edge, the state must close persistent labor market and skills gaps.
2. **Technology adoption and workforce development go hand in hand.**
   Creating more tech-enabled jobs and training people to fill them will boost productivity across AML industries.
3. **Critical roles stem from diverse educational pathways.**
   Critical roles in Indiana AML span various education levels, with roughly equal distribution among positions requiring no formal education, a bachelor's degree and those in between.
4. **Four subsectors are leading innovation and growth.**
   Aerospace, automotive, life sciences and microelectronics are key drivers of innovation and productivity for Indiana AML. Growth projections for critical positions in microelectronics already outpace national benchmarks, while critical positions for the other key subsectors generally align with or lag U.S. trends.
5. **Overlapping talent demands require united solutions.**
   Indiana's AML subsectors depend upon a shared talent pool with significant overlap in critical positions, requiring collaborative workforce solutions to build resilience.

Share of roles by position group



Source: Conexus analysis of Lightcast data (datarun 2025.1)

6. **Some roles are in especially high demand across all four subsectors.**
   Production roles — such as machinists, production planners and quality inspectors — represent the largest volume of positions. Roles for engineers (mechanical and manufacturing), IT professionals (software engineers, cybersecurity analysts and data scientists) and technicians (industrial mechanics and maintenance technicians) are also in high demand.
7. **Each subsector also has its own specialized workforce needs.**
   - **Aerospace:** aircraft assemblers, aircraft mechanics, propulsion engineers and grinder operators
   - **Automotive:** hydraulic technicians, millwrights, mechanical assemblers, process technicians, robotics engineers and welders
   - **Life Sciences:** microbiology technicians, chemical operators, scientists and digital transformation directors
   - **Microelectronics:** electronic assemblers, electrical engineers and semiconductor engineers

Standing Strong

Indiana's advanced manufacturing and logistics industry seems poised to keep growing, and we need a workforce to support it.

Indiana's advanced manufacturing and logistics (AML) sector remains a cornerstone of the state's economy, contributing 37% of Indiana's gross domestic product (GDP) and employing 25% of the workforce — more than any other industry. Manufacturing alone supports 536,174 jobs (16% of total employment), while logistics accounts for 305,183 jobs (9%), underscoring the state's strength in industrial production and supply chain operations. With 841,357 total workers, the AML sector is a driving force for economic prosperity.

Wages within Indiana's AML industries are 18% above those for the average worker in Indiana, with average annual earnings of $89,147 — manufacturing workers earning $91,927 and logistics employees earning $84,304.[1]

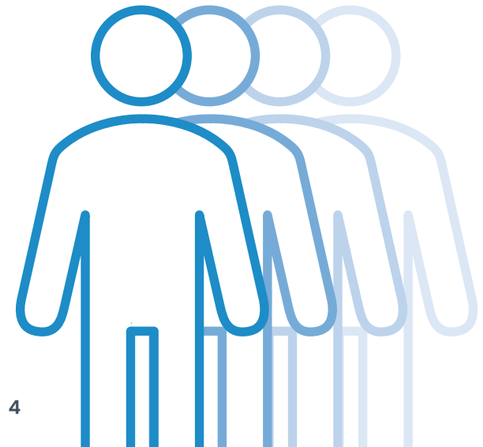
AML businesses position Indiana as a national leader in key sectors, from life sciences manufacturing and automotive production to steel and semiconductor manufacturing. Since 2020, productivity increased 9.8% per year compared to the U.S. average annual growth rate of 7.0%. To fully close the gap, Indiana's AML productivity growth needs to consistently outpace the national average.[2]

The Indiana Economic Development Corporation announced 2024 as a record-breaking year for investments, securing nearly $29 billion in commitments from 208 companies.[3] These investments — spanning semiconductors, electric vehicles, clean energy and biomanufacturing — stand to challenge the sector's projected 1% decline, reinforcing Indiana's role as a national catalyst for

25%

AML employs 25% of the Hoosier workforce

Source: Central Indiana Corporate Partnership, "Advanced Industry Dashboard," cicpindiana.com, accessed April 2, 2025. Latest data from 2023



manufacturing innovation, fostering economic growth, job creation and supply chain resilience.

Indiana's economic trajectory and recent momentum reinforce the strategic significance of its most critical AML subsectors. Historic achievements in 2023 — including securing three federal tech hub designations in microelectronics, hydrogen energy and biotechnology — underscore Indiana's potential to lead in technological innovation, reshoring of supply chains and support for national priorities in energy transition.[4]

"The federal tech hub designations will drive strategic investments in Indiana's critical subsectors for years to come," said Melina Kennedy, CEO of the Central Indiana Corporate Partnership.

Keeping pace with opportunity

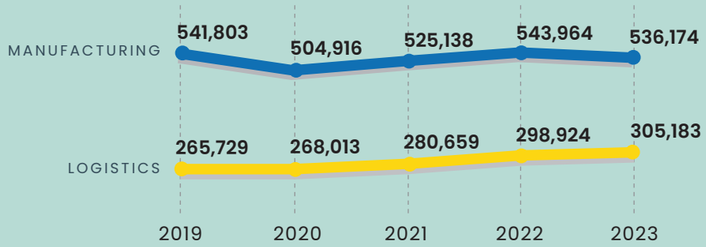
Federal initiatives fueled unprecedented investments in U.S. manufacturing, with Indiana poised to see substantial job growth. Growing strategic interest in reshoring and near-shoring critical manufacturing supply networks have put Indiana in the spotlight as industry and political leaders seek to mitigate economic and geopolitical risks posed by outsourcing and build more resilient supply chains.[5]

These policies and strategies, combined with industry growth and an aging workforce, are projected to create 3.8 million new jobs nationally by 2033. Yet approximately 50% of these jobs could remain unfilled, in part due to a widening skills gap in critical roles requiring expertise in

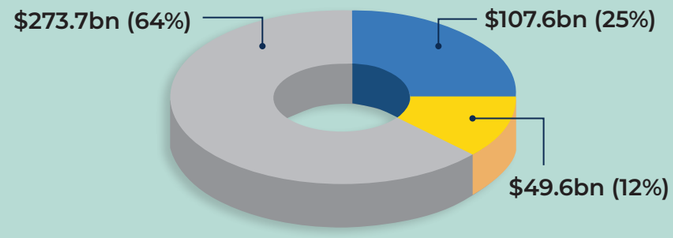
1. Central Indiana Corporate Partnership, "Advanced Industry Dashboard," cicpindiana. com, accessed April 2, 2025 Latest data from 2023
2. Conexus Indiana, "Conexus Indiana strategic plan, 2025-2031," 2025
3. Indiana Economic Development Corporation, "Indiana's Economy Reaches Historic Levels as IEDC Delivers Year of Unprecedented Economic Wins for Hoosiers in 2023," news release, Jan. 3, 2024
4. Indiana Economic Development Corporation, "Indiana Tech Hub Wins Will Surge State's Economy," news release, Nov. 28, 2023
5. "National action plan for U.S. leadership in advanced manufacturing," The Special Competitive Studies Project, June 2024

INDIANA'S ADVANCED MANUFACTURING AND LOGISTICS INDUSTRY

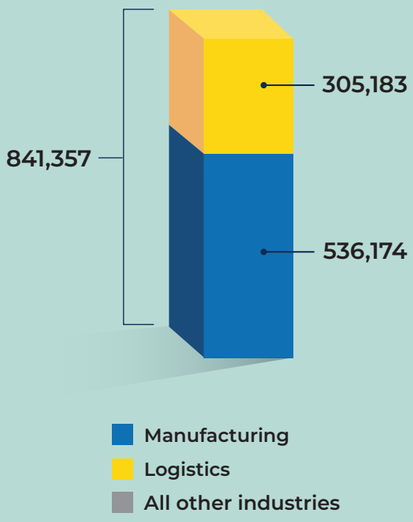
Industry jobs, 2019– 2023



Advanced manufacturing and logistics share of Indiana GDP



Industry jobs, 2023



Source: (all charts) Central Indiana Corporate Partnership, "Advanced Industry Dashboard," cicpindiana.com, accessed April 2, 2025. Latest data from 2023

automation, data analytics and smart manufacturing systems.[6] For Indiana, this could mean roughly 178,000 new manufacturing jobs could be created by 2033 while about 89,000 of those jobs may remain unfilled.[7]

Workforce availability, participation and lack of appropriate skills represent crucial concerns for the economic growth and competitiveness of Indiana's AML industries. While digital transformation can help alleviate dependencies for workers, it's not going to solve the labor shortage alone.

Indiana must address its projected labor market imbalance and persistent skills gap to capitalize on opportunities created by recent investments, maintain its competitive edge and ensure the prosperity of its workforce and communities. Wages and benefits for workers in AML industries also must continue to grow at rates that outpace the national average to attract and retain top talent.[8] Without proactive measures, Indiana risks losing its position as a leading hub for manufacturing innovation and job creation.

Leading the nation

The Fourth Industrial Revolution (Industry 4.0) is transforming advanced manufacturing and logistics across the globe and in Indiana. As AML companies rapidly adopt future-focused technologies, the state is committed to its strategy to lead the nation in the economy of the future.

Conexus Indiana's recent research report, "National technology adoption benchmarking in advanced manufacturing and logistics: Assessing Indiana's progress in the Fourth Industrial Revolution," prepared by TEConomy Partners, reveals both progress and challenges for the state. Programs like Conexus Indiana's Manufacturing Readiness Grants have driven significant advancements in recent years, yet Indiana lags several benchmark states in adoption of advanced technologies and the prevalence of digital manufacturing skills in the workforce. These findings underscore the urgent need for firms to accelerate efforts in these areas.[9]

In this report, Conexus builds on prior research to identify four high-growth manufacturing subsectors — aerospace, automotive, life sciences and microelectronics — that are driving investment, productivity and a tech-enabled workforce in Indiana.

The report provides a detailed overview of Indiana's AML workforce, examining the key drivers of growth, workforce demand and investment trends shaping these critical subsectors. It offers an in-depth analysis of each, highlighting essential roles and the skills needed to sustain Indiana's leadership in advanced manufacturing.

Two key themes emerge:

1. These industries are dependent on the same pool of high-demand talent, emphasizing the need for collaborative workforce solutions to ensure a resilient, future-ready AML industry in Indiana.
2. Ultimately, if we want to keep Indiana's AML industry growing, we must support these evolving subsectors with resources, infrastructure and a workforce that will see our state and nation into the future.

178,000

New Indiana manufacturing jobs that could be created by 2033

89,090

New Indiana manufacturing jobs that could remain unfilled

Source: Conexus analysis of Lightcast data (datarun 2025.1)

Outpacing the competition

Since 2020, productivity in Indiana's advanced manufacturing and logistics sector increased 9.8% per year compared to the U.S. average annual growth rate of 7.0%. To fully close the gap, Indiana's AML productivity growth needs to consistently outpace the national average.

Source: Conexus Indiana, "Conexus Indiana strategic plan, 2025-2031," 2025

Through this report, Conexus aims to influence decision-makers to invest in training and upskilling programs, support policy initiatives that foster workforce growth and develop partnerships that create pathways to the in-demand jobs outlined. By identifying key subsectors poised for growth and pinpointing critical skills, Conexus Indiana encourages collective action to close the skills gap, strengthen the talent pipeline and ensure Indiana remains a leader in advanced manufacturing and logistics.

6. Deloitte Research Center for Energy and Industrials, "Taking charge: Manufacturers support growth with active workforce strategies," 2024
7. Conexus analysis of Lightcast data (datarun 2025.1)
8. Bryce Carpenter and Conexus Indiana, "Conexus Indiana strategic plan, 2025-2031," 2025
9. Conexus Indiana, "National technology adoption benchmarking in advanced manufacturing and logistics: Assessing Indiana's progress in the fourth Industrial Revolution," January 2025

Primed to Thrive

Introducing Indiana's critical manufacturing subsectors

Indiana's AML landscape is driven by a diverse range of businesses that not only sustain the state's economic strength but also position it as a national leader in innovation and job creation.

Our report focuses on four key manufacturing subsectors:

Aerospace

Commercial and military aircraft and components

Indiana aerospace manufacturing companies produce highly valuable aircraft components, including aircraft engines, and outperform many of their industry peers in other areas on a value-added per-worker basis.[1]

Automotive

Motor vehicle, electric vehicle and parts manufacturing, including mobility systems, power and propulsion

In Indiana's automotive/motor vehicle manufacturing sector, the product mix ranges from internal combustion engines to hybrids and electric vehicles, from new cars off the assembly line to recreational vehicles and semi-trailers — a more diversified and unique product mix than that of other states.[2]

Life Sciences

Biopharmaceuticals, medical devices, diagnostics and agricultural life sciences (e.g., animal health, crop sciences)

Indiana's life sciences industry includes a well-balanced portfolio spanning highly valuable therapeutic innovations as well as medical device, diagnostics and agricultural science manufacturing.[3]

Microelectronics

Electronic components and products, microelectronics production and development

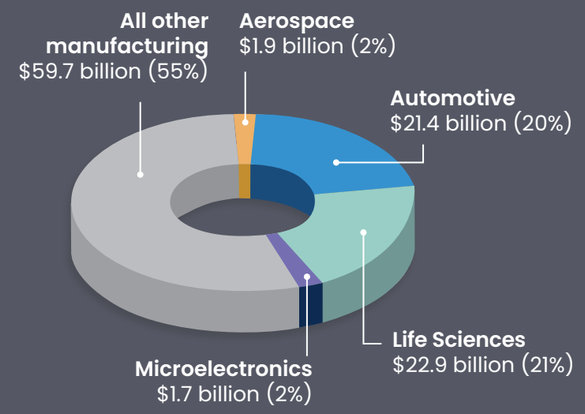
Indiana's electronic components and products industry includes production of semiconductors, instruments for controlling industrial process variables, communications equipment and electronic connectors in addition to assembling printed circuit boards. The sector is essential for a range of industries, including automotive, medical devices and defense.

See critical subsectors' North American Industry Classification System (NAICS) coding in appendix.

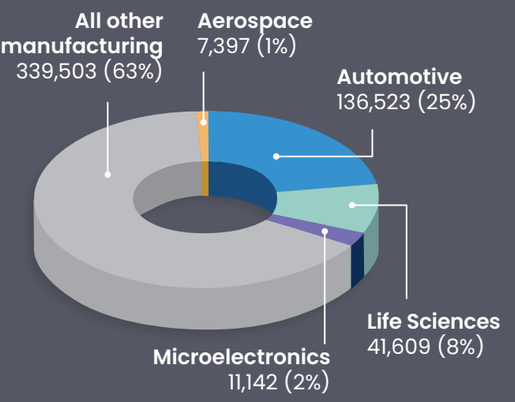
1. Conexus Indiana, "National technology adoption benchmarking in advanced manufacturing and logistics: Assessing Indiana's progress in the fourth Industrial Revolution," January 2025
2. Conexus Indiana, "Technology adoption benchmarking in AML"
3. Conexus Indiana, "Technology adoption benchmarking in AML"

INDIANA'S CRITICAL MANUFACTURING SUBSECTORS

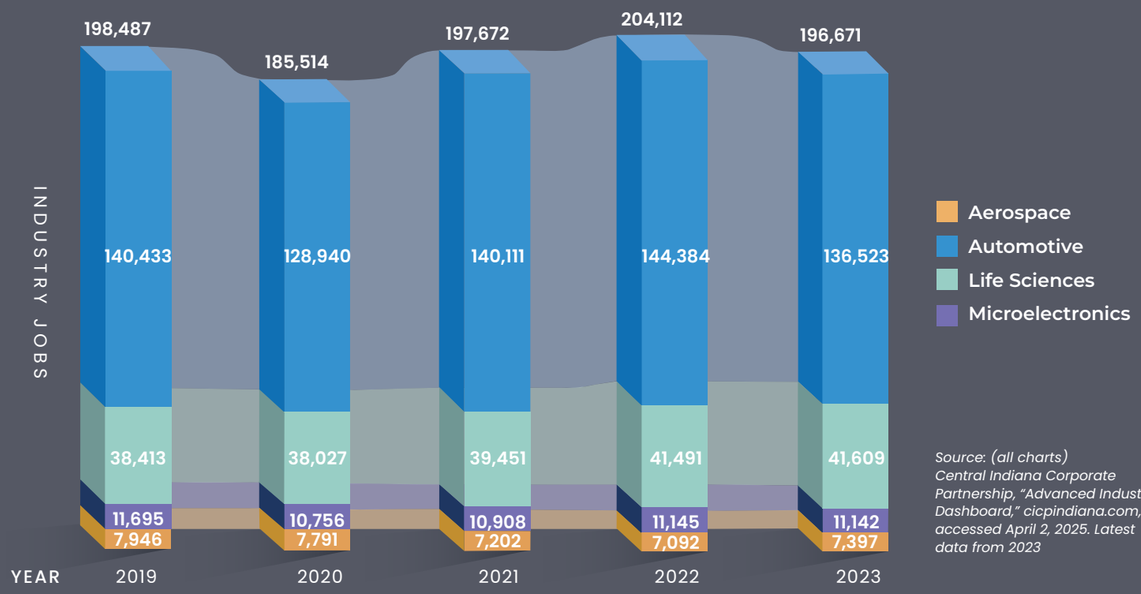
Critical subsector GDP



Critical subsector industry jobs



Critical subsector industry jobs, 2019–2023



Source: (all charts) Central Indiana Corporate Partnership, "Advanced Industry Dashboard," cicpindiana.com, accessed April 2, 2025. Latest data from 2023

How we chose them

To determine the most critical subsectors for the growth of Indiana's advanced manufacturing industry, we looked at several factors, including gross domestic product (GDP) contribution, projected job growth, strategic importance to Indiana's economy, productivity potential and prevalence of tech-enabled jobs. Before we dive into each subsector, here's a closer look at our methodology for identifying Indiana's four most critical manufacturing subsectors.

Gross domestic product (GDP)

AML in Indiana makes up 37% of the state's GDP. GDP is the value added to the economy through the production of goods or services within an industry or industry cluster.[4]

Productivity potential

Productivity is at the core of industry competitiveness. Overall industry productivity is ultimately based on a blend of labor and capital inputs. For this report, productivity is defined as output per unit of labor, where that output is the industry's contribution to GDP and unit of labor is number of workers.[5] The metric used for comparisons among subsectors in this report is productivity as a percentage of the national average.

Given population constraints, which limit workforce availability, Indiana is unlikely to boost GDP through the traditional pathway of putting more people to work. Indiana can increase its productivity to outpace the national average by investing in Industry 4.0 technologies, processes and their widespread deployment and by doubling down on strategic subsectors.

Increasing our tech-enabled workforce for Industry 4.0

Industry 4.0 is often used to describe the next evolution of the manufacturing sector, which is marked by increased levels of digitization, connectivity and manufacturing agility. Industry 4.0 also informs the transformation occurring within the logistics sector, referred to as Logistics 4.0. Both concepts, however, are driven by the adoption of emerging technologies and include big data and analytics, cloud computing, 3D modeling and simulation, digital twins, augmented and virtual reality, AI and machine learning, and advanced robotics (e.g., cobots, autonomous mobile robots, etc.).

The tech-enabled workforce is a key component for success in this industrial revolution and comprises the specific occupations "that develop, deploy and/or support the digitization and automation applications and are most closely related to the concepts of Industry 4.0," according to the 2024 technology adoption benchmarking report published by Conexus Indiana and TEConomy Partners. The report revealed that only 7% of Indiana's AML workforce was in a tech-enabling occupation in 2022, compared to the national average share of 10%.[6]

Why we chose them

Together, the four critical subsectors chosen make up over 45% (nearly half) of the manufacturing GDP contribution in our state.

Aerospace leads the manufacturing sector with the highest proportion of tech-enabling jobs (37% of its total workforce) and outperforms the national average for productivity by 10%, reinforcing its position as a critical subsector for Indiana's AML industry.

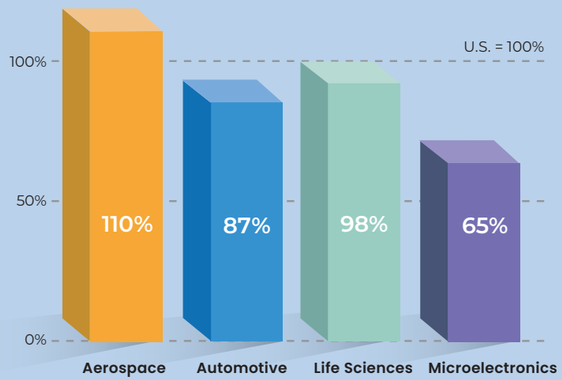
Indiana's automotive subsector, at 87% of the national average for productivity, has the lowest share of tech-enabling jobs (9%) among the critical subsectors — on par with the broader manufacturing industry average. This indicates a lag in tech-enabled workforce integration; however, recent targeted investments indicate it's just a matter of time before the automotive subsector's productivity increases.

Life sciences and microelectronics, while below the national productivity average (98% and 65%, respectively), have a sizable share of tech-enabling roles (20% and 34%). This suggests potential for technology-driven efficiency improvements as these industries scale up through targeted investments.

4. "CICP Dashboard User Guide," n.d., accessed April 7, 2025
5. Conexus Indiana, "National technology adoption benchmarking in advanced manufacturing and logistics: Assessing Indiana's progress in the fourth Industrial Revolution," January 2025
6. Conexus Indiana, "Technology adoption benchmarking in AML"

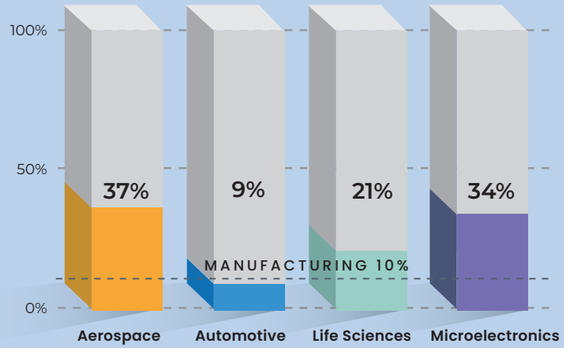
PRODUCTIVITY AND TECH-ENABLED WORKFORCE

Indiana Productivity by Critical Subsector as a Share of the U.S. Average (U.S. = 100%), 2023



Source: Conexus Indiana, "National technology adoption benchmarking in advanced manufacturing and logistics: Assessing Indiana's progress in the fourth Industrial Revolution," January 2025

Deployment of "Industry 4.0-Enabled" Workforce by Critical Subsector, 2023



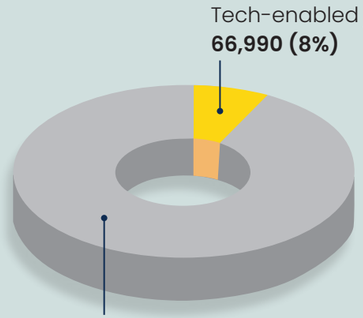
Source: Conexus analysis of Lightcast data (datarun 2025.1)

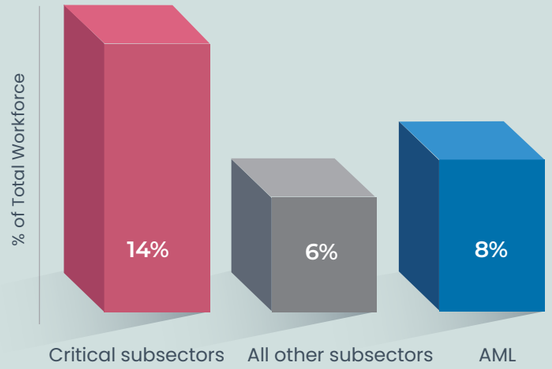
While life sciences, automotive and micro-electronics subsectors currently fall below the national productivity average, their higher concentration of tech-enabling roles among the manufacturing sector suggests they are well positioned for future productivity gains through continued technology adoption and process optimization. These factors, in conjunction with a surge of recent investments across the state, reveal a significant opportunity for increased productivity for Indiana's AML industry.

Although current productivity levels lag, Indiana leads with strength across the four key manufacturing subsectors highlighted in this report. In aerospace, it builds on a strong legacy of innovation and key defense partnerships. The automotive sector leverages Indiana's historical expertise while embracing electrification, with significant investments in electric vehicle production and supply chain development. Indiana's life sciences industry leads the nation in global pharmaceutical exports, supported by substantial manufacturing capacity, technology workforce and initiatives in biotechnology. The industry is also known for its substantial footprint in medical device manufacturing. Meanwhile, though significantly less mature than the other subsectors, the state's microelectronics industry, fueled by federal investments, groundbreaking projects and a collaborative innovation ecosystem, is emerging as a hard tech hub.

INDIANA'S AML TECH-ENABLED WORKFORCE

The tech-enabled workforce is a key component for success in this industrial revolution and comprises the specific occupations "that develop, deploy and/or support the digitization and automation applications and are most closely related to the concepts of Industry 4.0," according to the 2024 technology adoption benchmarking report published by Conexus Indiana and TEConomy Partners.





Source: Conexus analysis of Lightcast data (datarun 2025.1)

Built to move

Indiana's logistics sector is vibrant and growing

Indiana's logistics sector, which consists of wholesale trade, transportation and warehousing, is thriving. Our geographic position as the crossroads of America and the demand generated by our state's diverse manufacturing industry have helped create a large sector, which comprises about 9% of Indiana's workforce.

The size and strength of Indiana's logistics industry are significant both regionally and nationally. Our robust highway networks, rail lines and waterways support supply chains and distribution for Indiana's makers and producers, and, with the second largest FedEx hub in the world, Indiana is globally connected, offering business fast and reliable shipping services.[1]

An early adopter of automation and robotics, the logistics sector is primed to support efficient operations for the state's advanced manufacturing industries. As Indiana's many geographic advantages draw more advanced manufacturing projects and jobs to the state, the logistics sector is predicted to grow.

What does that mean for Indiana's logistics workforce? Training, upskilling and reskilling. Logistics workers must be able to leverage new technologies and optimize the way today's supply chains operate. Increased onshoring of critical products means companies will need to rebuild highly specialized skills within the workforce.

The Indiana Economic Development Corporation has noted that the influx of projects and jobs may not require the state to target logistics as a prime recruitment sector. However, the sector is so large and plays such an important role in supporting the manufacturing sector, it's still very much on the radar screen in terms of potential workforce needs.

Logistics wages are trending upward in Indiana. However, there's considerable variability across positions. Some pay above average, while others, such as logistics support and courier jobs, are trending downward. To ensure sustainable prosperity and quality of life, wages must continue to grow at a rate that is faster than the national average.

Overall, the strength of our state's manufacturing and logistics sectors lies in our ability to partner and support one another as we grow.[2]

9%

Indiana's workforce in the logistics sector

7%

Increase in employment projections in the logistics sector from 2023 to 2028

Source (both stats): Central Indiana Corporate Partnership, "Advanced Industry Dashboard," cicpindiana.com, accessed April 2, 2025. Latest data from 2023

1. Conexus Indiana, "National technology adoption benchmarking in advanced manufacturing and logistics: Assessing Indiana's progress in the fourth Industrial Revolution," Jan., 2025
2. Conexus Indiana, "2023 Benchmarking Indiana's advanced manufacturing and logistics report: Identifying opportunities for workforce development and transformation," Aug. 2023

Jobs of the Future

A range of in-demand roles and occupations will drive growth and innovation in Indiana's critical manufacturing subsectors.

While each of Indiana's critical manufacturing subsectors — aerospace, automotive, life sciences and microelectronics — contributes uniquely to the state's economic success, they all share a common reliance on a highly skilled and tech-enabled workforce. From engineers and technicians to data science specialists and automation experts, these roles are essential for enabling sophisticated Industry 4.0 solutions and preparing to implement rapidly advancing future technologies while driving growth and innovation.

However, the data reveals a significant challenge: These subsectors are dependent on the same limited pool of advanced technical talent, intensifying the effects of Indiana's existing skills gap. Occupations tied to automation, data analytics and smart manufacturing systems are in particularly high demand, making it even more difficult to meet the workforce needs of these industries.

By taking a closer look at the critical positions within each subsector, we gain a clearer understanding of the talent Indiana must cultivate to secure its leadership in advanced manufacturing and logistics while addressing the pressing need for workforce development.

Critical criteria

The analysis is grounded in staffing patterns from Lightcast, a labor market analytics company. This data allows an overlay of occupations in a defined set of industry codes so we can look at several factors, including job growth and change, median earnings, educational level and work experience, to extract a list of occupations relative to each subsector.[14]

The Indiana Department of Workforce Development's INDemand ranking methodology was also considered for alignment. The system uses data about job openings and wages to rank according to how "in demand" they are in Indiana.[15] Occupations to be considered for analysis were selected based on quantity of projected job growth, rate of growth and largest share of employment within the defined industry for both the U.S. and Indiana.[16] A list of selected roles was then used to determine how important each role is to the industry and how each role should be prioritized based on a number of national and state metrics, including job growth, wages, occupations considered STEM and supply and demand dynamics (job postings and profiles and annual openings relative to educational completions).

Our methodology aims to elevate the most critical positions within each subsector and compare them against each other across a variety of attributes. The table below describes the general attributes of a critical position compared to a most critical position.

The methodology incorporates both traditional labor metrics and indicators of emerging trends, allowing us to account for roles that may not yet appear prominently in workforce data but are gaining traction due to recent investments and sector momentum.

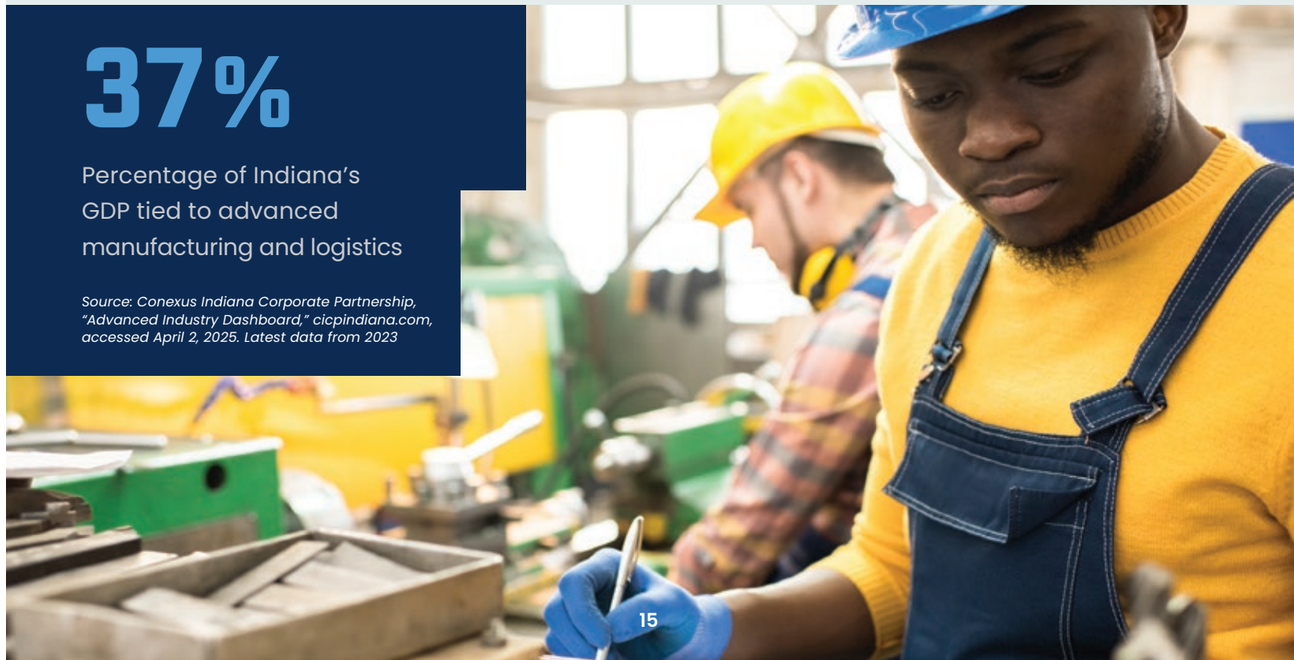
14. "Staffing Pattern," Lightcast Knowledge Base, n.d., accessed April 7, 2025
15. "Hoosiers by the Numbers: INDemand ranking methodology," accessed Feb. 6, 2025
16. Only occupations considered relevant to advanced manufacturing and logistics were selected for analysis.

TERM	GENERAL ATTRIBUTES
Critical (Average)	**Earnings:** Average industry wage, more likely an entry-level position, may or may not require formal education or high school diploma **Tech-enabled:** May or may not require digital and/or technical skills **Growth:** Lower growth; not significantly outpacing the national average **Supply and demand:** Little to no shortage of supply in the labor force **Talent pipeline:** Strong education completions relative to job demand
Most critical (Well above average)	**Earnings:** High-wage, high-skilled role **Tech-enabled:** Digital fluency, technical expert **Growth:** Higher growth; outpacing the national average **Supply and demand:** Shortage of supply in the labor force and position **Talent pipeline:** Education completions are not keeping pace with job openings

37%

Percentage of Indiana's GDP tied to advanced manufacturing and logistics

Source: Conexus Indiana Corporate Partnership, "Advanced Industry Dashboard," cicpindiana.com, accessed April 2, 2025. Latest data from 2023



Forging our future together

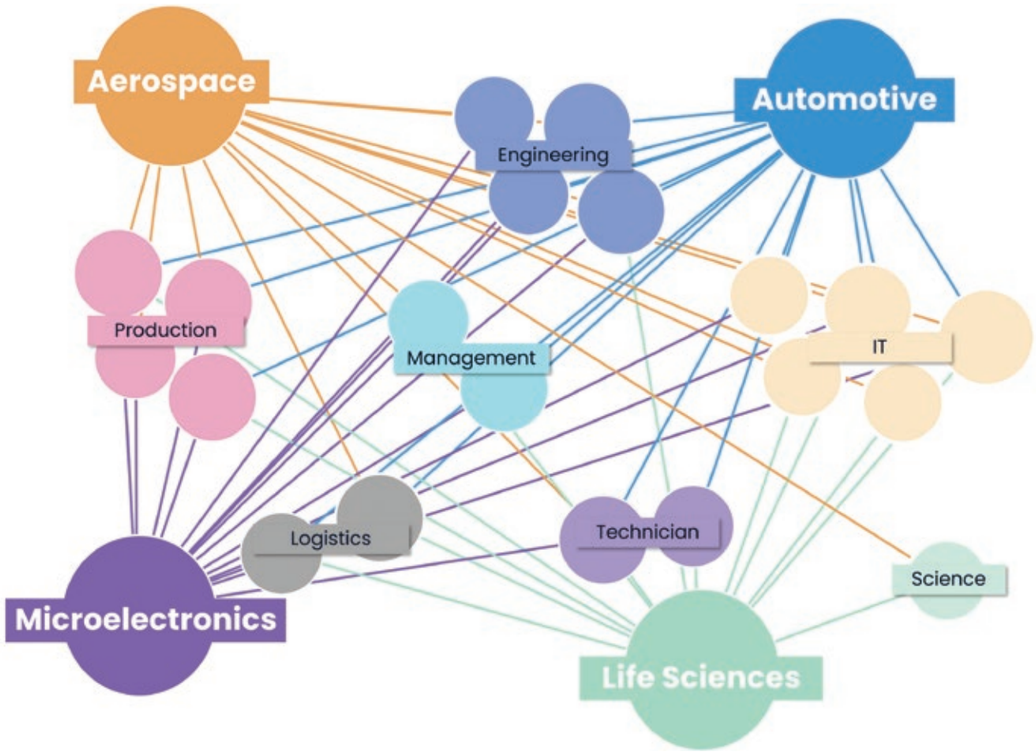
In Indiana, IT, engineering and production roles are needed across multiple manufacturing subsectors, emphasizing the need for collaborative solutions.

"The industries driving Indiana's advanced manufacturing and logistics economy are dependent on the same pool of high-demand technical talent. Collaborative workforce solutions are essential to building resilience and ensuring sustained growth."

— PJ MCGREW
Senior Vice President of Talent Strategy and Programming, Conexus Indiana

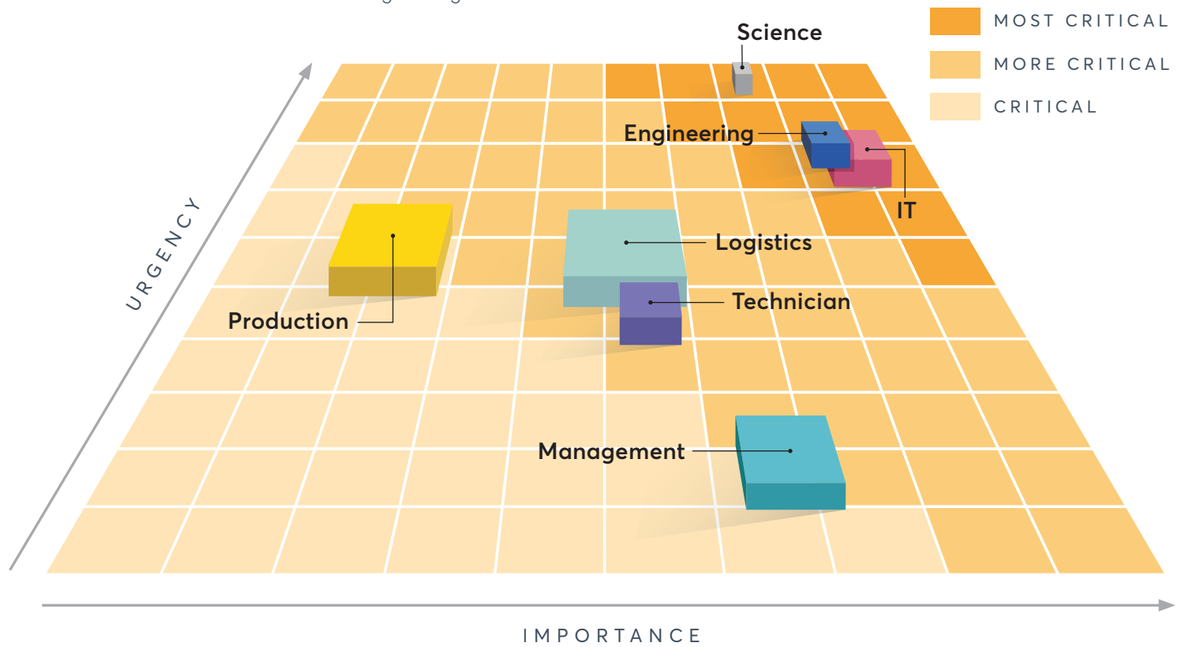
OVERLAPPING POSITIONS

This graphic illustrates the significant overlap in workforce needs across Indiana's key manufacturing subsectors.



CRITICALITY MATRIX

This matrix highlights critical position groups specific to four key subsectors in Indiana's advanced manufacturing and logistics workforce.



CROSS-SECTOR ANALYSIS

Indiana's manufacturing industry is grounded in its operational strengths, with our analysis revealing production, technician and management roles represent the largest share (approximately 85%) of "critical" and "more critical" positions across the four critical subsectors. These positions are essential to day-to-day manufacturing operations and workforce stability.

Among the most critical positions identified, over 75% are IT and engineering—occupations that play a central role in advancing automation, digital systems and smart manufacturing capabilities. These tech-enabling roles are key to driving innovation and positioning Indiana for future growth.

Notably, more than one-third of all positions identified are in demand across at least two subsectors, with IT, engineering, and production accounting for the majority of overlap among the subsectors. Six roles—manufacturing engineers, software engineers, IT analysts, production planners, quality inspectors and industrial mechanics—emerge across all four subsectors, highlighting the interconnected nature of Indiana's manufacturing workforce.

To remain competitive, Indiana must simultaneously reinforce its operational workforce and invest in talent pipelines that reflect the state's accelerating digital transformation. Collaboration across the public, private and educational sectors will be required to meet this demand and ensure the long-term growth of Indiana's manufacturing industry.

Piloting Change

Indiana's aerospace industry has a rich history and a promising future, fueled by innovation, increased access and regional synergies.

Indiana's legacy as a polestar for aeronautics innovation began nearly two centuries ago, when the first airmail delivery in the United States originated from Lafayette, Indiana, via hot air balloon. That legacy continued with the founding of Purdue University, whose graduates began breaking aviation records as early as 1911. During World Wars I and II, Indiana companies, like Allison Transmission, leveraged their strengths in automotive manufacturing to expand into aeronautics and support the war effort.[1]

Thanks to the proximity of critical defense installations such as the Naval Surface Warfare Center, Crane Division; Camp Atterbury and the Muscatatuck Training Center and a strong network of research institutions such as Purdue University, the University of Notre Dame and Rose-Hulman Institute of Technology, Indiana's aerospace industry has become a key pillar of Indiana's advanced manufacturing sector.

Indiana manufacturing aerospace stats

7,397
Industry jobs

37%
Tech-enabled workers

$1.9 billion
Gross domestic product (GDP)

2,715
Tech-enabled jobs

$129,980
Average annual wage

Source: Central Indiana Corporate Partnership, "Advanced Industry Dashboard," cicpindiana.com, accessed April 2, 2025. Latest data from 2023

Committed to success

A recent survey showed that 95% of manufacturing workers believe that effective skills will increase the likelihood of staying with their current employer, providing a path for companies to retain talent.

Source: Morning Consult, "GE Aerospace Manufacturing Skills Survey," September 2024

Major aerospace companies with manufacturing facilities or operations in Indiana include Rolls-Royce, Lockheed Martin, RTX (formerly Raytheon Technologies), BAE Systems and L3Harris Technologies. Often funded by U.S. Department of Defense (DoD) contracts, these companies support a diverse ecosystem of suppliers. Though original equipment manufacturers tend to derive a more significant portion of revenue from defense contracts, many suppliers have diversified significantly to sustain the ebb and flow of large government contracts.

Building for innovation

Investments in Indiana's aerospace industry often focus on existing facilities, updating technology and increasing capacity.

For example, in 2021, the DoD awarded Rolls-Royce a $2.6 billion contract to produce 608 jet engines to keep B-52 intercontinental bombers in active service into the 2050s.[2] The contract came on the heels of Rolls-Royce's $600 million investment to modernize equipment and technology at its Indianapolis facilities.[3]

The GE Aerospace plant in Lafayette, Indiana, has earned a share of more than $1 billion invested by GE to improve its maintenance and repair facilities. In West Lafayette, Indiana, Saab won a $101 million contract from Boeing to produce aft fuselage sections for Boeing T-7A Red Hawk advanced jet trainers. The facility where they'll be manufactured was

1. Phillip Bellury, ed., "The Allison way 1915-2015: Allison Transmission, 100 years of excellence, "The Storyline Group, 2015
2. U.S. Air Force, "DAF awards Rolls-Royce B-52H engine contract," Sept. 24, 2021
3. "Rolls-Royce North America," n.d.

LOOKING UP

Two recent aerospace developments in Indiana include:

Prometheus Energetics
What: A 50-50 joint venture formed by Kratos Defense & Security Solutions and RAFAEL Advanced Defense Systems to manufacture solid rocket motors and casted warheads[1] | **Where:** A 500-acre site near Crane, Indiana | **Investment:** $175 million | **Opportunity:** Building a workforce with expertise in energetic materials handling and regulatory requirements for explosives manufacturing and establishing a secure supply chain for precursor materials

Pierce Aerospace
What: A $10 million contract awarded for drone remote identification technology[2] | **Where:** Fishers, IN | **Investment:** $1.08 million venture capital raised in 2024 | **Kudos:** Named 2024 Tech Innovation Team of the Year at TechPoint's Mira Awards

1. "Kratos and RAFAEL establish Prometheus Energetics joint venture, a U.S.-based merchant supplier of solid rocket motors," Kratos Defense & Security Solutions, Inc., Feb. 26, 2025
2. Susan Orr, "Fishers-based Pierce Aerospace lands $10M federal contract for drone tech," Indianapolis Business Journal, January 10, 2025

established to serve the U.S. Air Force's trainer recapitalization program — supported by a multibillion-dollar contract from the Air Force.[4]

Regional synergy

Fort Wayne, Indiana, has had a significant role in aerospace manufacturing in the last two centuries, producing a large share of instruments used in satellites. It's home to seven major employers involved in aerospace-related activities, including BAE Systems, which has received multiple DoD contracts, including a $460 million contract for Multi-mode Aviation Radio Sets for the U.S. Army.[5] Also in Fort Wayne, a Raytheon facility is among four companywide that will develop the next generation of an electronic jamming system under a $192 million U.S. Navy contract.[6,7]

Regional clusters have developed in Central Indiana as well as the area around Crane naval base, located 25 miles southwest of Bloomington. These areas have high concentrations of defense-related manufacturing and suppliers. Indiana's strong foundation in skilled manufacturing and maturing regulatory environment offer a range of opportunities for aerospace companies. The proximity of engineers and companies creating similar products creates synergy. "You've got this collection of companies and folks who are building radios, TVs, satellites and other things," said Eric Webster, founder and president of VerdiOrbis Strategies, a government contractor and business development company based in Fort Wayne, Indiana. "From a business standpoint, once you get one or two companies, you get the ability to draw more engineers and more people and more synergy."[8]

4. Andy Szal, "Saab officially opens $37 million aerospace factory in Indiana," Thomas, Nov. 4, 2021
5. "BAE Systems awarded up to $460 million U.S. Army contract for Multi-mode Aviation Radio Set," BAE Systems, Oct. 15, 2024
6. Eric Dick, "Fort Wayne Raytheon facility to share in $192 million military contract," Inside INdiana Business, Oct. 3, 2024
7. "RTX's Raytheon awarded U.S. Navy contract for Next Generation Jammer Mid-Band Expansion," United Technologies, Oct. 1, 2024
8. Katy Anderson, "How the aerospace industry built a market and a legacy in Fort Wayne," Input Fort Wayne, April 24, 2024
9. Indiana Economic Development Corporation, "Indiana for the bold: National leader, defense," n.d., accessed April 8, 2025
10. "Purdue expands its role in space as host to global space policy symposium," Purdue University, Nov. 12, 2024

Workforce Outlook

Indiana's legacy in space exploration and top-tier universities with aerospace programs sustain a talented, motivated and well-compensated workforce.

Indiana's aerospace industry is old and new, innovative and diverse. It demands a high level of skills from its workforce and pays higher average wages than most other subsectors. It's home to some of the nation's most talented engineers, with engaged universities educating students on the latest technologies. It's also home to both centuries-strong aerospace leaders and startups ready to hire top talent.

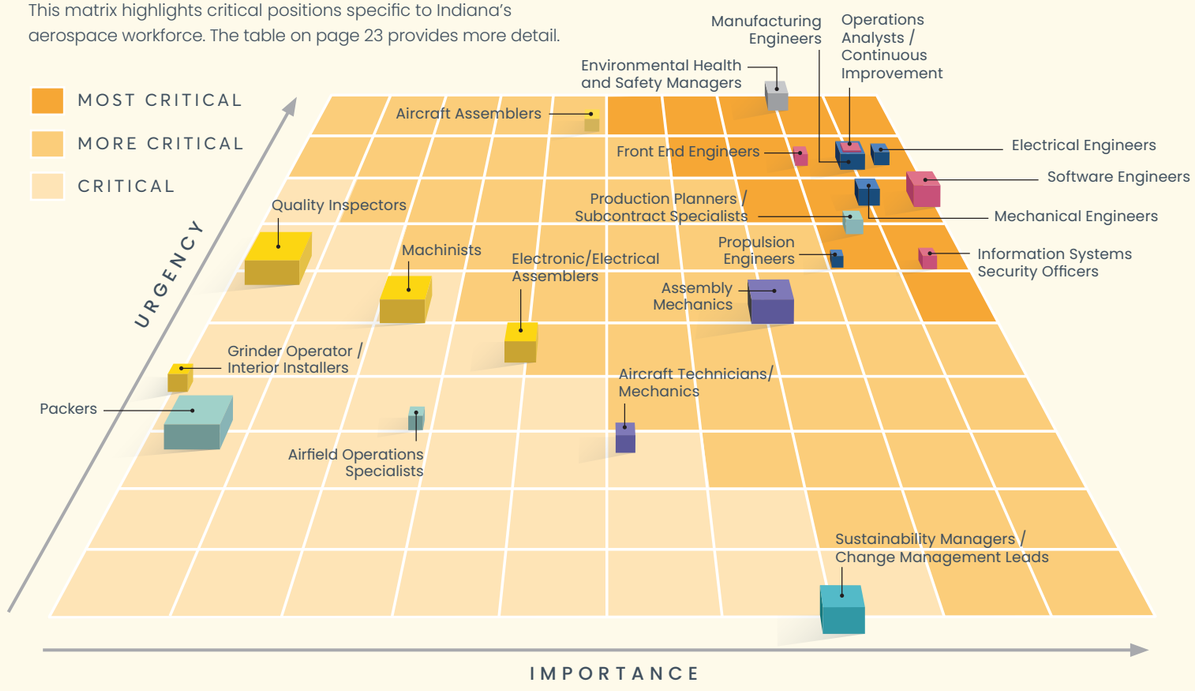
Nine Indiana universities offer aerospace degrees, which contribute to the state's robust manufacturing talent pool that exceeds 38,000 engineers — 46% above the national average.[9] Institutions like Purdue University, Rose-Hulman and the University of Notre Dame provide cutting-edge research opportunities and specialized programs tailored to the aerospace sector. Purdue University, for example, is known as the Cradle of Astronauts, producing world-renowned researchers and innovators in all things space.[10]

In 2024, U.S. News and World Report ranked Purdue's Gambaro Graduate Program of Aeronautics and Astronautics (AAE) in a three-way tie for No. 2 in the nation; and the No. 1 public institution. Purdue even offers a new Defense Civilian Training Corps program for students

Continued on page 22

AEROSPACE CRITICALITY MATRIX

This matrix highlights critical positions specific to Indiana's aerospace workforce. The table on page 23 provides more detail.



Indiana's aerospace industry is undergoing rapid transformation, blending a legacy of manufacturing excellence with cutting-edge innovation. Critical roles still anchor the sector in production and mechanical support — positions like **machinists, quality inspectors, interior installers** and **aircraft technicians** remain vital to the fabrication and maintenance of high-value components such as engines and avionics.

At the same time, the sector's most pressing workforce needs are in highly specialized engineering and technology-driven roles. **Software, mechanical, electrical** and **manufacturing engineers** — along with **modeling and simulation specialists** and **cybersecurity professionals** — are among the most critical occupations. These positions support advanced defense manufacturing, digital aviation systems and compliance with DoD cybersecurity protocols.

Indiana's competitive edge lies in its integration of academic excellence and industry investment. Purdue University and its peers provide a deep bench of engineering talent, while companies like GE Aerospace and L3Harris create tailored training programs to upskill workers and engage future talent.

The dual nature of Indiana's aerospace workforce — skilled production and high-tech engineering — underscores the need for a robust pipeline across education levels. As the state continues to win major contracts and attract global defense firms, aligning workforce strategies with both traditional and emerging roles will be key to sustaining growth.

Startup momentum

Indiana is home to dozens of aerospace startups. One example is West-Lafayette-based Uniform Sierra Aerospace, a drone technology company recently acquired by Atlanta-based Flock Safety.[1]

The company's initial tactical drone, known as the Arrowhead system, was developed for indoor use to help first responders gather information from dangerous situations such as SWAT standoffs, collapsed buildings and fires.

Purdue Strategic Ventures supported Uniform Sierra in 2023 with a $100,000 investment. That year, the company moved to a new production facility in the Purdue Technology Center, a business incubator in the Purdue Research Park.

The next year, Uniform Sierra launched its Panther drone for the marketplace. The Panther system is an outdoor drone designed to fly for more than 45 minutes and cruise at 50 miles per hour.[2]

1. Alex Brown, "Indiana drone technology startup Uniform Sierra Aerospace acquired," Inside INdiana Business, Jan. 8, 2025
2. Daniel Meier, "Uniform Sierra Aerospace launches its NDAA-compliant Arrowhead '24 Drone," news release, Purdue University, April 29, 2024

Continued from page 20

to build civilian careers in the DoD relating to acquisition, digital technologies, critical technologies, science, engineering and finance.[11]

Indiana aerospace companies and employees benefit from the proximity to Purdue and other universities. For example, Purdue Manufacturing Extension Partnership offers free, DoD-funded workshops to help industry suppliers keep up with DoD requirements such as cybersecurity compliance updates.[12]

Customizing talent pipeline development

Even the best and brightest tech-enabled workers need to keep their skills sharp — and build new ones. Aerospace companies are responding to the need with their own programs and reaching out to the future workforce in their communities. Here are two examples:

- **GE Aerospace funds training programs in Lafayette and Terre Haute.** A recent survey conducted by Morning Consult for GE Aerospace showed that one-third of respondents cited a lack of training opportunities and 80% of workers said they needed new skills to advance. GE Aerospace and the GE Aerospace Foundation responded with $2.3 million in grants designed to help the company's partners, including in Lafayette and Terre Haute, Indiana, reduce barriers to training opportunities for workers to improve their skills.[13]

  The Greater Lafayette Career Academy will receive $150,000 to double its Airframe and Powerplant program capacity to 30 students. The funding will cover a full-time licensed instructor, new training equipment and tool kits for 25 students. Ivy Tech Community College is receiving $100,000 to support training in advanced manufacturing jobs and full scholarships for six students at its Terre Haute campus.[14,15]

- **L3Harris Technologies brings kids on campus in Fort Wayne.** L3Harris Technologies, a global aerospace and defense technology company that assembles and tests satellites for U.S. missile-defense programs in Fort Wayne, Indiana, helps cultivate the future aerospace workforce by sponsoring a Study Connection Program on its campus, providing math tutoring for third-, fourth-, and fifth-grade students. The students also interact with engineers and see global video feeds from satellites as well as satellite models and components.[16]

Cultivating new talent and building synergy may be the best ways to keep Indiana's aerospace industry growing. "It's exciting to bring in engineers and have them work on some of the most sophisticated and important technologies for national defense," Webster said. "Hopefully that will continue the push to get more and more engineers and to bring people into the community to grow and expand."[17]

11. "The best aerospace/aeronautical/astronautical engineering programs in America, ranked," U.S. News and World Report, 2024
12. "Cybersecurity," Purdue University, n.d.
13. Alex Brown, "Lafayette, Terre Haute to share in GE Aerospace workforce development grants," Inside INdiana Business, Oct. 21, 2024
14. Cybersecurity," Purdue University, n.d.
15. Morning Consult and GE Aerospace, "Manufacturing Skills Survey" report, 2024
16. , 17. Katy Anderson, "How the aerospace industry built a market and a legacy in Fort Wayne," Input Fort Wayne, April 24, 2024

AEROSPACE CRITICALITY TABLE

This table highlights critical positions specific to Indiana's aerospace workforce.

Position	Education Level	Earnings	Tech-enabled	U.S. Proj. Growth	Outpacing U.S.	Criticality
Packers		$		↓	No	Critical
Grinder Operator	🎓	$		↓	No	Critical
Interior Installers	🎓	$		↓	No	Critical
Airfield Operations Specialists	🎓	$		→	No	Critical
Quality Inspectors	🎓	$		↓	No	Critical
Sustainability Managers / Change Management Leads	🎓🎓	$$		→	No	Critical
Machinists	🎓	$		→	No	Critical
Aircraft Technicians/Mechanics	🎓◀	$$		→	No	Critical
Electronic/Electrical Assemblers	🎓	$		↗	No	Critical
Assembly Mechanics	🎓	$$		↑	No	More Critical
Aircraft Assemblers	🎓	$$		↓	No	More Critical
Propulsion Engineers	🎓🎓	$$$$	🤖	↗	No	Most Critical
Production Planners / Subcontract Specialists	🎓🎓	$$		↑	No	Most Critical
Information Systems Security Officers	🎓🎓	$$$	🤖	↑	No	Most Critical
Front End Engineers	🎓🎓	$$	🤖	↑	No	Most Critical
Mechanical Engineers	🎓🎓	$$$	🤖	↑	No	Most Critical
Manufacturing Engineers	🎓🎓	$$$	🤖	↑	No	Most Critical
Operations Analysts / Continuous Improvement	🎓🎓	$$	🤖	↑	No	Most Critical
Modeling and Simulation Engineers	🎓🎓	$$	🤖	↑	No	Most Critical
Software Engineers	🎓🎓	$$$	🤖	↑	No	Most Critical
Electrical Engineers	🎓🎓	$$$	🤖	↑	No	Most Critical
Environmental Health and Safety Managers	🎓🎓	$		↑	No	Most Critical

Engineering · IT · Logistics · Management · Production · Science · Technician

Fueling Legacy, Leading the Charge

Indiana's long-established automotive subsector is reinforcing traditional strengths while embracing innovation

Indiana's automotive history dates back to the tinkerers and engineers who developed innovations that would power the nation through two world wars and inspire the Indianapolis Motor Speedway. During the first decades of the 20th century, more than 250 auto manufacturers opened shop in Indiana, laying the groundwork for today's robust automotive industry.[1]

From early pioneers to today's global automakers, Indiana has remained a powerhouse of internal combustion engine (ICE) production and a major force in the national automotive economy.

Today, with over 628 automotive establishments and GDP of $21.4 billion — accounting for 20% of Indiana's total manufacturing gross domestic product — the industry is a vital pillar of the state's economy.

Indiana automotive manufacturing stats

136,523
Industry jobs

$21.4 billion
Gross domestic product (GDP)

$93,411
Average annual wage

9%
Tech-enabled workers

12,363
Tech-enabled jobs

Source: Central Indiana Corporate Partnership, "Advanced Industry Dashboard," cicpindiana.com, accessed April 2, 2025. Latest data from 2023

Battery Talent Demand
The 2023 Battery Industry Education and Training Needs Assessment survey of battery supply chain employers found strong hiring demand through 2030. Upstream firms need talent for mineral exploration, favoring on-the-job training or 2-year degrees. Downstream demand is highest in component manufacturing, with a preference for on-the-job training or 4-year degrees.

Resilience and adaptability

Indiana's automotive sector continues to demonstrate resilience and adaptability. Premier automakers like Toyota, Honda and Subaru of Indiana Automotive invest in the state, modernizing operations and strengthening the ICE-based supply chain that supports domestic and global markets. A notable example is General Motors' commitment of $632 million to its Fort Wayne Assembly plant, announced in June 2023.[2] This investment is directed toward preparing the facility to produce the next generation of ICE trucks, reflecting GM's strategy to bolster its traditional vehicle lineup while also building out its electric vehicle (EV) production portfolio.

Beyond individual company initiatives, the sector is embracing digitization efforts to enhance efficiency, contain costs and boost quality — ensuring ICE manufacturing evolves while the industry simultaneously bolsters EV production.[3]

1. Indiana Landmarks, "Does Indiana's automotive legacy get your heart racing?" Dec. 1, 2023
2. Alex Brown, "GM to invest $632M in Fort Wayne Assembly," Inside INdiana Business, June 12, 2023
3. ABI Research, "Automobile Industry Set to Invest Over US$188 Billion in Digitalization by 2033 to Ensure a Seamless EV Transition and Production Scaling," Nov. 16, 2023

BUILT ON STRENGTH, EVOLVING FOR THE FUTURE

Two recent automotive developments in Indiana include:

General Motors and Samsung SDI joint venture
What: A battery plant that will produce NCA-based high-performance nickel-rich prismatic batteries to be deployed in upcoming GM electric vehicles[1,2] | **Where:** A 680-acre site in New Carlisle, Indiana | **Investment:** $3.5 billion | **Jobs:** 1,600+

ENTEK
What: A new 1.4 million-square-foot battery component manufacturing facility to manufacture battery separators for lithium-ion battery manufacturers across the U.S.[3] | **Where:** A 340-acre site in Terre Haute, Indiana | **Investment:** $1.5 billion | **Jobs:** 642

1. Samsung SDI, "SAMSUNG SDI and General Motors finalize agreement to establish battery jointventure in the U.S.," Aug. 8, 2024
2. NSA: Lithium nickel cobalt aluminum oxide (LiNiCoAlO2)
3. ENTEK, "ENTEK announces location of first lithium battery separator plant in Indiana to power growing domestic electric vehicle market," news release, March 22, 2023

Backbone of the supply chain

While Indiana's major Original Equipment Manufacturers — Honda, Subaru, Toyota, GM and Stellantis — are crucial to the power of the industry, tier 2 and 3 automotive suppliers make up the majority of Indiana's auto industry and form the bedrock of the subsector's infrastructure.

These small- to mid-sized companies are also investing in automation, robotics, data analytics and other Industry 4.0 technologies to reduce runtime and adapt to labor shortages. Programs like the Indiana Economic Development Corporation's Manufacturing Readiness Grants have helped fuel this transformation.

Dual-track capabilities

Indiana's automotive legacy is evolving as the industry diversifies to include EVs, hybrid powertrains and related components. As demand for electric and hybrid vehicles grows, manufacturers across the state are taking a dual-track approach, continuing to improve ICE technologies while scaling EV capabilities.

Indiana's automakers are investing billions in new manufacturing operations and product lines. The state is attracting new companies, generating thousands of jobs and strengthening its position as a national leader in ICE and EV manufacturing.

More than 200 of Indiana's 628 auto manufacturers are engaged in EV-related work, supported by over $12.9 billion in EV investments and thousands of jobs.[4]

Recent announcements underscore this dual investment:

- Subaru of Indiana Automotive will begin building the next generation Forester and a new hybrid compact SUV at its Lafayette plant.
- Honda will shift production of the Civic hybrid from Mexico to Indiana, with production expected to begin in 2028 and an anticipated annual output of 210,000 vehicles.

Yet even as Indiana emerges as an EV production hub, the state continues to strengthen its traditional automotive core to remain globally competitive.

$12.9 billion

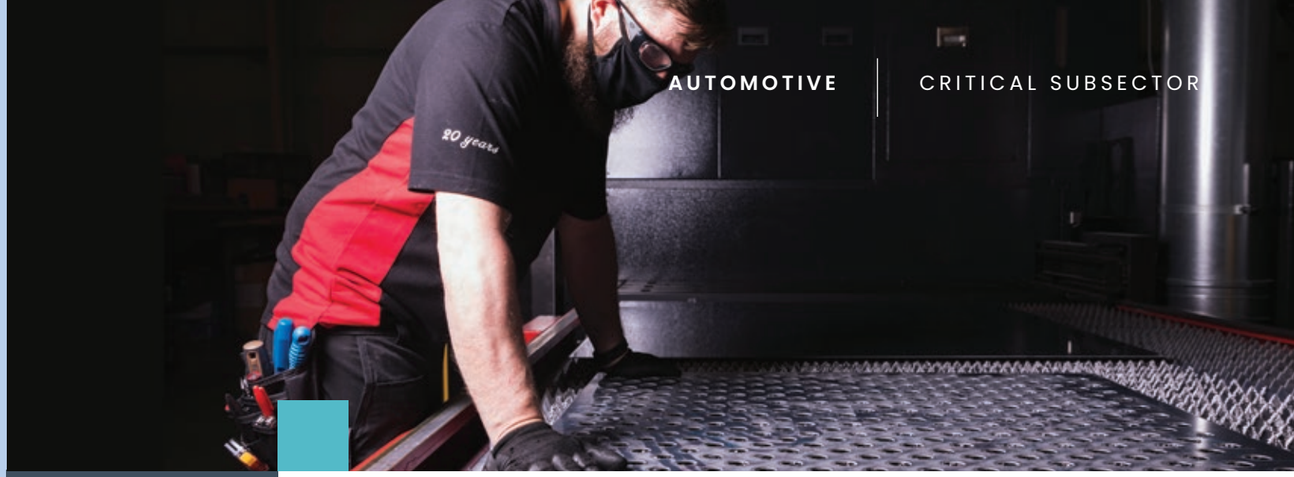
Recent electric vehicle-related investments

6,000+

Potential new automotive industry jobs

Source: Indiana Economic Development Commission, "Driving Indiana's electric future: A legacy of innovation meets electric revolution," 2024 Electronic Vehicle Product Commission Tasking Report

4. Indiana Economic Development Commission, "Driving Indiana's electric future: A legacy of innovation meets electric revolution," 2024 Electronic Vehicle Product Commission Tasking Report



Workforce Outlook

Preparing Indiana's automotive workforce for the future means investing in the people and technologies that power both today's vehicles and those driving tomorrow's innovations.

Indiana's automotive industry employs 136,523 workers, representing 16% of the state's advanced manufacturing and logistics workforce.[5] With an average wage of $93,411, the sector remains a pillar of Indiana's economy.[7] With over 9,000 employees in electric vehicle-specific roles, Indiana is actively growing jobs requiring expertise in battery production, power electronics and advanced manufacturing techniques.[6]

A changing workforce

Indiana's automotive sector is evolving, not only through the growth of hybrid and electric vehicles, but also through continuous innovation in traditional vehicle manufacturing.

As automotive manufacturing companies integrate more automation, software, artificial intelligence and smart systems, the demand for highly skilled, tech-enabled workers is growing.[8,9] Currently, 9% of the automotive workforce falls into this category, mirroring the overall manufacturing sector, and this share is expected to expand as digitalization and automation redefine vehicle production.

A need for new skills and trainings

The creation of electric vehicles and other types of clean energy manufacturing require many of the same skills, credentials and certifications as traditional automotive manufacturing. For example, project management, professional certifications, Occupational Safety and Health Administration industry cards and driver's licenses (including Class A commercial drivers' licenses) are common to both ICE and EV. Skills like welding, machining, machine operation and maintenance, fabrication and assembly are still relevant, too.[10]

These shared skills are the reason many ICE-focused manufacturers are able to expand their operations to include EV production without overhauling their entire workforce. At the same time, roles are emerging in cybersecurity, software engineering and smart manufacturing as well as battery and chemical handling and hazard mitigation, electrical engineering, design and safety, including increased safety certifications.[11] [12] Many of these skill transitions parallel general advanced manufacturing and logistics trends as the sector moves toward automated processes.

5. Central Indiana Corporate Partnership, "Advanced Industry Dashboard," cicpindiana.com, accessed April 17, 2025
6. Indiana Economic Development Commission, "Driving Indiana's electric future: A legacy of innovation meets electric revolution," 2024 Electronic Vehicle Product Commission Tasking Report
7. Central Indiana Corporate Partnership, "Advanced Industry Dashboard," cicpindiana.com, accessed April 17, 2025
8. Industry 4.0 or tech-enabling occupations develop, deploy and/or support the digitization and automation applications that are most closely related to the concepts of Industry 4.0, as defined by the report, National technology adoption benchmarking in advanced manufacturing and logistics: Assessing Indiana's progress in the fourth Industrial Revolution," Conexus Indiana and TEConomy Partners, 2024
9. Indiana Economic Development Commission, "Driving Indiana's electric future: A legacy of innovation meets electric revolution," 2024 Electronic Vehicle Product Commission Tasking Report
10. Chris Heckle, Joann Zhou, Yue Ke and Matteo Zullo, "Business Opportunities in Clean Energy Supply Chains: Guidebook for Small and Medium-Sized Auto Suppliers," Argonne National Laboratory, p. 30
11. Indiana Economic Development Commission, "Driving Indiana's electric future: A legacy of innovation meets electric revolution," 2024 Electronic Vehicle Product Commission Tasking Report
12. Chris Heckle, Joann Zhou, Yue Ke and Matteo Zullo, "Business Opportunities in Clean Energy Supply Chains: Guidebook for Small and Medium-Sized Auto Suppliers," Argonne National Laboratory, p. 30, December 2024

Supporting Indiana suppliers

In October 2024, Conexus Indiana and Purdue University's Manufacturing Extension Partnership, announced a collaboration to deploy a guidebook for small and medium-sized automotive suppliers as they adapt to the EV supply chain.

Developed by Argonne National Laboratories in partnership with the U.S. Department of Energy's Office of Manufacturing and Energy Supply Chains, the guidebook provides practical insights on business diversification, supply chain positioning and access to federal assistance programs. The guidebook features case studies, market strategies and funding guidance to help Indiana suppliers compete in clean energy markets and strengthen their place in the state's advanced manufacturing economy.

Read the guidebook. Scan the QR code to explore the Argonne Clean Energy Supply Chains Guidebook.

Groups like the Electric Vehicle Production Commission (EVPC), are identifying training needs and growth opportunities as the EV industry grows. A 10-member bipartisan group, the EVPC was established in 2021 to evaluate and enhance the EV industry in Indiana. According to its 2024 report, the group advocates for integrating EV education at all levels, from primary schools to higher education institutions.[13]

Several programs and initiatives focus on reskilling and training Indiana's EV workforce. Purdue University and Ivy Tech Community College are equipping workers with expertise in EV diagnostics, battery systems and hybrid technology. Employer-led initiatives, such as StarPlus' partnerships with Ivy Tech Kokomo and Purdue Polytechnic Institute, ensure local workers receive the necessary training for available jobs. Additionally, StarPlus is developing U.S. Department of Labor-approved electromechanical apprenticeships to expand workforce opportunities.[14]

While many of these programs emphasize EV technologies, their curricula also strengthen skills that apply across the entire automotive spectrum, including diagnostics and automated systems relevant to ICE vehicles and hybrids alike.[15]

13. Indiana Economic Development Commission, "Driving Indiana's electric future: A legacy of innovation meets electric revolution," 2024 Electronic Vehicle Product Commission Tasking Report
14. "StarPlus Energy to construct lithium-ion battery factories in Indiana," Energy.gov, Dec. 17, 2024
15. "Automotive Technology," Ivy Tech School of Advanced Manufacturing, Engineering and Applied Science, Ivy Tech Community College, accessed April 21, 2025

6x

Increase in U.S. domestic EV battery demand by 2030[1]

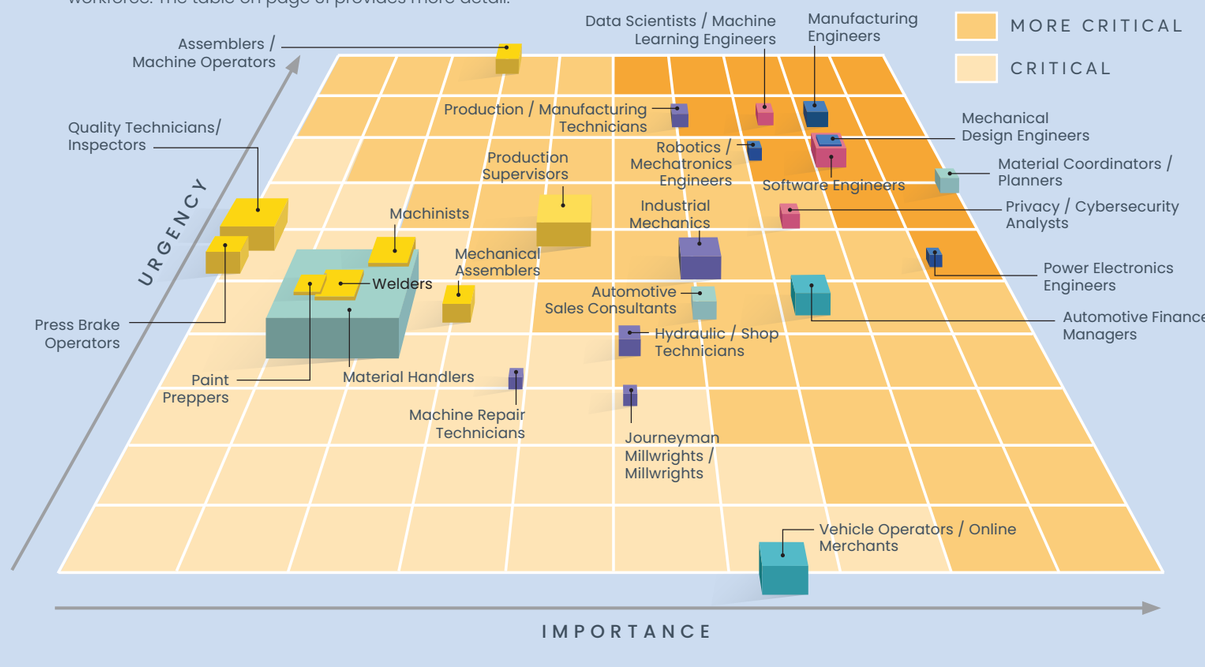
4

Indiana's rank in the U.S. for the most motor vehicle jobs in the clean vehicle sector[2]

1. Center for Automotive Research, "Examining workforce needs for North America: Battery Industry Education and Training Needs Assessment (BIETNA)," 2024
2. "2024 U.S. energy & employment jobs report (USEER)," Energy.gov, n.d.

AUTOMOTIVE CRITICALITY MATRIX

This matrix highlights critical positions specific to Indiana's automotive workforce. The table on page 31 provides more detail.



Indiana's automotive subsector is navigating a dual transformation — modernizing its deep-rooted ICE foundation while rapidly scaling capabilities in electric and hybrid vehicle production. The majority of "critical" workforce needs still center on traditional roles that remain vital to vehicle assembly and operations, including **press brake operators, welders, machinists and quality technicians**.

Yet, alongside these core positions, there's accelerating demand for high-skill and tech-enabled roles. "Most critical" occupations now include **robotics engineers, manufacturing and quality engineers and data scientists**, signaling the sector's shift toward smart manufacturing and EV-related competencies like power electronics, cybersecurity and battery systems.

What sets Indiana apart is its dual-track approach: companies are investing in both advanced EV infrastructure and the upskilling of workers for evolving ICE production. Small and mid-sized suppliers — forming the backbone of Indiana's auto economy — are deploying Industry 4.0 technologies to adapt quickly, often supported by technology adoption incentive programs and new EV workforce training initiatives.

With over $12.9 billion in EV investments and a growing tech-enabled workforce, Indiana's automotive industry is positioned not just to preserve its legacy — but to lead in the next era of advanced mobility.

The human side of automation

As Indiana's advanced manufacturing and logistics industry embraces new, transformational technologies, people become an even more important part of the equation.

"We're finding that, as companies evolve, many focus more on capital investments than on developing the skills of their people," said Bryce Carpenter, Conexus Indiana's chief operations and strategy officer.

To address this, Conexus Indiana partnered with Ivy Tech Community College. Together, the organizations met with companies across the state and identified a gap between traditional training programs and the fast pace of modern manufacturing. "We learned there's a need for shorter, role- specific courses," Landess said.

The research led to tangible results, including Ivy Tech's Programmable Logic Controllers (PLC) Bootcamp in Michigan City — a three-day training designed for technicians and operators to build essential skills for automating processes like welding and assembly. "PLC technicians are in high demand across industries," Carpenter noted.

Investing in both technology and workforce development is key. "You can't successfully implement new technology without investing in your people," Carpenter said. As new technologies create new roles, training in areas like programming, maintenance and data analysis will be crucial.

Critical positions

The automotive subsector demands a wide range of skilled and entry-level positions, from degreed engineers and scientists to plant floor operators. New manufacturing techniques add new jobs to the list of critical positions needed to support the industry, including chemical technicians, Computer Numerical Control programmers and operators, and electronics and controls engineers and technicians.[16] Survey results from the Center for Automotive Research's Battery Industry Education and Training Needs Assessment report show that the top three roles in the shortest supply are general and battery engineers as well as general technicians.[17]

To meet these needs, Indiana universities and community colleges are adding new training techniques to their offerings. For example, the Battery Innovation Center's training program is evolving from research and development (materials, cell construction, tests) to manufacturing (safety, quality, data analytics).[18]

Electrification is already changing automotive jobs in Indiana. Traditional mechanical skills like welding and gear machining must be complemented by expertise in power electronics and battery technology. As industry diversification into EVs continues, automotive workers must be adept at operating advanced, interconnected production systems, including automation and robotics. They'll need new skills in software development, engineering, cybersecurity and smart manufacturing.[19]

16. Chris Heckle, Joann Zhou, Yue Ke and Matteo Zullo, "Business Opportunities in Clean Energy Supply Chains: Guidebook for Small and Medium-Sized Auto Suppliers," Argonne National Laboratory, p. 30, December 2024
17. Battery Industry Education and Training Needs Assessment (BIETNA)," p. 32, 2024
18. Indiana Economic Development Commission, "Driving Indiana's electric future: A legacy of innovation meets electric revolution," 2024 Electronic Vehicle Product Commission Tasking Report
19. Indiana Economic Development Commission, "Driving Indiana's electric future: A legacy of innovation meets electric revolution," 2024 Electronic Vehicle Product Commission Tasking Report

AUTOMOTIVE CRITICALITY TABLE

This table highlights critical positions specific to Indiana's automotive workforce.

Position	Education Level	Earnings	Tech-enabled	U.S. Proj. Growth	Outpacing U.S.	Criticality
Press Brake Operators		$		↓	No	Critical
Paint Preppers		$		→	No	Critical
Quality Technicians/Inspectors		$		↓	No	Critical
Material Handlers		$		→	No	Critical
Welders		$		→	No	Critical
Vehicle Operators / Online Merchants		$$		→	Same	Critical
Machine Repair Technicians		$		↗	No	Critical
Machinists		$		→	No	Critical
Mechanical Assemblers		$$		↓	No	Critical
Journeyman Millwrights / Millwrights		$$		→	No	Critical
Hydraulic / Shop Technicians		$$		↗	No	More Critical
Production Supervisors		$$		→	No	More Critical
Automotive Sales Consultants		$$$		→	No	More Critical
Industrial Mechanics		$$		↑	No	More Critical
Automotive Finance Managers		$$$$		↑	No	More Critical
Assemblers / Machine Operators		$		→	Same	More Critical
Privacy / Cybersecurity Analysts		$$$		↑	No	More Critical
Power Electronics Engineers		$$$		↑	Same	Most Critical
Production/Manufacturing Technicians		$$		→	No	Most Critical
Robotics / Mechatronics Engineers		$$$		→	No	Most Critical
Data Scientists / Machine Learning Engineers		$$		↑	No	Most Critical
Software Engineers		$$$		↑	No	Most Critical
Quality Engineers / Vehicle Technicians		$$		↑	No	Most Critical
Mechanical Design Engineers		$$$		↑	No	Most Critical
Manufacturing Engineers		$$$		↑	No	Most Critical
Material Coordinators/Planners		$$		↑	Yes	Most Critical

Engineering · IT · Logistics · Management · Production · Science · Technician

Healthy and Growing

With its legacy of innovation, deep manufacturing base and strategic investments in talent and technology, Indiana is a global life sciences leader with the power to shape the future of healthcare and biotechnology on an international scale.

With a deep manufacturing base, a legacy of innovation and strategic investments in talent and technology, Indiana has built a globally recognized life sciences ecosystem. Its biopharmaceutical and medical device companies manufacture critical therapies, devices, diagnostics and vaccines that drive economic growth and shape the future of healthcare worldwide.

Indiana ranks as the No. 1 state for pharmaceutical exports, contributing $21 billion to worldwide life sciences exports.[1] The Hoosier state is home to 326 life sciences manufacturing establishments, including the home-grown multinational company Eli Lilly & Company and industry-leading orthopedic device manufacturer Zimmer Biomet.[2] This robust manufacturing subsector employs more than 41,600 workers and generates $22.9 billion in GDP—accounting for 20% of the state's total manufacturing economic output.[3]

Indiana's life sciences manufacturing industry is experiencing rapid growth and transformation, with a significant push toward biotechnology and advanced manufacturing. In 2023, the

Indiana life sciences manufacturing stats

41,609
Industry jobs

$22.9 billion
Gross domestic product (GDP)

$162,180
Average annual wage

21%
Tech-enabled workers

8,555
Tech-enabled jobs

Source: Central Indiana Corporate Partnership, "Advanced Industry Dashboard," cicpindiana.com, accessed April 2, 2025. Latest data from 2023

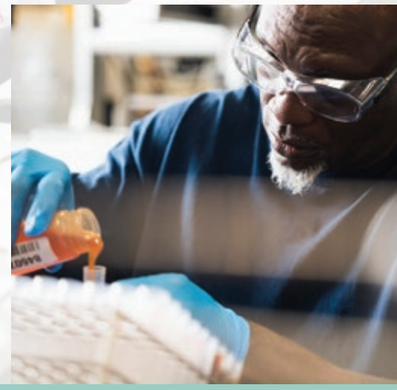
Advanced life sciences Eli Lilly & Co.'s new Medicine Manufacturing Foundry represents a major leap forward in Indiana's life sciences manufacturing, introducing a next-generation approach to producing innovative medicines at scale.

Economic Development Administration (EDA), part of the U.S. Department of Commerce, selected Indiana as one of 31 inaugural tech hubs to catalyze biotechnology innovation and reinforce the nation's biotechnology supply chain. In 2024, the EDA awarded $51 million in implementation funding to support four projects through a partnership with the Heartland BioWorks Tech Hub powered by Applied Research Institute (ARI).[4]

These recent investments further solidify Indiana's leadership in life sciences manufacturing:

- **Eli Lilly & Company**, Indiana's largest pharmaceutical manufacturer, has committed $27 billion to expand its operations, creating 3,000 new jobs and bolstering production capacity, in addition to a $9 billion expansion of its manufacturing facility at the LEAP Lebanon Innovation District in Lebanon, Ind.[5,6]
- **Novo Nordisk** completed a $16.5 billion acquisition of contract drugmaker Catalent Inc. that included Catalent's Bloomington-based facility.[7]

1. Indiana ranking as of 2024
2. Central Indiana Corporate Partnership, "Advanced Industry Dashboard," cicpindiana.com, accessed April 17, 2025. Latest data from 2023
3. Central Indiana Corporate Partnership, "Advanced Industry Dashboard," cicpindiana.com, accessed April 17, 2025. Latest data from 2023
4. "Biden-Harris Administration's Tech Hubs Program awards approximately $51 million to Heartland BioWorks in Indiana to strengthen the region's capacity as a global leader in biomanufacturing," U.S. Economic Development Administration, news release, July 2, 2024
5. Daniel Lee, "Eli Lilly to spend $27 billion on four new manufacturing sites," Indianapolis Business Journal, Feb. 26, 2025
6. "Eli Lilly increases investment to $9 billion at Lebanon site," Building Indiana Business, news release, May 30, 2024
7. Alex Brown, "Novo Holdings completes $16.5b acquisition of Catalent, Inside INdiana Business, December 18, 2024



TARGETED TREATMENT

Two recent life sciences developments in Indiana include:

Novartis
What: A 79,000-square-foot expansion to a manufacturing plant that produces nuclear medicine imaging and therapy products for cancer treatment[1] | **Where:** Indianapolis, Indiana | **Investment:** $300 million ($125 million for expansion) | **Jobs:** 225 (55 net new with expansion)

Isotopia Molecular Imaging
What: A flagship U.S. operation that will house 28,000 square feet of production clean rooms, analytical and microbiology laboratories, packaging and logistics systems and precursor isotope recycling systems[2] | **Where:** Westfield, Indiana | **Investment:** $20 million | **Jobs:** 50+

1. John Russell, "Novartis to expand nuclear medicine factory near Indy airport," Inside INdiana Business, May 21, 2024
2. Indiana Economic Development Corporation, "Israeli Pharmaceutical Company Chooses Indiana for First US Cancer-Treating Isotope Manufacturing Center," news release, Sept. 18, 2023

- **Simtra** is investing $250 million to expand its sterile fill/finish manufacturing campus in Bloomington, Indiana, supported by a $500,000 allocation from READI, Indiana's Regional Economic Acceleration and Development Initiative.[8]
- **Indiana University** received a $138 million grant from the Lilly Endowment to accelerate bioscience innovation at IU LAB, a state-of-the-art research and development facility at the 16 Tech Innovation District in Indianapolis.[9]
- **Orano Med** opened a new facility, ATLab Indianapolis, in Brownsburg, Indiana, dedicated to producing lead-212-based radiopharmaceutical therapies.[10]

Is Indiana ready for all of this growth? "The opportunities are here, and they keep coming," said Vince Wong, president and CEO of BioCrossroads, the Central Indiana Corporate Partnership initiative that grows, advances and invests in Indiana's life sciences industries. "To stay strong for the long term we need to build capacity by supporting new startups, increase our manufacturing footprint and take a proactive role in cultivating talent."

Grounded by its strong base in both pharmaceutical and medical device manufacturing, Indiana's life sciences manufacturing subsector seems poised for both great opportunities and complex challenges.

8. "Simtra BioPharma receives $500,000 in READI 2.0 funding for new Bloomington facility," PharmaSource, Dec. 20, 2024
9. "With $138M grant from Lilly Endowment, IU launches initiative to accelerate bioscience innovation," Indiana University, Dec. 12, 2024
10. "Orano Med inaugurates world's first industrial-scale lead-212 radiopharmaceuticals manufacturing facility," Orano USA, June 6, 2024
11. "Young brings force to pharma manufacturing," William D. and Sherry L. Young Institute for the Advanced Manufacturing of Pharmaceuticals, n.d.

THE INDIANA CAREER APPRENTICESHIP PATHWAY

A bigger, better pathway

Since its inception in 2007, Conexus Indiana has supported work-based learning. Why? Because when high school students spend time working at local companies, they engage more deeply with learning and make connections that lead to careers. Across the state, pilot and one-off apprenticeship programs have connected hundreds of Hoosiers to jobs. Now, the new Indiana Career Apprenticeship Pathway is poised to make an even bigger impact — projected to serve as many as 50,000 students by 2034.

Swiss support

For the past few years, a group of nearly 200 Indiana government, business and education officials has been focusing on apprenticeships — with some help from the Swiss version of MIT (ETH Zurich). The Richard M. Fairbanks Foundation funds this effort through an apprenticeship implementation lab guided by ETH Zurich's Center on the Economics and Management of Education and Training Systems (CEMETS).

Training talent

Indiana is currently developing apprenticeship programs for four sectors: banking, health care, life sciences and advanced manufacturing and logistics (AML). Scaling the apprenticeship system statewide requires deeper levels of employer engagement in identifying priority occupations, associated knowledge, skills and abilities (KSAs), and shaping of the curriculum to match. In Switzerland, employers organize through industry talent associations. For Indiana's Career Apprenticeship Pathway, Conexus Indiana will serve as the industry association supporting the AML sector, and BioCrossroads will serve life sciences and health care.

"We're creating pathways for Indiana high school students starting in their junior year so they can have robust work-based learning experiences: 20- to 30-hour-a-week on-the-job training for which they can earn high school credits," said Vince Wong, president and CEO of BioCrossroads.

Starting to scale

As the new industry association for AML, Conexus is building a core group of industry partners. "The next step will be for those partners to select priority occupations," said Conexus Indiana chief operating and strategy officer Bryce Carpenter. "Then we need to identify knowledge, skills and competencies for each occupation and work with educators to develop a curriculum to support them."

Workforce Outlook

Preparing the life sciences manufacturing workforce of the future demands patience, collaboration and proactively cultivating talent.

The life sciences sector faces many of the same challenges as other critical advanced manufacturing and logistics (AML) subsectors: a looming retirement wave and difficulty filling roles. Enabling Industry 4.0 across the life sciences sector presents unique challenges, from implementing new technologies to navigating regulatory compliance. The technologies on today's manufacturing floors won't be the same as those implemented even a few years from now. New jobs in life sciences manufacturing will require highly skilled workers, including engineers, scientists, operations personnel and lab technicians. Even at the operator level, process automation, data science, digital engineering and advanced robotics with understanding of quality compliance and regulatory expectations will become the norm.

The good news: Indiana's life science manufacturers provide the state with a sizeable Good Manufacturing Practice (GMP)-savvy workforce embodying a quality culture mindset. GMP, the aspect of quality assurance that ensures medicinal products are consistently produced and controlled to appropriate quality standards, is foundational to this expertise. Powered by strong universities, this workforce could become a virtuous flywheel of growth for the subsector.

For example, Purdue University's William D. and Sherry L. Young Institute for the Advanced Manufacturing of Pharmaceuticals, devoted exclusively to pharmaceutical manufacturing, has strong ties to industry and a pipeline of graduates ready for roles in biopharmaceutical manufacturing.[11]

Additionally, Ivy Tech Community College's new 4,700-square-foot Manufacturing Innovation Training Center at EMC2 (Emerging Manufacturing Collaboration Center) at the 16 Tech Innovation District, supported by Eli Lilly and Company, serves as a biopharmaceutical training center for Lilly and other employers. It also serves as a work and

learning hub for Lilly Scholars, high-achieving Ivy Tech students pursuing careers in pharmaceutical manufacturing after earning certificates or associate degrees in fields such as industrial technology and smart manufacturing.

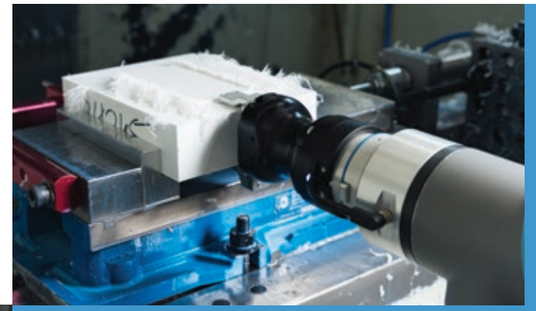
While not training for manufacturing roles specifically, new accelerators like Heartland BioWorks and Indiana University's Launch Accelerator for Biosciences (IU LAB) are also developing the next generation of life sciences talent. Heartland BioWorks' training facility will pilot upstream and downstream processes for large molecule manufacturing. IU LAB's Academic Gateway will host new degree programs and offer advanced courses and credentials for students and professionals.

Apprenticeship programs like those offered by the Indiana Career Apprenticeship Pathway (see sidebar on page 34) along with the state's new high school diploma requirements, which will add a work-based learning component, will create pathways to life sciences careers for students as early as their junior year in high school.

"The life sciences sector has the appetite to invest in training, but we need people to be interested in entering our sector," Wong said. "We have our work cut out for us in terms of elevating awareness for kids in high school, college students and people in the workforce who we can upskill to enter our industry."

Launching new programs to meet those needs will take time — and patience.

"Employers will need to balance short-term needs with a longer-term horizon," Wong said. "As we stand up workforce development efforts targeting high school students, the payoff isn't going to be in six months or even 12 months. We're looking at a three- to five-year horizon. Employers will need to be willing to create space for high school students to get hands-on exposure at their facilities."



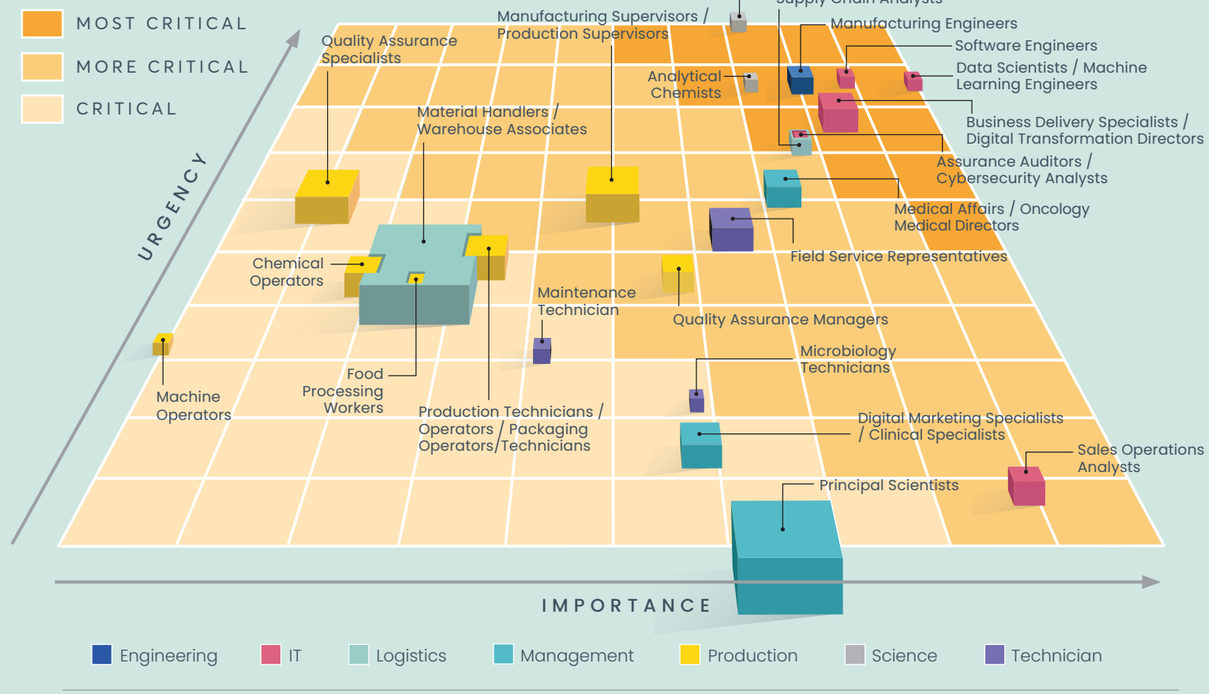
No. 1

Indiana's national ranking for life sciences exports

Source: BioCrossroads 2024 Annual Report

LIFE SCIENCES CRITICALITY MATRIX

This matrix highlights critical positions specific to Indiana's life sciences workforce. The table on page 39 provides more detail.



Indiana's life sciences manufacturing subsector combines a strong GMP-driven workforce with a surge in high-tech, high-growth roles. Foundational positions such as **production technicians, chemical operators** and **QA/QC specialists** remain critical to pharmaceutical and medical device manufacturing. These roles anchor day-to-day operations and are increasingly shaped by automation, robotics and regulatory compliance demands.

Simultaneously, the sector's most urgent needs are shifting toward tech-enabled and scientific roles. "Most critical" occupations include **process engineers, life scientists, analytical chemists, software engineers** and **data scientists**, reflecting the industry's embrace of digital twin technology, advanced cleanroom operations and biotechnology innovation. These roles are central to scaling biomanufacturing and supporting large-molecule production, particularly as Indiana's BioWorks Tech Hub and IU LAB initiatives accelerate R&D and talent development.

Workforce investments from institutions like Purdue University and Ivy Tech are strengthening both technician and professional pipelines. Ivy Tech's GMP-focused training center at 16 Tech and Purdue's pharmaceutical manufacturing institute offers direct-to-industry training. At the same time, new apprenticeship and biosciences accelerator programs aim to build long-term talent pathways — from high school through advanced degrees.

Indiana's position as a global life sciences hub depends on nurturing both its frontline workforce and its scientific talent to meet evolving demands in diagnostics, therapeutics and regulated manufacturing.

Digital twin and model-based system engineering (MBSE)

Digital twin technology, or virtual modeling that simulates and validates manufacturing processes, is transforming advanced biopharmaceutical, semiconductor and aerospace manufacturing. By reducing downtime, material waste and environmental impact, digital twins boost efficiency and success rates.

Success with this technology demands professionals skilled in digital tools and manufacturing processes, bridging software expertise with industry know-how. As emerging technologies like digital twin modeling spread across sectors, foundational manufacturing and engineering skills offer career mobility and attract talent.

Indiana's workforce is well positioned: most job transitions happen within the state, often between similar clean room environments, underscoring the need to strengthen talent pipelines for the future.

Critical Positions

Biopharma manufacturing operators and technicians are among the roles in highest demand in the industry. In Central Indiana, Ivy Tech Community College and Purdue University are working with employers via BioCrossroads on targeted efforts to fill these positions. Alongside these hourly, non-exempt roles, there's also high demand for salaried positions like process engineers, quality control specialists and technical services engineers.

As life sciences manufacturing adopts more advanced technologies, demand is growing for specific IT and data science roles, such as quantum and cloud computing, analytics, informatics, data visualization, modeling and simulation. A key emerging capability is digital twin technology — virtual simulations fully integrated with manufacturing processes — enabling faster, lower-cost process validation. This shift emphasizes the need for professionals who can develop, optimize and operate digital twin systems.

Automation, robotics and data analytics are also reshaping operator-level work, requiring familiarity with collaborative robots (cobots), computer vision systems and data-driven decision-making tools. The evolving manufacturing landscape necessitates a workforce that can quickly adapt to new systems and technologies.

Clean room expertise

Biopharma manufacturing prioritizes sterility and aseptic environments, requiring stringent gowning, sterilization and cleaning procedures to prevent contamination in clean rooms.

Trends in biomanufacturing such as high potency API (HPAPI), antibody-drug conjugate (ADC) and radioligand preparation have increased the need for specialized clean room facilities and isolators. Robotics in these environments can mitigate contamination risks while addressing workforce shortages. Clean room skills are increasingly transferable across industries like semiconductor manufacturing, creating competition for talent but also offering a recruitment advantage for candidates interested in high-tech fields.

LIFE SCIENCES CRITICALITY TABLE

This table highlights critical positions specific to Indiana's life sciences workforce.

	Position	Education Level	Earnings	Tech-enabled	U.S. Proj. Growth	Outpacing U.S.	Criticality
■	Machine Operators	🎓	$		↓	No	Critical
■	Chemical Operators	🎓	$		↓	No	Critical
■	Principal Scientists	🎓🎓	$$$		↗	No	Critical
■	Food Processing Workers		$		→	No	Critical
■	Digital Marketing Specialists / Clinical Specialists	🎓🎓	$$		↗	No	Critical
■	Material Handlers / Warehouse Associates		$		→	No	Critical
■	Quality Assurance Specialists	🎓	$		↓	No	Critical
■	Maintenance Technician	🎓	$		↗	No	Critical
■	Microbiology Technicians	🎓🎓	$	🤖	↗	Yes	Critical
■	Production / Manufacturing Technicians	🎓	$		↗	No	Critical
■	Business Delivery / Digital Transformation Directors	🎓🎓	$$$$$	🤖	↑	Yes	More Critical
■	Quality Assurance Managers	🎓🎓	$$$		→	No	More Critical
■	Manufacturing Supervisors / Production Supervisors	🎓	$$		→	No	More Critical
■	Field Service Representatives	🎓	$$		↑	No	More Critical
■	Medical Affairs Directors / Oncology Medical Directors	🎓🎓	$$$		↑	No	More Critical
■	Production/Demand Planners / Supply Chain Analysts	🎓🎓	$$		↑	Same	Most Critical
■	Assurance Auditors / Cybersecurity Analysts	🎓🎓	$$$	🤖	↑	No	Most Critical
■	Analytical Chemists	🎓🎓	$$	🤖	↗	No	Most Critical
■	Life Scientists	🎓🎓	$$	🤖	↗	No	Most Critical
■	Software Engineers	🎓🎓	$$$	🤖	↑	Same	Most Critical
■	Manufacturing Engineers	🎓🎓	$$$	🤖	↑	No	Most Critical
■	Environmental Health and Safety Managers	🎓🎓	$$		↑	No	Most Critical
■	Data Scientists / Machine Learning Engineers	🎓🎓	$$	🤖	↑	Yes	Most Critical
■	Sales Operations Analysts	🎓🎓	$$	🤖	↑	Yes	Most Critical

■ Engineering ■ IT ■ Logistics ■ Management ■ Production ■ Science ■ Technician

Power Packed

Microelectronics and semiconductors involve precise work and tiny components, and their fabrication has become a large-scale opportunity for Indiana.

In the past few years, investors have initiated the development of a new Silicon Heartland — a microelectronics and semiconductors ecosystem centered in the Midwest.

Indiana's initiative to create a microelectronics corridor is part of a broader U.S. strategy that aims to establish greater autonomy in semiconductor manufacturing, design and intellectual property rights.[1] Our state's role in that endeavor began to take shape in 2022 and in 2023, WestGate@Crane Technology Park, a 10-acre microelectronics campus, broke ground in Odon, Indiana, south of Bloomington.[2] Soon, several more companies announced plans to establish semiconductor manufacturing plants in the state, committing to invest more than $6 billion and create more than 2,100 new high-skilled, high-paying jobs.[3]

Indiana microelectronics manufacturing stats

11,142
Industry jobs

$1.7 billion
Gross domestic product (GDP)

$96,261
Average annual wage

Source: Central Indiana Corporate Partnership, "Advanced Industry Dashboard," cicpindiana.com, accessed April 2, 2025. Latest data from 2023

34%
Tech-enabled workers

3,739
Tech-enabled jobs

Hopeful in the heartland
Indianapolis hosted the first ever Midwest-based SEMIEXPO Heartland event in April 2025. Conexus Indiana was a contributing sponsor for this event, which drew about 1,100 attendees from around the country, including semiconductor industry manufacturers and suppliers, as well as regional economic development offices.

Indiana has also partnered with other state economic development officials across the region to attract strategic investments to the region. In 2023, Indiana's designation as a federal microelectronics hub through the CHIPS and Science Act secured $32.9 million in funding for the Silicon Crossroads Microelectronics Commons Hub, an innovation ecosystem spanning Illinois, Michigan and Indiana. The hub, known as the R1 Nucleus, provides a collaborative framework that allows members to develop a pipeline of microelectronics projects using each other's facilities and resources.[4] Significant developments continued in 2024, when SK hynix announced a $3.87 billion investment to establish a facility focused on high-intensity and AI microelectronic products at the Purdue Research Park in West Lafayette.[5] In addition, SEMI, a global industry association for the semiconductor design and manufacturing supply chain, selected Indiana as the site of its inaugural SEMIEXPO Heartland event in 2025.[6]

1. "New tactics for new talent: Closing US semiconductor labor gaps," McKinsey & Company, May 10, 2024
2. Indiana Economic Development Corporation, "Indiana Advances Leading Edge Semiconductor Research," news release, Nov. 21, 2022
3. Indiana Economic Development Corporation, "Gov. Holcomb announces generational multi-billiondollar investment to make Indiana leader in semiconductor packaging," news release, April 3, 2024
4. Cate Charron, "Universities' alliance set to boost microelectronics research," Indianapolis Business Journal, Jan. 31, 2025
5. Indiana Economic Development Corporation, "Gov. Holcomb announces generational multi-billiondollar investment to make Indiana leader in semiconductor packaging," news release, April 3, 2024
6. Building Indiana Business, "Indiana to host global semiconductor event in 2025," news release, July 17, 2024

CIRCUIT MAKERS

Two recent microelectronics developments in Indiana include:

SK hynix, Inc.
What: A 430,000-square-foot advanced packaging fabrication and research and development facility for high-intensity and AI microelectronic products and applications[1] | **Where:** Purdue Research Park, West Lafayette, Indiana | **Investment:** $3.87 billion | **Jobs:** 800

NHanced Semiconductors Inc.
What: The first semiconductor foundry in the U.S. built specifically for advanced packaging manufacturing[2] | **Where:** WestGate@Crane Technology Park, Odon, Indiana | **Investment:** $236 million | **Jobs:** 250+

1. Indiana Economic Development Corporation, "Gov. Holcomb announces generational multi-billiondollar investment to make Indiana leader in semiconductor packaging," news release, April 3, 2024
2. Lesley Weidenbener, "Advanced microelectronics firm NHanced is expanding operations in Bloomington and at Crane," Indianapolis Business Journal, April 5, 2024

Workforce Outlook

Developing Indiana's microelectronics workforce calls for early engagement, research-driven education and industry alignment.

2,100

High-skilled, high-paying jobs anticipated in Indiana

$6+ billion

Recent investments into semiconductor manufacturing plants in Indiana

Source: Indiana Economic Development Corporation, "Gov. Holcomb announces generational multi-billiondollar investment to make Indiana leader in semiconductor packaging," news release, April 3, 2024

As the microelectronics subsector establishes a solid foothold in Indiana and expands production and innovation, it faces significant workforce challenges. Findings from McKinsey & Company reveal similar issues across the nation, including an aging workforce, changing skill bases and competition for skilled workers.[7] Although investments yield new jobs, there is a risk for diminished return due to a worker shortage — including for Indiana.[8]

To address these expected shortages, Indiana will need to cultivate a new ecosystem focused on microelectronics and semiconductors. Recent strategic investments show this effort is well underway.

The Silicon Crossroads Microelectronics Commons Hub is led by the Applied Research Institute. Both organizations have domestic headquarters in Indiana. The SCMC Hub's workforce development arm aims to bridge the skills gap and meet the needs of the microelectronics industry. Membership is free and offers access to a network of innovators and resources in the microelectronics space. University partners include the University of Michigan, the University of Illinois Urbana-Champaign, the University of Notre Dame and Purdue University.[9] The hub's R1 Nucleus is an unprecedented four-way research alliance that removes barriers such as contracts to enable "more intense collaboration," ensuring that researchers have the tools they need and that faculty and staff can freely share best practices.[10]

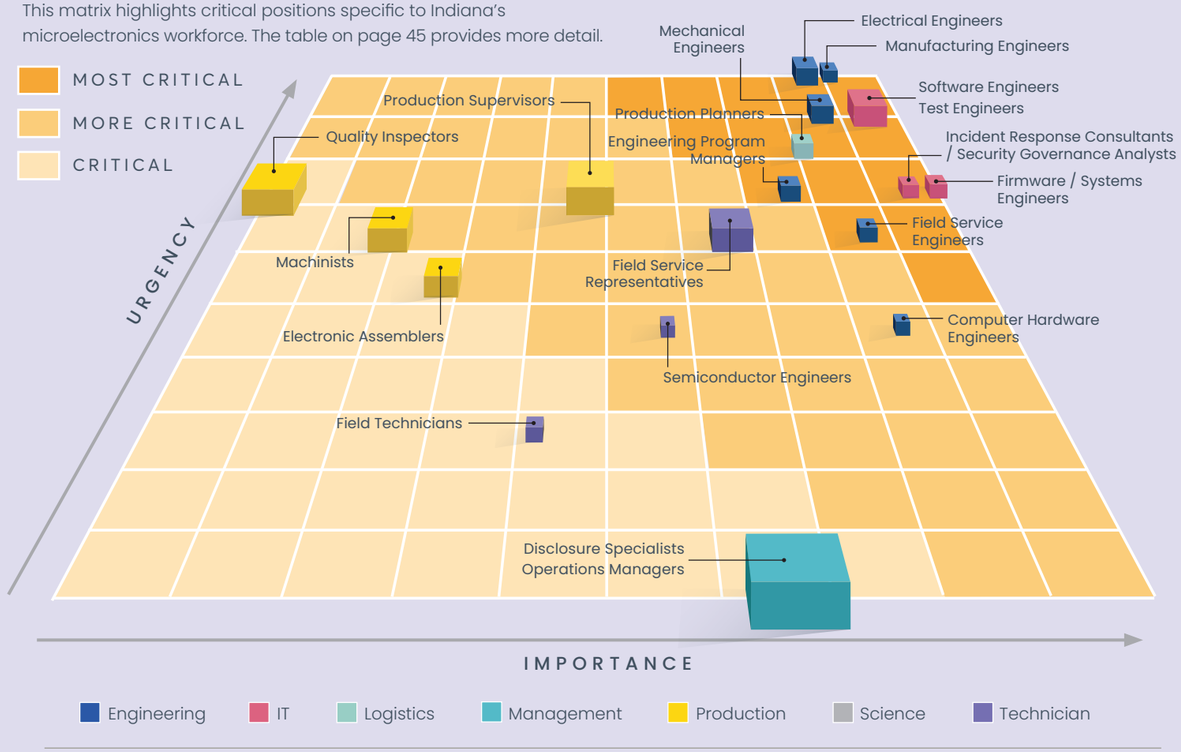
SCALE, Purdue's microelectronics workforce development program, was founded in 2020 with support from the U.S. Department of Defense (DOD) and expanded in 2023 to include 22 universities and 48 industry partners. Purdue invested $100 million in semiconductor research and learning facilities that year. The year before, Purdue launched the nation's first semiconductor degree program and partnered with Ivy Tech Community

Continued on page 45

7. McKinsey & Company, "How semiconductor companies can fill the expanding talent gap," Feb. 2, 2024
8. "New tactics for new talent: Closing US semiconductor labor gaps," McKinsey & Company, May 10, 2024
9. Higher Logic, LLC, "Workforce Development: Silicon Crossroads Microelectronic Commons," Feb. 7, 2024
10. Cate Charron, "Universities' alliance set to boost microelectronics research," Indianapolis Business Journal, Jan. 31, 2025

MICROELECTRONICS CRITICALITY MATRIX

This matrix highlights critical positions specific to Indiana's microelectronics workforce. The table on page 45 provides more detail.

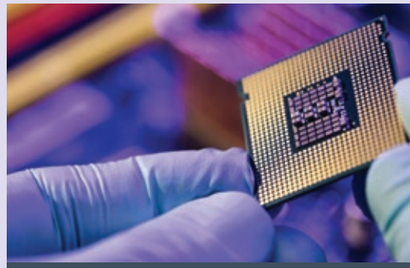


Indiana's microelectronics sector is emerging as a national hub for advanced packaging and chip fabrication, powered by billions in recent investment and a statewide commitment to innovation. Foundational roles like **electronic assemblers, quality inspectors, machinists** and **field service technicians** remain critical to cleanroom operations and production.

Yet the sector's momentum is driven by surging demand for high-skill, future-ready talent. "Most critical" occupations include **software and electrical engineers, firmware and systems engineers, manufacturing and test engineers and cybersecurity specialists** — all essential to the design, quality assurance and secure deployment of microelectronics in defense and commercial systems. These roles align with Indiana's designation as a CHIPS Act innovation hub and its growing role in national semiconductor autonomy.

Indiana's competitive edge lies in its integrated workforce strategy. From Ivy Tech's certificate in semiconductor fabrication to Purdue's semiconductor degree and SCALE program, training spans K–12, postsecondary and reskilling efforts. Cleanroom talent is increasingly transferable across sectors like aerospace and life sciences, creating cross-industry mobility for engineers and technicians.

As Indiana positions itself at the center of the Silicon Crossroads, aligning education, industry and policy will be critical — not only to meeting demand, but also to shaping the next generation of microelectronics leadership.



Microelectronics production is expansive and expensive, and industry niches require specialized types of microchips, advanced microchip packaging, equipment and personnel.

Source: Cate Charron, "Universities' alliance set to boost microelectronics research," Indianapolis Business Journal, January 31, 2025

Clean rooms, Specialized skills

Several semiconductor companies have chosen Indiana as the site for advanced packaging manufacturing facilities. It's no surprise that the workers needed for jobs in this growing niche are already employed in Indiana's other in-demand advanced manufacturing and logistics subsectors.

Here's a specific example related to clean room environments:

Even tiny particles can contaminate and impact the quality and functionality of delicate semiconductor components during the packaging process. Advanced packaging fabrication requires the same clean room environments as semiconductor fabrication or "fab" plants, which manufacture microchips by turning silicon wafers into integrated circuits.

Semiconductor clean rooms are enclosed environments with uniquely stringent temperature, airflow, light, noise and vibration requirements, and the engineers and technicians working in these spaces must be proficient in maintaining the conditions necessary to adhere to standards for safety and quality assurance.

Which professionals possess these skills? The most qualified are engineers and technicians in the life sciences and aerospace manufacturing subsectors — the same critical subsectors highlighted in this report.

Robotics could help address the growing demand for such specialized skills and so could targeted training programs and collaboration. Ultimately, foundational skills could transcend verticals. People could move from a clean room in one industry to a clean room in another, applying specialized skills to different critical manufacturing subsectors. This potential for movement from one company to another could even encourage highly skilled workers to continue their careers in Indiana.

160,000

New openings for engineering and technician roles in the U.S. semiconductor industry[1]

67,000

Projected shortfall of semiconductor industry workers by 2030[2]

1. McKinsey & Company, "New tactics for new talent: Closing U.S. semiconductor labor gaps," May 10, 2024
2. Semiconductor Industry Association, "State of the U.S. Semiconductor Industry," 2024

College to address its workforce needs and grow Indiana's engineering workforce.[11,12] Ivy Tech is currently offering a short-term certificate (CT) in semiconductor fabrication, a 21-credit program aimed toward individuals interested in pursuing a career in this growing field.[13]

Other programs in the state include Indiana University's initiative to attract underrepresented populations to the microelectronics industry and the DOD's three-year, $9.5 million award to create and improve microelectronics-focused education and training centers in the Indiana Uplands region.[14] Known as Regional Opportunity Initiatives, or ROI, the program is a public/private effort that aims to bridge the gap between urban and rural technology opportunities. It includes K-12 schools, postsecondary colleges and universities and employers. Like Purdue's SCALE K-12 program, it expands its reach to primary and secondary schools. These efforts to engage our youngest Hoosiers and offer new education pathways could go a long way to help Indiana develop a pipeline of top talent for one of our fastest-growing advanced manufacturing and logistics (AML) subsectors.

Ensuring sufficient staffing for this growing AML subsector requires the active engagement of all stakeholders, including employers, for which prioritizing talent is a necessity.[15] As Indiana continues to position itself as a national leader in microelectronics innovation and production, the state's ability to build a highly skilled, future-ready workforce will be critical. By aligning education, industry and policy efforts, Indiana has a unique opportunity to not only meet today's workforce demands but to shape the future of advanced manufacturing on a global scale.

11. Purdue Research Foundation, "Inside the 'fab' world of Purdue semiconductors," Stories — Advancing the Mission of Purdue University (blog), Dec. 17, 2024
12. Purdue University, "Purdue, Ivy Tech partner on next-generation microelectronics workforce," news release, May 5, 2022
13. "Electronics & Computer Technology," Ivy Tech Community College, n.d., accessed April 15, 2025
14. U.S. Department of Defense, "DOD improves microelectronics education and workforce training in Indiana," news release, Sept. 12, 2024
15. McKinsey & Company, "How semiconductor companies can fill the expanding talent gap," February 2, 2024

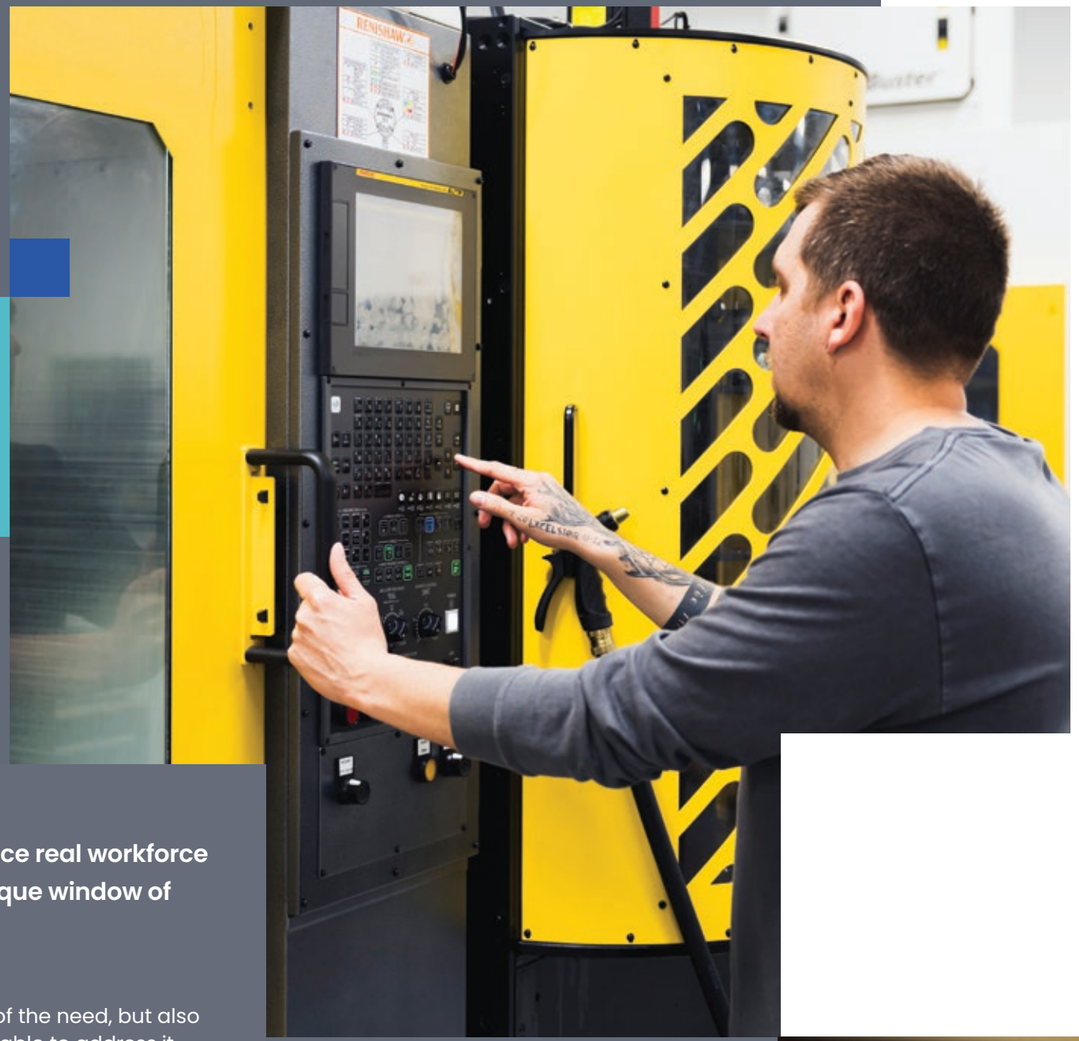
MICROELECTRONICS CRITICALITY TABLE

This table highlights critical positions specific to Indiana's microelectronics workforce.

Position	Education Level	Earnings	Tech-enabled	U.S. Proj. Growth	Outpacing U.S.	Criticality
Disclosure Specialists	🎓🎓🎓	$$		→	Yes	Critical
Operations Managers	🎓🎓🎓	$$$		↗	Same	Critical
Field Technicians	🎓🎓	$		→	Yes	Critical
Quality Inspectors	🎓	$		↓	Same	Critical
Machinists	🎓	$		→	Same	Critical
Electronic Assemblers	🎓	$		↗	Same	Critical
Semiconductor Engineers	🎓	$		↑	Yes	More Critical
Production Supervisors	🎓	$$		→	Same	More Critical
Field Service Representatives	🎓	$$		↑	Same	More Critical
Computer Hardware Engineers	🎓🎓🎓	$$$	🤖	↗	Yes	More Critical
Engineering Program Managers	🎓🎓🎓	$$$$$	🤖	↗	Same	Most Critical
Field Service Engineers	🎓🎓🎓	$$$	🤖	↑	Same	Most Critical
Production Planners	🎓🎓🎓	$$		↑	Yes	Most Critical
Incident Response / Security Governance Analysts	🎓🎓🎓	$$$	🤖	↑	Yes	Most Critical
Firmware/Systems Engineers	🎓🎓🎓	$$$	🤖	↑	Yes	Most Critical
Mechanical Engineers	🎓🎓🎓	$$$	🤖	↑	Same	Most Critical
Manufacturing Engineers	🎓🎓🎓	$$$	🤖	↑	Same	Most Critical
Software Engineers	🎓🎓🎓	$$$	🤖	↑	Yes	Most Critical
Test Engineers	🎓🎓🎓	$$	🤖	↑	Yes	Most Critical
Electrical Engineers	🎓🎓🎓	$$$	🤖	↑	Yes	Most Critical

Engineering | IT | Logistics | Management | Production | Science | Technician

Collective Action



Indiana's AML industries face real workforce challenges—but also a unique window of opportunity.

This report highlights the scale of the need, but also the tools and partnerships available to address it. The question now is: how can employers take the lead in shaping what comes next? Meeting Indiana's workforce challenge will require more than awareness—it calls for collaboration, innovation and a shared commitment to identifying and executing long-term solutions. The good news is industry leaders don't have to tackle this alone.

Indiana's continued success in AML will be shaped by the collective commitment of industry, education and the public sector.

Here are a few ways to get involved and take action:

- **Strengthen these critical subsectors.** Conexus partners with the Indiana Economic Development Corporation (IEDC) to help cutting-edge companies expand within Indiana—focusing especially on the subsectors most critical to the state's future. Together, we're building a stronger, more connected AML base in Indiana.

  If you operate a business in one of these subsectors and are considering an expansion, contact Jordan Isaacs, senior director of growth at Conexus to learn how the state can support the growth of your business.

- **Shape the next generation of talent.** Conexus, in collaboration with a group of industry leaders, is co-designing work-based learning models that directly address real-world AML needs. Through our newly established Industry Talent Association and the creation of the Indiana Career Apprenticeship Pathway (ICAP)—funded by the Richard M. Fairbanks Foundation—you can play a critical role in identifying priority roles and helping to build sustainable, scalable pathways to careers in AML.

  Industry leaders interested in joining the Industry Talent Association Steering Committee should contact PJ McGrew, senior director of talent strategy and programming at Conexus.

- **Leverage education partners to train your tech champions.** Conexus partners with institutions like Ivy Tech Community College and Purdue University that are developing digital skills trainings and Industry 4.0 literacy programs specifically for today's AML workforce. These programs are built to scale and designed for employers looking to upskill teams without losing productivity.

  Invest in your employees by sponsoring their tech education through Ivy Tech, Purdue, or another Indiana institution—and be proactive by outlining a dedicated budget for upskilling to ensure long-term talent development.

- **Stay informed.** It can be challenging to stay informed enough to make smart training and hiring decisions for your subsector. Use Conexus' new Workforce Data Dashboard to track workforce and industry trends and make data-driven talent and investment decisions. Visit the Conexus Indiana website, navigate to the "Research and Reports" section and start using the Workforce Data Dashboard to guide your strategy today.

Indiana's continued success in AML will be shaped by the collective commitment of industry, education and the public sector. Conexus is building the tools and partnerships to enable progress but lasting impact will require bold leadership from across the sector. Organizations interested in shaping the future of Indiana's AML workforce are encouraged to connect with us and join this critical effort.

DEFINITIONS

Average wage
The total wages paid divided by the total employment within an industry sector or subsector.

Productivity
Output per unit of labor, where that output is the industry's contribution to gross domestic product (GDP) and unit of labor is number of workers.

Tech-enabling jobs
Industry 4.0 "enabling" occupations develop, deploy, and/or support the digitization and automation applications that are most closely related to the concepts of Industry 4.0. For Conexus Indiana's National Technology Adoption Benchmarking in Advanced Manufacturing and Logistics report, TEConomy developed a set of those occupations and roles best aligned with these characteristics, corroborated from national strategy work in the space including in-depth industry interviewing and job posting analytics.

Tech-enabled workforce
Tech-enabling jobs as a percentage of total jobs.

NORTH AMERICAN INDUSTRY CLASSIFICATION SYSTEM (NAICS) CODES

Aerospace

334511	Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing
336411	Aircraft Manufacturing
336412	Aircraft Engine and Engine Parts Manufacturing
336413	Other Aircraft Parts and Auxiliary Equipment Manufacturing
336414	Guided Missile and Space Vehicle Manufacturing
336415	Guided Missile and Space Vehicle Propulsion Unit and Propulsion Unit Parts Manufacturing
336419	Other Guided Missile and Space Vehicle Parts and Auxiliary Equipment Manufacturing

Automotive

333618	Other Engine Equipment Manufacturing
336310	Motor Vehicle Gasoline Engine and Engine Parts Manufacturing
327215	Glass Product Manufacturing Made of Purchased Glass
336320	Motor Vehicle Electrical and Electronic Equipment Manufacturing
336330	Motor Vehicle Steering and Suspension Components (except Spring) Manufacturing
336340	Motor Vehicle Brake System Manufacturing
336350	Motor Vehicle Transmission and Power Train Parts Manufacturing
336360	Motor Vehicle Seating and Interior Trim Manufacturing
336370	Motor Vehicle Metal Stamping
336390	Other Motor Vehicle Parts Manufacturing
336110	Automobile and Light Duty Motor Vehicle Manufacturing
336120	Heavy Duty Truck Manufacturing

336211	Motor Vehicle Body Manufacturing
336212	Truck Trailer Manufacturing
336213	Motor Home Manufacturing
336214	Travel Trailer and Camper Manufacturing

Life Sciences

334510	Electromedical and Electrotherapeutic Apparatus Manufacturing
334516	Analytical Laboratory Instrument Manufacturing
334517	Irradiation Apparatus Manufacturing
339112	Surgical and Medical Instrument Manufacturing
339113	Surgical Appliance and Supplies Manufacturing
339114	Dental Equipment and Supplies Manufacturing
339115	Ophthalmic Goods Manufacturing
325411	Medicinal and Botanical Manufacturing
325412	Pharmaceutical Preparation Manufacturing
325413	In-Vitro Diagnostic Substance Manufacturing
325414	Biological Product (except Diagnostic) Manufacturing

Microelectronics

334111	Electronic Computer Manufacturing
334112	Computer Storage Device Manufacturing
334118	Computer Terminal and Other Computer Peripheral Equipment Manufacturing
334210	Telephone Apparatus Manufacturing
334220	Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing
334290	Other Communications Equipment Manufacturing
334310	Audio and Video Equipment Manufacturing
334512	Automatic Environmental Control Manufacturing for Residential, Commercial, and Appliance Use
334513	Instruments and Related Products Manufacturing for Measuring, Displaying, and Controlling Industrial Process Variables
334514	Totalizing Fluid Meter and Counting Device Manufacturing
334515	Instrument Manufacturing for Measuring and Testing Electricity and Electrical Signals
334519	Other Measuring and Controlling Device Manufacturing
334610	Manufacturing and Reproducing Magnetic and Optical Media
335314	Relay and Industrial Control Manufacturing
333242	Semiconductor Machinery Manufacturing
334412	Bare Printed Circuit Board Manufacturing
334413	Semiconductor and Related Device Manufacturing
334416	Capacitor, Resistor, Coil, Transformer, and Other Inductor Manufacturing
334417	Electronic Connector Manufacturing
334418	Printed Circuit Assembly (Electronic Assembly) Manufacturing
334419	Other Electronic Component Manufacturing

CONEXUS
INDIANA

Learn more at conexusindiana.com