



POWERING INDUSTRY 4.0
STRATEGIC PLAN 2019-2021

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LETTER FROM CONEXUS INDIANA

As technology, automation, and data change the way we make and move things, Indiana sits in an enviable position as a global leader in advanced manufacturing and logistics, at the forefront of the next Industrial Revolution – Industry 4.0.

Since its inception in 2007, Conexus Indiana has helped advanced manufacturing and logistics leaders prepare today and tomorrow's workforce and seize opportunities to strengthen the state's "Crossroads of America" advantage. Conexus Indiana's role as a catalyst, convener, and cheerleader for the industry is evolving along with an industry that is at its own crossroads – as new technology and advancements are ushered in at an ever-increasing pace.

Conexus Indiana engaged Fourth Economy Consulting and SmallBox in 2018 to create an industry-driven strategic plan that maps out a bold path forward. The plan reflects the input of hundreds of industry, public-sector, and education stakeholders and identifies the primary emerging opportunities that will guide continued industry success.

Perhaps one of the most innovative and impactful strategies in our "Powering Industry 4.0" strategic plan is the development of an Industry 4.0 Institute. The Institute will provide a pathway for the manufacturing and logistics sectors toward digital transformation and ignite a spark for innovative new businesses and partnerships.

The Industry 4.0 Institute delivers on Conexus Indiana's core mission of leading innovative collaborations among industry, academic and public-sector partners to ensure Indiana's global industry leadership position. Our strategic plan also outlines strategies for re-imagining and strengthening industry-led networks for collective impact and building a talent pipeline that prepares Hoosiers, inclusive of all diverse backgrounds, for careers in an Industry 4.0 environment. The final piece of the strategy ensures that everyone can learn about the impact and the opportunity of Hoosier advanced manufacturing and logistics on the world.

I want to thank the many stakeholders who contributed their time and talents to this plan. We are at an important inflection point, and I am eager to work with our partners to ensure Indiana leads the industry as it continues to migrate to and embrace Industry 4.0.



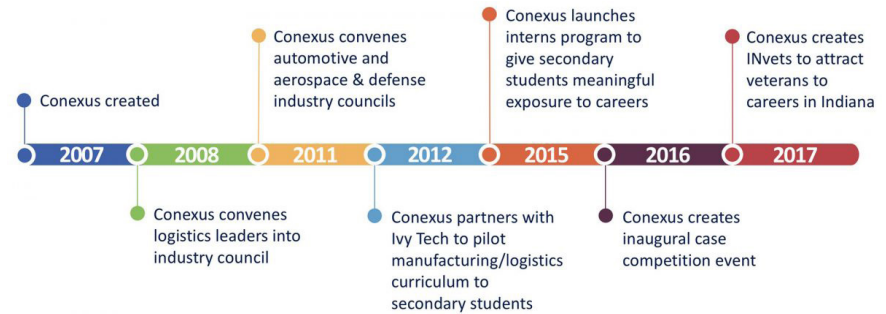
All the Best,


J. Mark Howell
President and CEO





▶ HISTORY OF CONEXUS



Conexus Indiana was formed in 2007 as an advanced manufacturing and logistics initiative of the Central Indiana Corporate Partnership (CICP). CICP initiatives bring together leaders of Indiana’s prominent corporations, foundations, and universities in a strategic and collaborative effort dedicated to Indiana’s continued prosperity and growth.

In its first 10 years, Conexus Indiana convened stakeholders in industry councils to address the areas of infrastructure, public policy, workforce development, and public awareness. A primary focus was on filling talent needs through a career awareness campaign called “Dream It. Do It.” and the industry-driven development and deployment of the Hire Tech high school curriculum. Conexus Indiana and the community it built provided meaningful support to the State of Indiana, resulting in the passage of the historic transportation funding bill in 2017 and demonstrating the impact the organization can have through collective action.

As Conexus Indiana embarks on its eleventh year, and the industry is on the cusp of a new Industrial Revolution, there is no better time to take stock of the many accomplishments and conduct a thorough strategic planning process to ensure that the next decade is equally successful.

This strategic planning process was conducted against the backdrop of a changing industry that is adopting advanced technologies, automation, and data to increase competitiveness, productivity, and profitability. Our planning also reflects the great work by the State of Indiana and its Governor’s Workforce Cabinet, and CICP’s analysis of Indiana’s opportunities in its study with the Brookings Institution and TEconomy Partners. Conexus Indiana will continue to identify and refine the strategic priorities that have the greatest benefit and impact for the industry, employers, and the workforce in the State of Indiana.

▶ STRATEGIC PLANNING PROCESS

Conexus Indiana embarked on a five-month strategic planning process that engaged Conexus Indiana staff, board members, and stakeholders in iterative strategy development facilitated by a human-centered design approach. The phases of the strategic planning process included foundational research, issue and opportunity prioritization, design thinking ideation sessions, and investible project development to produce final recommendations and materials. The project was guided by a cross functional advisory board of thought leaders from industry, education, philanthropy and the public sector.

FOUNDATIONAL RESEARCH

Fourth Economy engaged with the Conexus Indiana team, board members, and relevant stakeholders to develop a historic and aspirational understanding of the organization. During this phase, more than 50 interviews were completed with industry leaders, educators, public officials, philanthropic representatives, staff, and board members. Background research on statewide, national, and global trends in advanced manufacturing and logistics identified key issues and categorized industry sectors by level of R&D and STEM occupations, and analyzed ‘disruption’ potential.

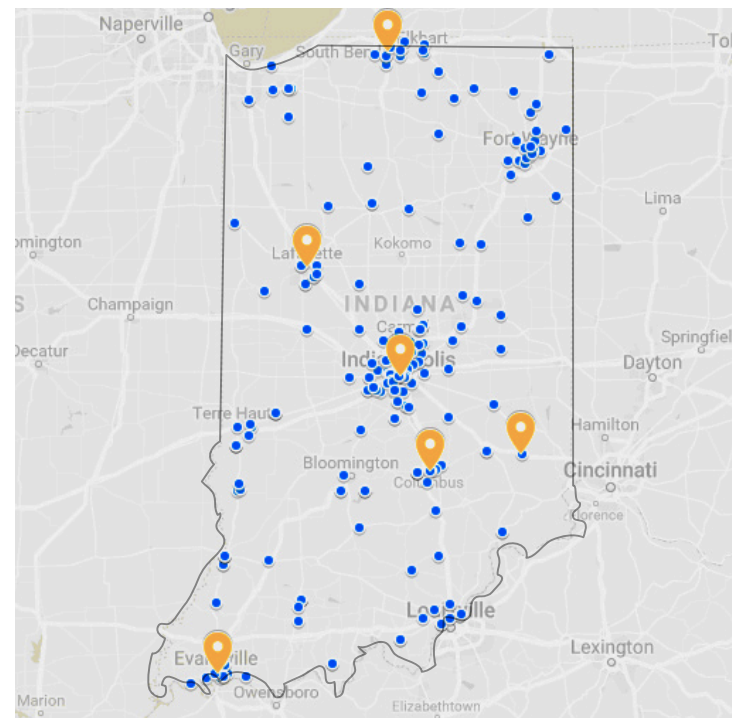
ISSUE & OPPORTUNITY PRIORITIZATION

Data collected from foundational research, when combined with interviews and more than 250 survey responses, provided a framework for defining advanced manufacturing and logistics focus areas.

DESIGN THINKING SESSIONS

Six ideation sessions with over 150 participants were held throughout the state of Indiana. These sessions assembled subject matter experts to generate ideas around proposed focus areas, including talent and Industry 4.0. This crowdsourcing approach created a broad set of innovative strategies that can be iterated and prototyped in the field. In the second step of ideation, participants were asked to begin converging around the strategies that are the most feasible to implement. A cross section of industry representatives were engaged to review recommendations and determine investible projects.

In-person events (yellow) in South Bend, Lafayette, Columbus, Evansville, Batesville, and Indianapolis gathered strategic planning participants (blue) from every region of Indiana. Industry participants included General Electric, Raytheon, Rolls-Royce, AM General, Toyota, Subaru, Cummins, Allison Transmission, Jasper Engines, Cook Group, and Koch Enterprises.



► KEY FINDINGS

Past generations of advanced manufacturers and their labor force have experienced evolutions in business processes, supply chain relationships, and technology. The current generation is dealing with a revolution. The transition to Industry 4.0 is marked by the integration of advanced technology, automation, and data to increase competitiveness, productivity, and profitability. The transformation of the advanced manufacturing and logistics industries is advancing at an unprecedented pace and likely only to quicken as technology adoption, costs pressures, and a global symphony of suppliers and OEMs seek to optimize their networks.

Indiana ranks 47th in the U.S. for manufacturing establishment birth rate, which is low even when compared to other states with a high percentage of manufacturing employment. This coupled with low R&D spending and limited investment capital resources may weaken the sector over time.

The implementation of technology, data, and new processes is transforming all aspects of making and moving products. Of Indiana firms surveyed with less than 500 employees, nearly two-thirds (65%) call technology disruption a medium to big threat. Nearly three quarters (71%) indicated that lack of **resources to support technology and**

innovation adoption is a barrier to their success.

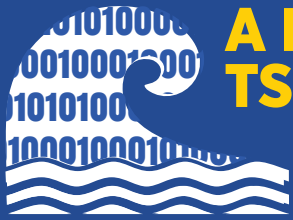
As Industry 4.0 impacts Indiana's economy, an important focus will be strengthening the networked community of advanced manufacturing and logistics stakeholders. Conexus Indiana has demonstrated the impact the organization can have through collective action. With more than 11,000 advanced manufacturing and logistics firms in the state, the work of Conexus Indiana to support their transformation and competitiveness can scale and serve a broad range of companies from automotive and aerospace to medical devices and food. It is important to have an engagement structure that includes representation across all types of firms, because executives seek **peer networking support when making decisions about future operations.**

A majority of advanced manufacturing and logistics positions are considered opportunity jobs, i.e. they pay family-supporting wages, provide employer-sponsored health insurance, and many are accessible at a sub-baccalaureate education level. In Indiana, there are an estimated 51,735 job openings in manufacturing and 41,193 openings in logistics per year. There is a near-term opportunity to continue to engage new and re-entering workers into the advanced manufacturing and logistics labor force.

In addition, automation is predicted to impact 50% of occupations within advanced manufacturing and logistics, and 1 in 10 occupations that these industries will hire for in 2030 do not exist today. As Industry 4.0 begins to transform skill requirements for Indiana's workforce, there is a clear need for programming that will **proactively address the impact of automation**, create roles that meet opportunity job criteria, and support employment opportunities within advanced industries that invest in R&D and STEM.

The advanced manufacturing and logistics community needs to transform the image and understanding of the industry's impact on Hoosiers and the State of Indiana. Fewer than 5 in 10 Americans surveyed believe manufacturing jobs are interesting, rewarding, clean, safe, stable, and secure. However, when asked what future jobs in manufacturing will look like, Americans have overwhelmingly optimistic views— future manufacturing jobs will require high-tech skills (88%) and will be clean and safe (81%), as well as more innovative (77%). There is a need to **advance narratives with future-focused messaging that capture optimistic sentiment.**

INDUSTRY 4.0 IMPACT



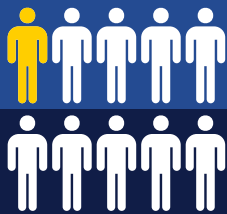
A DIGITAL TSUNAMI

is hitting advanced manufacturers and logistics companies



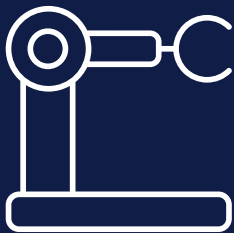
50%

of occupation skill requirements will change due to automation



1 IN 10

occupations that industries will hire for in 2030 do not exist today



74%

of firms will have adopted automation technologies within 5 years

WAIT UP!



Smaller Firms are being left behind



DEFINING INDUSTRY 4.0

Advanced manufacturing and logistics companies across the country are maximizing the use of advanced technology, automation, and data to increase their competitiveness, productivity, and profitability, commonly known as Industry 4.0.

▶ MISSION & VISION

MISSION

Accelerate, promote, and grow Indiana's advanced manufacturing and logistics economy by leading innovative collaborations among industry, academic, and public-sector partners.

VISION

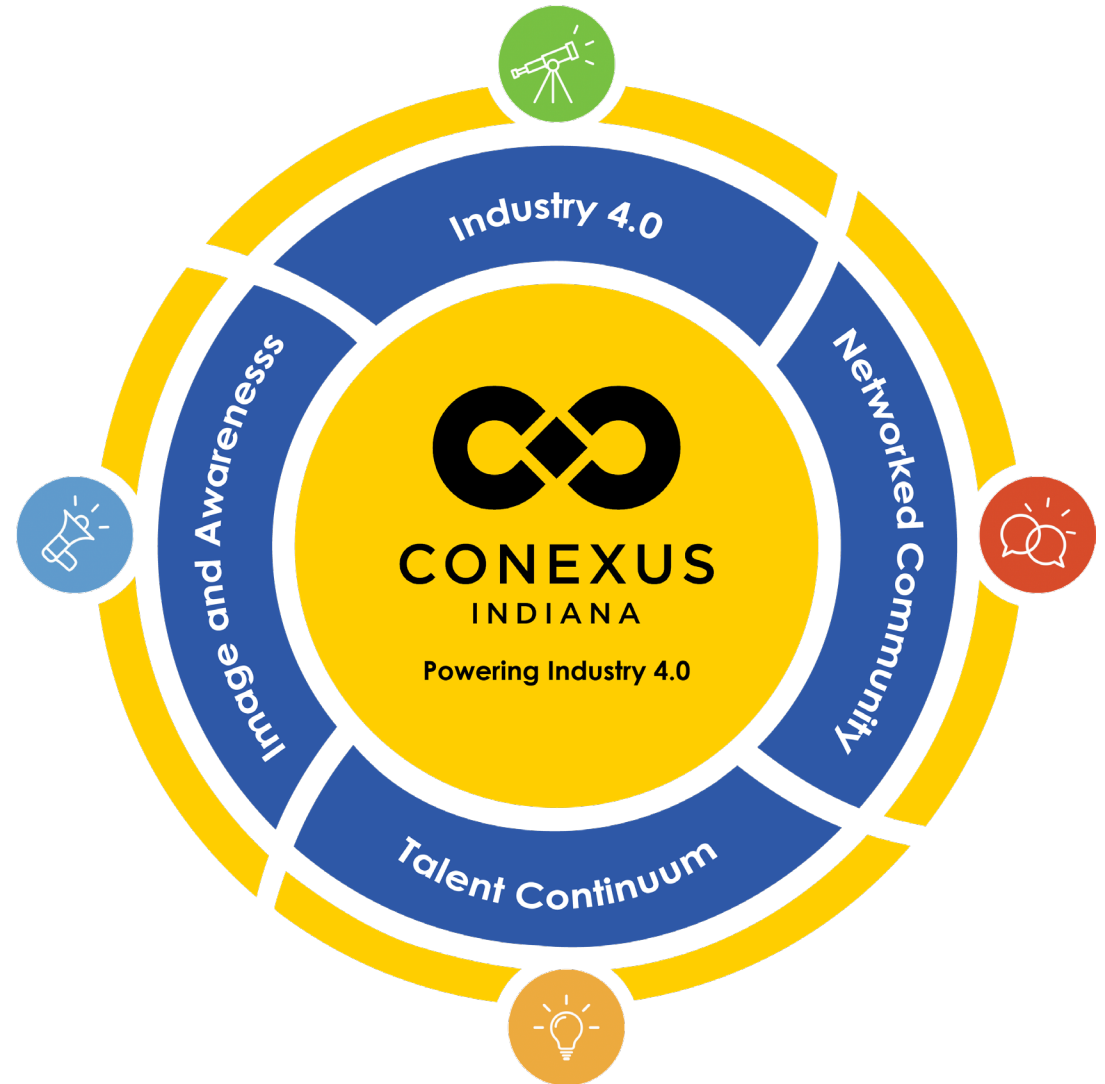
Indiana's advanced manufacturing and logistics global leadership is sustained for the next generations.

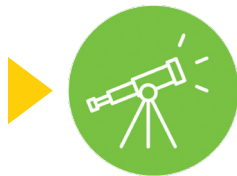
POWERING INDUSTRY 4.0

The strategic planning process has uncovered a call to action to ensure Indiana leads the way and fosters the next generation of talent in an Industry 4.0 economy. Conexus Indiana is uniquely positioned to help deliver the resources, platforms for collective action, and innovative programs to support the industry's successful migration.

The four strategic pillars that form the structure of Conexus Indiana's Strategic Plan for 2019-2021 are:

- Industry 4.0
- Networked Community
- Talent Continuum
- Image and Awareness





INDUSTRY 4.0

The implementation of technology, data, and new processes is transforming all aspects of making and moving products (digital transformation). Of Indiana firms surveyed with under 500 employees, nearly two-thirds (65%) call technology disruption a medium to big threat. Nearly three quarters (71%) indicated that lack of **resources to support technology and innovation adoption** is a barrier to their success.

While Industry 4.0 can negatively impact the future of companies that do not invest to evolve their companies, Industry 4.0 lowers the barriers for startup. Indiana, however, has a poor record of new-business formation in the manufacturing sector. Indiana ranks 47th in the U.S. for manufacturing establishment birth rate, which limits the potential for the sector.

Focus: Conexus Indiana will anticipate industry needs and catalyze the advanced manufacturing and logistics industries to be global leaders in digital transformation and the fourth industrial revolution (Industry 4.0).

There are two goals that Conexus Indiana will accomplish:

- **Goal:** Create a pathway for the advanced manufacturing and logistics sectors to experience digital transformation.
- **Goal:** Facilitate the development of an environment for innovative new advanced manufacturing and logistics businesses and partnerships.

To achieve these goals Conexus Indiana is implementing two **Strategic Initiatives:**

- An Industry 4.0 Institute will be designed to leverage existing and develop new Indiana Industry 4.0 assets to create a resource for manufacturers to explore, adopt and utilize technologies matched to their specific needs.
- An Industry 4.0 Resource Network will leverage the success of our peer networks and will feature a technology roundtable series to provide peer-to-peer outreach, thought-leadership, and assistance.

Industry 4.0 Initiatives Impact

- By 2025, shift the number of Indiana firms from a majority who view technology disruption as a threat to a majority who view it as an opportunity.
- By 2025, increase the manufacturing birth rate of Indiana firms by 25%.





NETWORKED COMMUNITY

As Industry 4.0 impacts Indiana's economy, an important focus will be strengthening the networked community of advanced manufacturing and logistics stakeholders. Conexus Indiana has demonstrated the impact the organization can have through collective action. With more than 11,000 advanced manufacturing and logistics firms in the state, the work of Conexus to support their transformation and competitiveness can scale and serve a broader range of companies, from automotive and aerospace to medical devices and food. It is important to have an engagement structure that includes representation across all types of firms, because executives seek **peer networking support when making decisions about future operations.**

Focus: Conexus Indiana will forge industry-led collaborations and build engagement platforms to maintain advanced manufacturing and logistics competitiveness through a networked community.

The goal Conexus Indiana will accomplish:

- **Goal:** Build a vibrant and engaged community of industry, academia, and public-sector representatives who are organized, industry-led, and enabled to take purposeful collective action to advance the industries.

To facilitate achieving this goal, Conexus Indiana is implementing three **Strategic Initiatives:**

- Convene a Manufacturing Community and a Logistics Community, which broadens our sector reach and focuses on the entire advanced manufacturing and logistics supply chain.
- Develop advanced manufacturing and logistics Work Streams that allow the network to define community opportunities or challenges, allow for thoughtful analysis, and at the same time are focused on speed-to-market solutions.
- Leverage the power of the network by convening industry leaders, engaging the public sector and providing resources.

Networked Community Initiatives Impact

- By 2025, form an engaged, geographically diverse consortium of 500 organizations representing the full advanced manufacturing and logistics ecosystem.



TALENT CONTINUUM

In Indiana, there are over 90,000 job openings in manufacturing and logistics companies per year. Moving forward, it is critical that Conexus Indiana focuses on existing and emerging industry talent needs.

A majority of advanced manufacturing and logistics jobs are considered opportunity jobs, i.e. they pay family-supporting wages, provide employer-sponsored health insurance, and many are accessible at a sub-baccalaureate education level.

As Industry 4.0 begins to transform skill requirements for Indiana’s workforce, there is a clear need for programming that will proactively address the impact of automation and support employment opportunities within advanced industries that invest in R&D and STEM.

Conexus will work across the Talent Continuum, with high school and post secondary students to working adults. Post secondary refers to any educational program beyond high school, including technical colleges and certificate programs. Working adults means unemployed, underemployed, and employed adults.

Focus: Conexus Indiana will inspire the advanced manufacturing and logistics workforce of today and tomorrow.

| TALENT | OBJECTIVE | INITIATIVE |
|-------------------------|---|--|
| High School Students | <ul style="list-style-type: none"> Awareness Up-Skilling Work-Based Learning | <ul style="list-style-type: none"> Hire Tech 2.0 Conexus Interns |
| Post Secondary Students | <ul style="list-style-type: none"> Awareness Up-Skilling Real World Problem Solving Industry Engagement | <ul style="list-style-type: none"> Case Competitions On Campus Events Workforce Industry 4.0 Credential or Degree |
| Working Adults | <ul style="list-style-type: none"> Awareness Qualification Up-Skilling On Boarding | <ul style="list-style-type: none"> Catapult INvets |

There are two goals that Conexus Indiana will accomplish:

- **Goal:** Increase the number and diversity of people choosing advanced manufacturing and logistics career pathways.
- **Goal:** Ensure skill-based learning opportunities exist for all workforce levels.

To achieve these goals Conexus Indiana is implementing three **Strategic Initiatives:**

- Maintain momentum and optimize existing Conexus Indiana talent initiatives with a focus on high school students, post-secondary students, and working adults. Accelerate the transformation of Hire Tech through a partnership with education organizations. Advance a focus on work-based learning that can include apprenticeships.

- Refine the process for addressing talent-related needs and opportunities by focusing on program development, launch, scaling and migration to partner organizations.
- Develop Conexus Indiana Fellows, a Workforce Industry 4.0 certification that will provide training opportunities for the labor force to utilize the latest technology to compete.

Talent Continuum Initiatives Impact

- By 2025, increase the number of graduating high school seniors that are pursuing an AML career pathway through education or employment by 25%.
- By 2025, 75% of Hoosiers working in advanced manufacturing and logistics will have high-quality degrees, certificates and/or other recognized credentials.



IMAGE & AWARENESS

The advanced manufacturing and logistics community needs to transform the image and understanding of the industries. Less than 5 in 10 Americans surveyed believe manufacturing jobs are interesting, rewarding, clean, safe, stable, and secure. However, when asked what future jobs in manufacturing will look like, Americans have overwhelmingly optimistic views— future manufacturing jobs will require high-tech skills (88%) and will be clean and safe (81%), as well as more innovative (77%).

There is also a significant opportunity to increase the diversity of the advanced manufacturing and logistics workforce to reflect the backgrounds of all Hoosiers. For example, it is true that the percentage of women in manufacturing roles presents an untapped opportunity. Women represent only 29% of the manufacturing labor force but make up 47.5% of the available labor force. There is a need to elevate narratives with future-focused messaging that capture optimistic sentiments.

Focus: Conexus Indiana will amplify success stories to transform the image and understanding of the advanced manufacturing and logistics industries. We will develop stories and messages that are relevant to diverse audiences, which include students and adults in the talent pipeline and those who influence their career decisions. There are two goals that Conexus Indiana will accomplish:

- **Goal:** Foster a widespread understanding of the impact of the industries on Indiana and the world.
- **Goal:** Cultivate positive perceptions of the opportunities offered by the industries. Promote pathways for all Hoosiers.

To achieve these goals we are implementing three **Strategic Initiatives:**

- Create compelling messages and a toolkit for statewide allied organizations to use to communicate a clear, unified message about the opportunities of the advanced manufacturing and logistics industry. Become the go-to resource for advanced manufacturing and logistics content in the state.
- Create an external multimedia information campaign that showcases Indiana-made products, innovation and technology advancements, and the impact of these products and advancements in the world.
- Build momentum through engaging advanced manufacturing and logistics events throughout the state with an emphasis on underrepresented populations in the manufacturing sector.

Image & Awareness Initiatives Impact

- By 2025, improve the perception of the impact and opportunity of the advanced manufacturing and logistics industries among Hoosiers by 30%.

► CONEXUS INDIANA'S NEXT IMPACT

When successfully implemented, the four pillars and ten interrelated initiatives will provide a platform for Indiana's advanced manufacturing and logistics industries to embrace Industry 4.0 and usher sustained economic competitiveness.

Conexus Indiana specifically expects the following impacts:

Industry 4.0 Initiatives Impact

- By 2025, shift the number of Indiana firms from a majority who view technology disruption as a threat to a majority who view it as an opportunity.
- By 2025, increase the manufacturing birth rate of Indiana firms by 25%.

Networked Community Initiatives Impact

- By 2025, form an engaged, geographically diverse consortium of 500 organizations representing the full advanced manufacturing and logistics ecosystem.

Talent Continuum Initiatives Impact

- By 2025, increase the number of graduating high school seniors that are pursuing an AML career pathway through education or employment by 25%.
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Image & Awareness Initiatives Impact

- By 2025, improve the perception of the impact and opportunity of the advanced manufacturing and logistics industries among Hoosiers by 30%.

The manufacturing revolution is now! Indiana's advanced manufacturing and logistics industries can slowly evolve as individual companies doing what they can, or everyone can come together as a community that demands greatness of itself and others. Conexus Indiana is poised to be the backbone organization that helps Indiana achieve greatness for generations to come.



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phone: (317) 638.2107 • email: info@conexusindiana.com • www.conexusindiana.com