Manufacturing Readiness Grants Program

2022 Impact Report

June 30, 2020, to June 30, 2022

CONEXUS INDIANA

Introduction

In late April 2020, during the height of the COVID-19 pandemic, Indiana Governor Eric Holcomb, as chair of the Indiana Economic Development Corporation (IEDC), recommended that the IEDC allocate its last unobligated funds to a new Economic Activity Stabilization and Enhancement (EASE) Initiative. EASE included $4 million for the Manufacturing Readiness Grants (MRG) program to financially incentivize companies to adopt smart manufacturing technologies and modernize operations. The program proved immediately successful within the first six months, yielding more than $50 million in matching commitments. This rapid uptake prompted the Indiana General Assembly to appropriate an additional $20 million to the program in the State's budget that runs from June 30, 2021, to June 30, 2023. Since program inception, over 400 applications have been received and $17.4 million in grant funding has been awarded in 60 counties, prompting proposed projects with combined budgets of $138.9 million.

Program Announcements as of June 30, 2022

60
Counties

400+
Applications

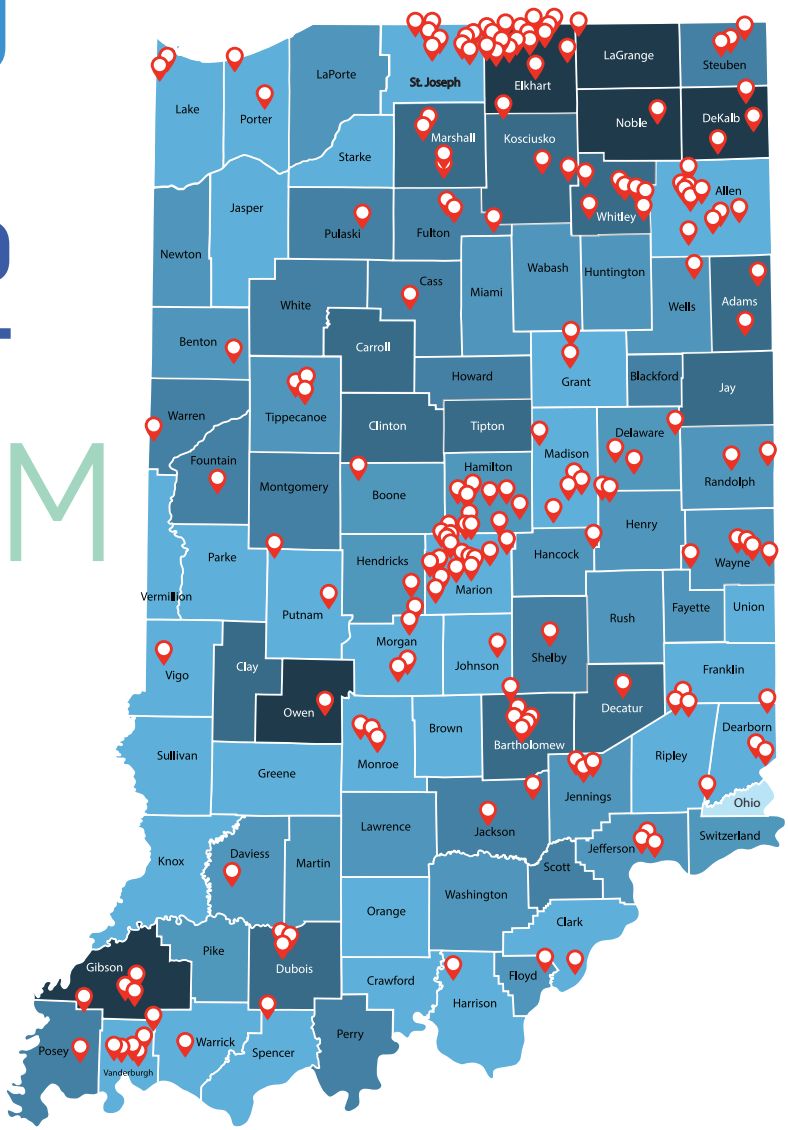
212
Awards

7:1
Leverage Ratio

$17.4M
in Grant Funding

$138.9M
in Proposed Project Funding

Manufacturing Intensity by County



State Manufacturing Intensity Average by Percent of Jobs

17.4%

0.0% — 52.6%

Manufacturing Readiness Grants Recipients

Company Demographics

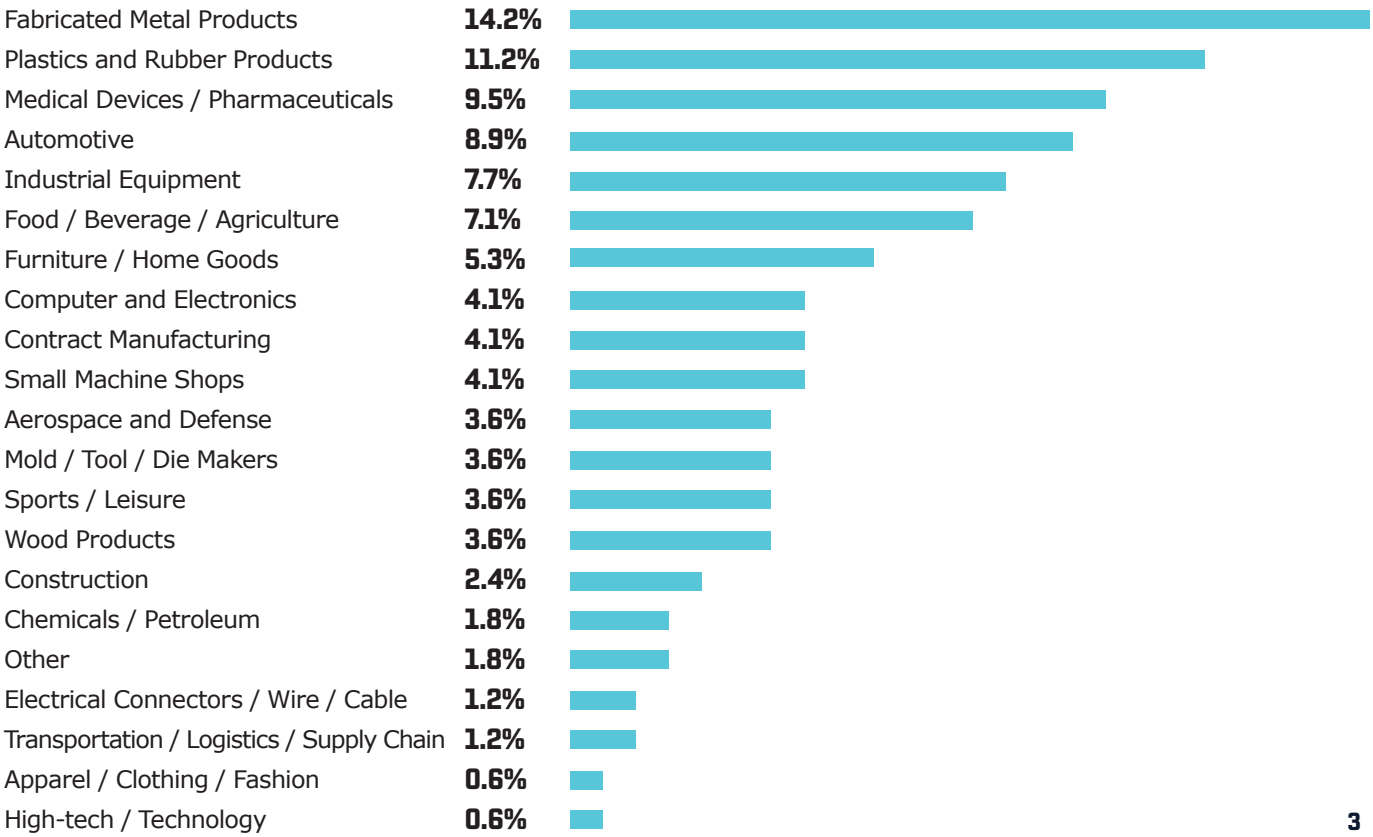
Manufacturing Readiness Grants (MRG) target Indiana's small- to mid-sized manufacturing companies (20-500 employees), though no company size limitations exist. The average award recipient has long-standing operations in Indiana (>30 years) and is often headquartered in the state. The 400+ applications received as of June 30, 2022 represent nearly 4.5% of Indiana's 9,300 manufacturers, and the 212 awards represent about 2.3%. This is a small, but significant market penetration for a 24-month digital intervention. The program has also impacted more than 20 industry segments, showcasing Indiana's diverse manufacturing sector.

To determine the appropriate industry sector for each applicant, Conexus Indiana and Purdue University's Dauch Center for the Management of Manufacturing Enterprises interpreted each company's response to the "Description of Ordinary Course of Business" question in the program application. The individual companies were also mapped to their self-reported primary North American Industry Classification System (NAICS) code to assess the reasonableness of the analyses (see Appendix A).

Award Recipients

37	114	21+	2.3%
Average Years in Operation	Average Number of Employees in Indiana	Industry Segments	of Indiana's Manufacturers

Program Funding by Industry Sector



Technology Investments

The MRG program has largely funded next-gen CNC machines, advanced robotics, general automation, collaborative robots (cobots), additive manufacturing (3D printing) and machine vision. With support of matching grant funding, manufacturers can overcome early adoption hurdles, including budget restrictions, talent shortages, integration risk, use case selection and workforce training.

Through a de-risked deployment, companies gain a strong sense of how to maximize the benefit of these technologies, which increases the odds of moving into wide-spread adoption. Many companies (48%) credit the MRG program with enabling the tech adoption project. Another 47% report that the grant funding accelerated the timeline or expanded the scope of the project.

Technology Investments Breakdown

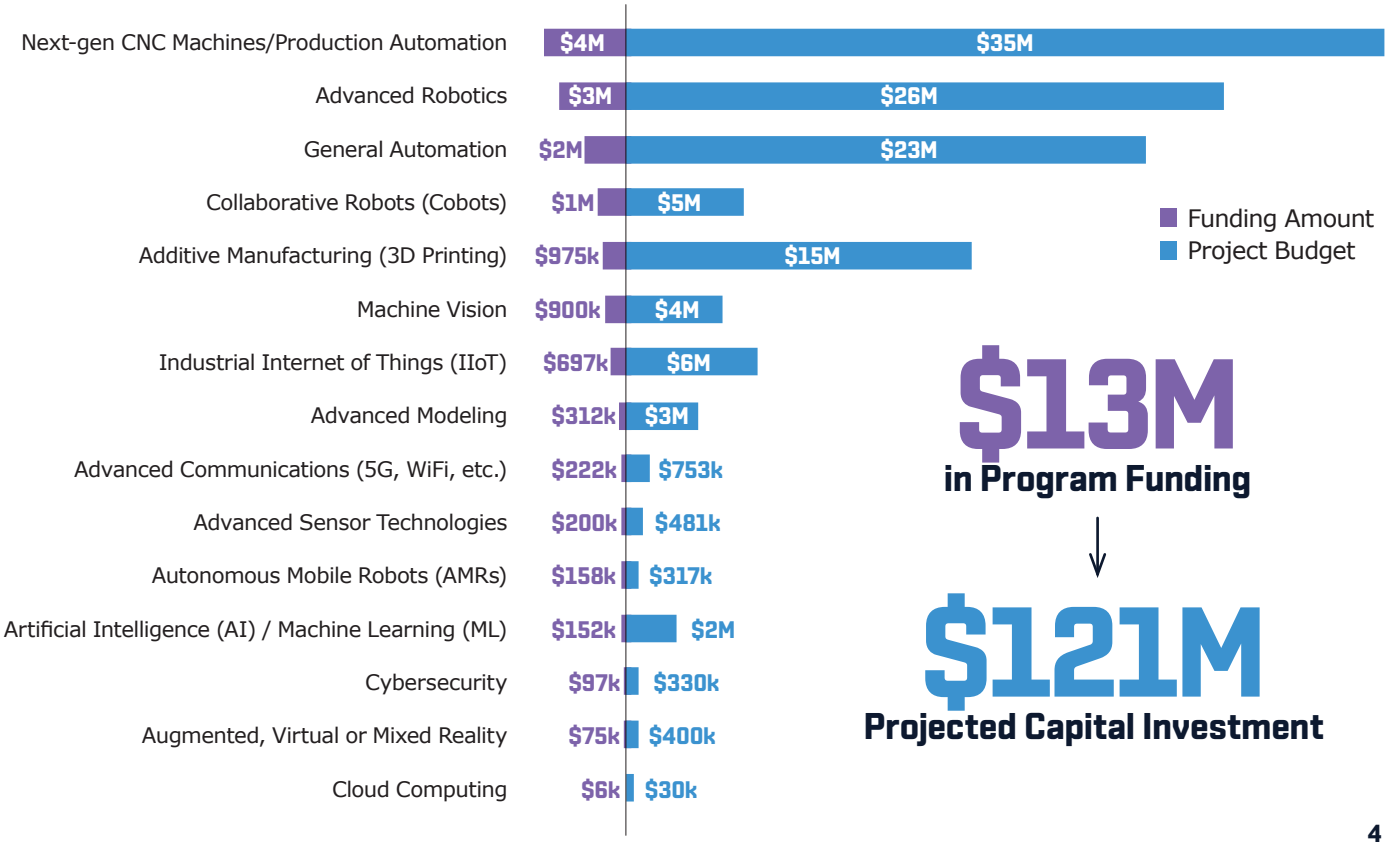
27% Next-Gen CNC Machines / Production Automation

22% Advanced Robotics

10% Cobots

7% Machine Vision

Technology Category by Funding Amount & Project Budget



$13M
in Program Funding

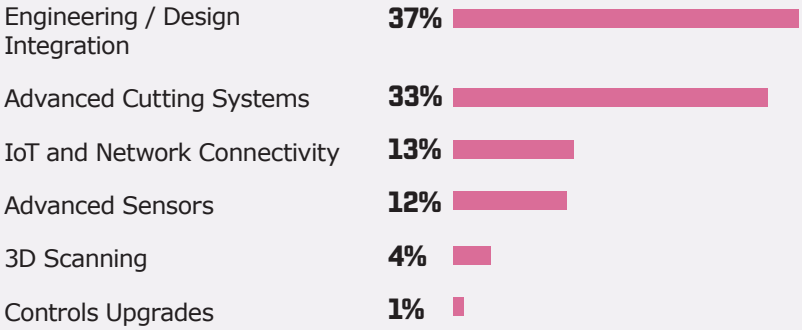
$121M
Projected Capital Investment

Technology Use Cases

A use case characterizes how a technology is deployed on the shop floor. For example, cobots can be used for picking, packing and palletizing items, machine tending or other functions. When companies invest capital and time in new technology, the intent is to address a specific role, task or function.

The MRG program has lowered the barriers for the first deployment of a technology and allowed companies to experiment with an initial use case. Below are examples of common technology deployments and the use cases supported by MRG.

Next-Gen CNC Machines/Production Automation Use Cases

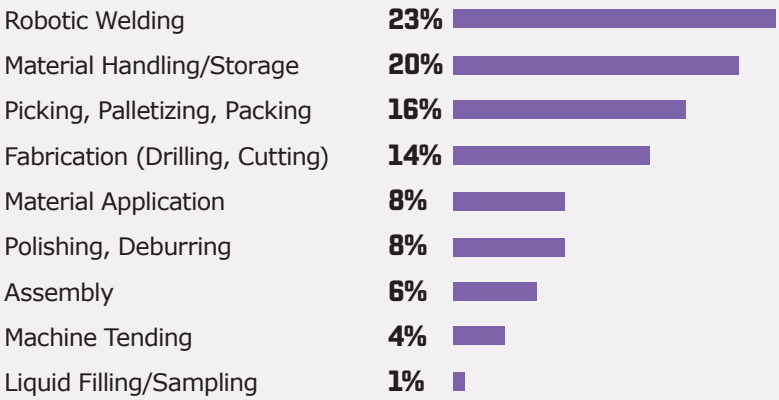


27% of program funding

Companies are modernizing and transforming their manufacturing operations with next-generation machines/automated production equipment. These go beyond traditional CNC and leverage a suite of smart technology features, including IoT, advanced sensors, digital twin/digital thread software and advanced modeling. Generally, these production systems allow manufacturers to optimize predictive maintenance and machine diagnostics, collect data for analytics, enhance cycles of design and modeling and can be remotely controlled/monitored.

Case Study: Ikelite Underwater Systems

Advanced Robotics Use Cases



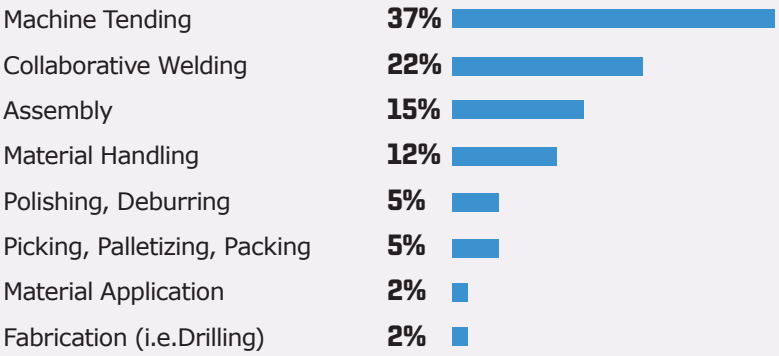
22% of program funding

Companies are implementing advanced robotics for welding applications and material handling, often to augment a tight labor supply for welders/production associates, and to significantly enhance efficiency of their operations. Deployments of advanced robotics are most appropriate for high-volume, low mix applications where speed is essential and production runs are extended.

Case Study: Batesville Products Inc.

Technology Use Cases

Cobots Use Cases

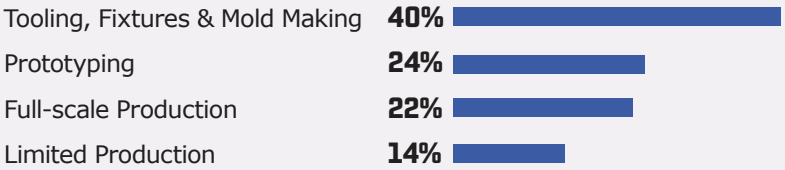


10% of program funding

Companies are utilizing cobots predominately for machine tending, which reduces workers' exposure to chemicals (i.e., handling oils), pinch points and leaning in and out of machines. While use cases are somewhat parallel to advanced robotics, deployments of cobots are most appropriate for low-volume, high mix applications, where manufacturing flexibility is required and speed is less critical.

Case Study: Konrady Plastics

Additive Manufacturing Use Cases

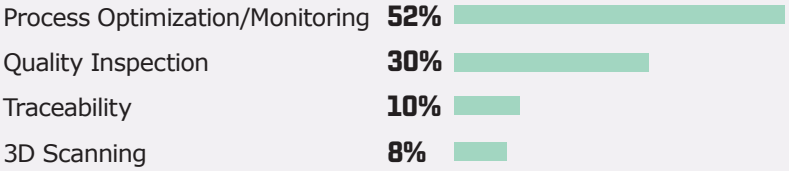


7% of program funding

Additive manufacturing encompasses a wide range of technologies and materials such as metal binder jet, composite fiber reinforcement, and plastic fuse deposition modeling. And they can be incorporated into various stages of manufacturing. Deploying additive manufacturing is most appropriate for low volume, high-value applications where part complexity commands a premium (i.e., next-gen parts for aerospace and defense) or situations where a highly compressed timeline for iteration of the design/production cycle is necessary (i.e. individualized orthopedic medical devices).

Case Study: Addman Engineering

Machine Vision Use Cases



7% of program funding

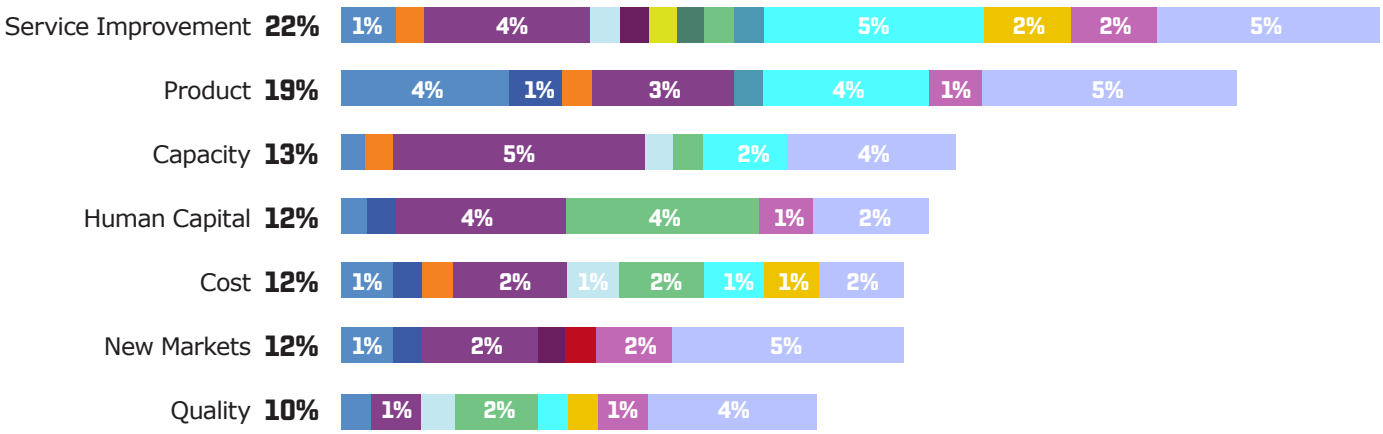
Machine vision also is a commonly deployed technology in the MRG program, especially for process optimization and quality inspections. While some manufacturers have been using camera systems for many years, these platforms continue to mature rapidly with smart manufacturing features–and often machine vision is the foundation to overlay AI and ML software to significantly enhance manufacturing operations and product quality.

Case Study: Pike Lumber Company

Strategic Business Objectives

Companies that apply to the MRG program are asked to articulate their business objectives. While quality, capacity and cost remain at the heart of traditional business case justifications, in today's competitive market, companies also consider customer experience, product innovation, human capital, new market entry, new product launches and more. The top three strategic business objectives driving tech investment at small-to-medium companies include service improvement, product quality, design or innovation and capacity. And certain technologies lend themselves well to particular business objectives, for example: additive manufacturing is often deployed to improve product design or spur product innovation and cobots are commonly used to optimize the mix between labor and automation.

Strategic Business Objective by Smart Manufacturing Technology



- Additive Manufacturing (3D Printing)
- Advanced Communications (5G, WiFi, etc.)
- Advanced Modeling
- Advanced Robotics
- Advanced Sensor Technologies
- Artificial Intelligence (AI) / Machine Learning (ML)
- Augmented, Virtual or Mixed Reality
- Autonomous Mobile Robots (AMRs)
- Cloud Computing
- Cobots (Collaborative Robots)
- Cybersecurity
- General Automation
- Industrial Internet of Things (IIoT)
- Machine Vision
- Next-gen CNC Machines/Automated Manufacturing Equipment

22%
Adopted Tech for Service Improvement

19%
Adopted Tech for Product

Impact Survey

In April 2022, Conexus Indiana and the Indiana Economic Development Corporation launched a survey to better understand the impact of the MRG program on revenue, wage and job growth. The survey results are based on 75 individual responses from MRG recipients across Indiana. Two notable findings emerged. First, technology adoption projects are adding jobs and increasing wages, not eliminating them, even as companies add automation and other tech capabilities. Second, the capital investment coupled with projected increases in both revenues and wages equate to a 26% internal rate of return (IRR) for the program, according to a model run by the IEDC.

Revenue Impact

$2.5M
Projected Average Revenue Growth Per Project

37%
of Companies Anticipate more than 10% Revenue Growth

Wages & Jobs Impact

$196k
Expected Wage Growth Per Project

5
New Positions Added on Average

26%
Internal Rate of Return

Case Study Insights

Business Impacts

Companies are expanding capabilities to enable onshoring and expansion into new markets (i.e., electrification, aerospace and defense, etc.)

PWR North America
Environmental Technologies Inc (ETI)
Ikelite Underwater Systems

Production volumes and capacities are being expanded immensely

Poolguard (PBM Industries)
Stair Supplies

Product quality is being improved with machine vision / visual inspection systems

D.A.S. Services
Contract Industrial Tooling (C-I-T)
Overton Industries
TouchTronics Inc.
Marion Manufacturing

New products are being launched by manufacturing entrepreneurs

SoChatti
Addman Engineering
Arcamed, LLC
Mach Medical, LLC

Workforce Impacts

The grant opportunity is creating jobs and apprenticeship programs

Wolf Corporation
Jomar Machining & Fabrication
Metro Plastics Technologies Inc.
Marson International

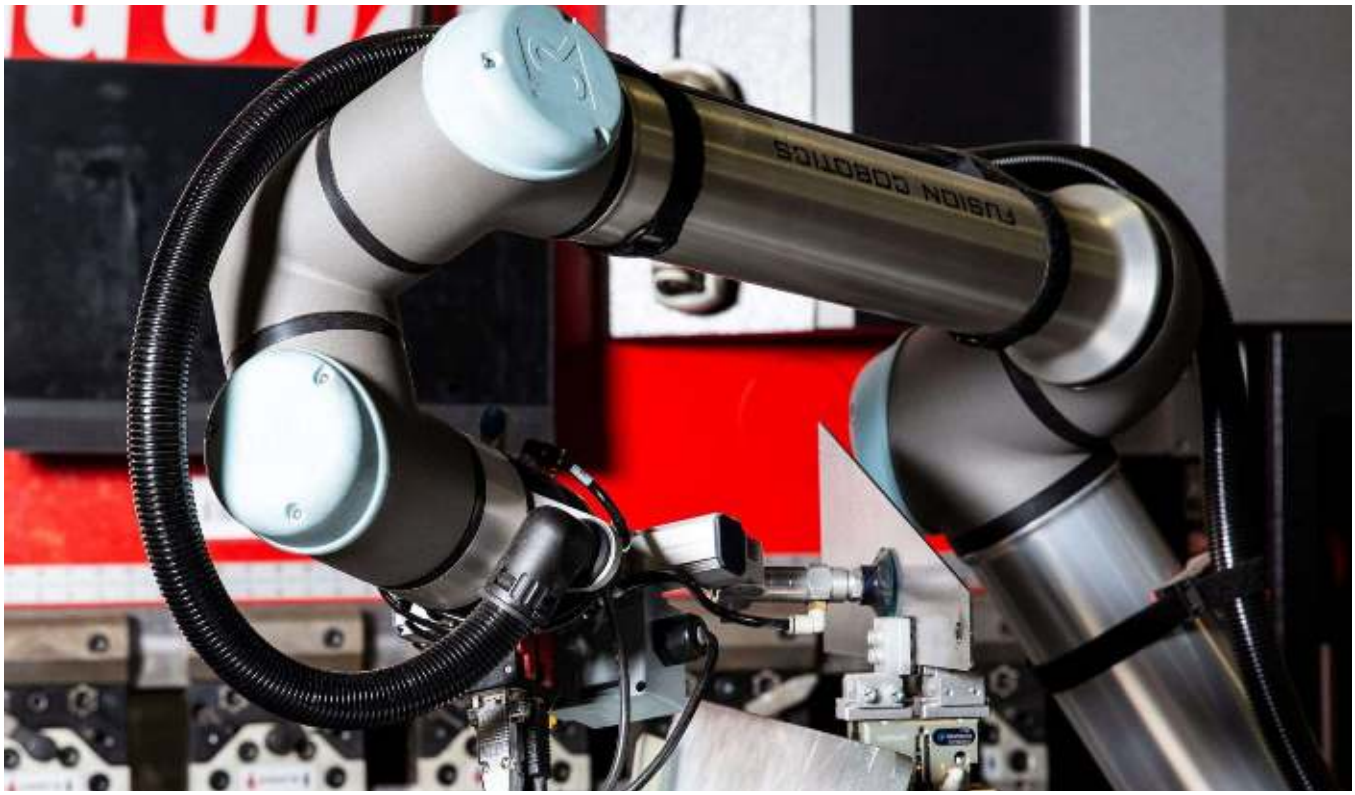
Work environments are being improved

Pike Lumber Company
Nutrition 101

A collaborative mix between labor and automation is being optimized

Indiana Furniture Industries
Standard Integrated Solutions
Konrady Plastics
Batesville Products Inc.
Hightech Signs
DeKalb Molded Plastics

Program Testimonials



"This grant helped us purchase our first robot for robotic painting. We have now purchased two additional robots with solid plans for two more in 2022."

"Without the Indiana Manufacturing Readiness Grants program, we would not have pursued automation in the timely fashion that we did. The cobot we invested in allowed us to attain more business while promoting and upskilling internal staff."

"The evolution of automation is necessary to the ongoing viability of manufacturing in Indiana. The investment is initially draining on profitability and is, in a sense, a leap of faith that the outcome will match the concept. The matching grant dollars help soften the blow and encouraged us to invest."

"It [the grant funding] enabled us to procure a critical piece of equipment which was a prerequisite for entry to the commercial aerospace industry. It has allowed us to become a supplier to Airbus."

Research Methodology

Dataset 1

Conexus Indiana partnered with Purdue University's Dauch Center for the Management of Manufacturing Enterprises to develop a Microsoft Power BI data model and analysis tool for ongoing research of the Manufacturing Readiness Grants program. Each application was de-identified and categorized by industry segment, smart manufacturing technology, use case and strategic business objective. The dataset includes applications submitted through August 31, 2021. (Page 3-7)

Dataset 2

Conexus Indiana and the Indiana University Kelley School of Business Center for Excellence in Manufacturing conduct an annual survey of Indiana manufacturers to measure Indiana's progress toward Industry 4.0. In 2022, 128 companies fully completed the survey. (Page 4)

Dataset 3

Conexus Indiana and the IEDC fielded a "Revenue Impact Survey" during the month of April 2022, which secured 75 anonymous survey responses from grant recipients. (Page 8)

About Conexus Indiana

Conexus Indiana, a nonprofit membership-based organization, accelerates, promotes and grows Indiana's advanced manufacturing and logistics sectors by collaborating with industry, education and public-sector leaders to optimize Indiana's competitive advantage as a global leader in making and moving products. Founded in 2007 by industry leaders as part of the Central Indiana Corporate Partnership (CICP), Conexus Indiana develops education and training programs, educates the public and public sector about the importance of the industry to Indiana's health and vitality, supports business development and technology integration strategies, and delivers on talent attraction strategies to support Indiana AML and improve opportunities for Hoosiers.

Since its inception, Conexus Indiana has launched and delivered industry-driven curricula, career awareness and work-based learning opportunities to nearly 10,000 Hoosier high school students, equipping them with the skills to begin a manufacturing or logistics career upon graduation or to pursue further education. In recent years, Conexus Indiana expanded its talent development programs to post-secondary students and unemployed and underemployed Hoosiers. These programs support the AML's growing need for tech-conversant, problem-solving and collaborative talent. These talent development programs, in addition to Conexus Indiana's Industry 4.0 research and thought-leadership platforms and the organization's growing networked community of experts, are foundational to Indiana's successful transition to Industry 4.0 and sustained business growth.

Acknowledgments

Thanks to the Indiana Economic Development Corporation and Next Level Manufacturing Institute for their support and execution of the Manufacturing Readiness Grants program and for partnering with Conexus Indiana to administer the program.

Thanks to the Conexus Indiana Smart Manufacturing Fellows, a group of manufacturing professionals from diverse company demographics, industry sectors and regional locations around Indiana. Much of the credibility that propels the success of the program is due to their volunteer contributions in the form of anonymous peer review of MRG applications.

Thanks to Purdue University's Dauch Center for the Management of Manufacturing Enterprises for their research and data visualization.

Appendix A - NAICS Code Classifications by Industry Sector

Aerospace and Defense

331512 Steel Investment Foundries
339999 All Other Miscellaneous Manufacturing
541330 Engineering Services
Unclassified - 3

Apparel / Clothing / Fashion

339999 All Other Miscellaneous Manufacturing

Automotive

238350 Finish Carpentry Contractors
326199 All Other Plastics Product Manufacturing
332812 Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers
336214 Travel Trailer and Camper Manufacturing
336360 Motor Vehicle Seating and Interior Trim Manufacturing
336390 Other Motor Vehicle Parts Manufacturing
339999 All Other Miscellaneous Manufacturing - 2
423110 Automobile and Other Motor Vehicle Merchant Wholesalers
541330 Engineering Services
811111 General Automotive Repair
Unclassified - 3
711212 Racetracks

Chemicals / Petroleum

324110 Petroleum Refineries
541380 Testing Laboratories and Services - 2

Computer and Electronics

334413 Semiconductor and Related Device Manufacturing
334418 Printed Circuit Assembly (Electronic Assembly) Manufacturing
334512 Automatic Environmental Control Manufacturing for Residential, Commercial, and Appliance Use
335314 Relay and Industrial Control Manufacturing - 2
335929 Other Communication and Energy Wire Manufacturing
339999 All Other Miscellaneous Manufacturing

Construction

238110 Poured Concrete Foundation and Structure Contractors
532411 Commercial Air, Rail, and Water Transportation Equipment Rental and Leasing
532412 Construction, Mining, and Forestry Machinery and Equipment Rental and Leasing
327390 Other Concrete Product Manufacturing

Contract Manufacturing

332312 Fabricated Structural Metal Manufacturing
332812 Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers
333310 Commercial and Service Industry Machinery Manufacturing
423840 Industrial Supplies Merchant Wholesalers
541330 Engineering Services
Unclassified - 2

Electrical Connectors / Wire / Cable

332613 Spring Manufacturing
332999 All Other Miscellaneous Fabricated Metal Product Manufacturing

Fabricated Metal Products

236220 Commercial and Institutional Building Construction
238910 Site Preparation Contractors
331513 Steel Foundries (except Investment) - 2
332216 Saw Blade and Handtool Manufacturing
332312 Fabricated Structural Metal Manufacturing - 3
332322 Sheet Metal Work Manufacturing - 2
332710 Machine Shops - 2
332999 All Other Miscellaneous Fabricated Metal Product Manufacturing - 3
333310 Commercial and Service Industry Machinery Manufacturing
333320 Commercial and Service Industry Machinery Manufacturing
333612 Speed Changer, Industrial High-Speed Drive, and Gear Manufacturing
335210 Small Electrical Appliance Manufacturing
336390 Other Motor Vehicle Parts Manufacturing
541511 Custom Computer Programming Services
811310 Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
Unclassified - 1
333120 Construction Machinery Manufacturing

Food / Beverage

221118 Other Electric Power Generation
311421 Fruit and Vegetable Canning
312111 Soft Drink Manufacturing
423930 Recyclable Material Merchant Wholesalers
424420 Packaged Frozen Food Merchant Wholesalers
424470 Meat and Meat Product Merchant Wholesalers
424910 Farm Supplies Merchant Wholesalers
561910 Packaging and Labeling Services
Unclassified - 3
311611 Animal (except Poultry) Slaughtering

Appendix A - NAICS Code Classifications by Industry Sector

Furniture / Home Goods

236115 New Single-Family Housing Construction (except For-Sale Builders)
321911 Wood Window and Door Manufacturing
332613 Spring Manufacturing
333111 Farm Machinery and Equipment Manufacturing
337127 Institutional Furniture Manufacturing
339999 All Other Miscellaneous Manufacturing
485310 Taxi and Ridesharing Services
Unclassified - 1
313230 Nonwoven Fabric Mills

Medical Devices / Pharmaceuticals

332812 Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers
333514 Special Die and Tool, Die Set, Jig, and Fixture Manufacturing
339112 Surgical and Medical Instrument Manufacturing - 2
339999 All Other Miscellaneous Manufacturing
423450 Medical, Dental, and Hospital Equipment and Supplies Merchant Wholesalers - 2
541511 Custom Computer Programming Services
541614 Process, Physical Distribution, and Logistics Consulting Services
561910 Packaging and Labeling Services
621999 All Other Miscellaneous Ambulatory Health Care Services
Unclassified - 5

High-tech / Technology

Unclassified - 1

Industrial Equipment

331491 Nonferrous Metal (except Copper and Aluminum) Rolling, Drawing, and Extruding
332312 Fabricated Structural Metal Manufacturing
332999 All Other Miscellaneous Fabricated Metal Product Manufacturing
333111 Farm Machinery and Equipment Manufacturing
333310 Commercial and Service Industry Machinery Manufacturing
334210 Telephone Apparatus Manufacturing
423830 Industrial Machinery and Equipment Merchant Wholesalers - 4
423930 Recyclable Material Merchant Wholesalers
541690 Other Scientific and Technical Consulting Services
811310 Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance

Mold / Tool / Die Makers

326199 All Other Plastics Product Manufacturing
327215 Glass Product Manufacturing Made of Purchased Glass
331210 Iron and Steel Pipe and Tube Manufacturing from Purchased Steel
333514 Special Die and Tool, Die Set, Jig, and Fixture Manufacturing - 3

Other

322130 Paperboard Mills
339950 Sign Manufacturing - 2

Plastics and Rubber Products

321918 Other Millwork (including Flooring)
325211 Plastics Material and Resin Manufacturing
326199 All Other Plastics Product Manufacturing - 10
333514 Special Die and Tool, Die Set, Jig, and Fixture Manufacturing - 2
423840 Industrial Supplies Merchant Wholesalers
424610 Plastics Materials and Basic Forms and Shapes Merchant Wholesalers - 2
Unclassified - 2

Small Machine Shops

332710 Machine Shops - 4
333243 Sawmill, Woodworking, and Paper Machinery Manufacturing
Unclassified - 2

Sports / Leisure

339992 Musical Instrument Manufacturing
713120 Amusement Arcades
Unclassified - 3

Transportation / Logistics / Supply Chain

423510 Metal Service Centers and Other Metal Merchant Wholesalers
Unclassified - 1

Wood Products

321113 Sawmills
321918 Other Millwork (including Flooring)
333243 Sawmill, Woodworking, and Paper Machinery Manufacturing
423310 Lumber, Plywood, Millwork, and Wood Panel Merchant Wholesalers
Unclassified - 2