Welcome

AI for Resilient Manufacturing Proposers Day

August 20, 2024

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY
U.S. DEPARTMENT OF COMMERCE

AI for Resilient Manufacturing - Proposers Day

Manufacturing USA Overview

Mike Molnar
Director, Office of Advanced Manufacturing
National Institute of Standards and Technology

August 20, 2024

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY
U.S. DEPARTMENT OF COMMERCE

Agenda

- Why Advanced Manufacturing?
- Mission, Vision, Goals
- Organization: Who is part of Manufacturing USA?
- Institute Design, How they Work
- Impacts and Benefits

Advanced Manufacturing Creates

ECONOMIC COMPETITIVENESS

INNOVATIVE PRODUCTS IN THE MARKETPLACE

NATIONAL SECURITY

AGILE, COST-EFFECTIVE MANUFACTURING PROCESSES

ENERGY SECURITY

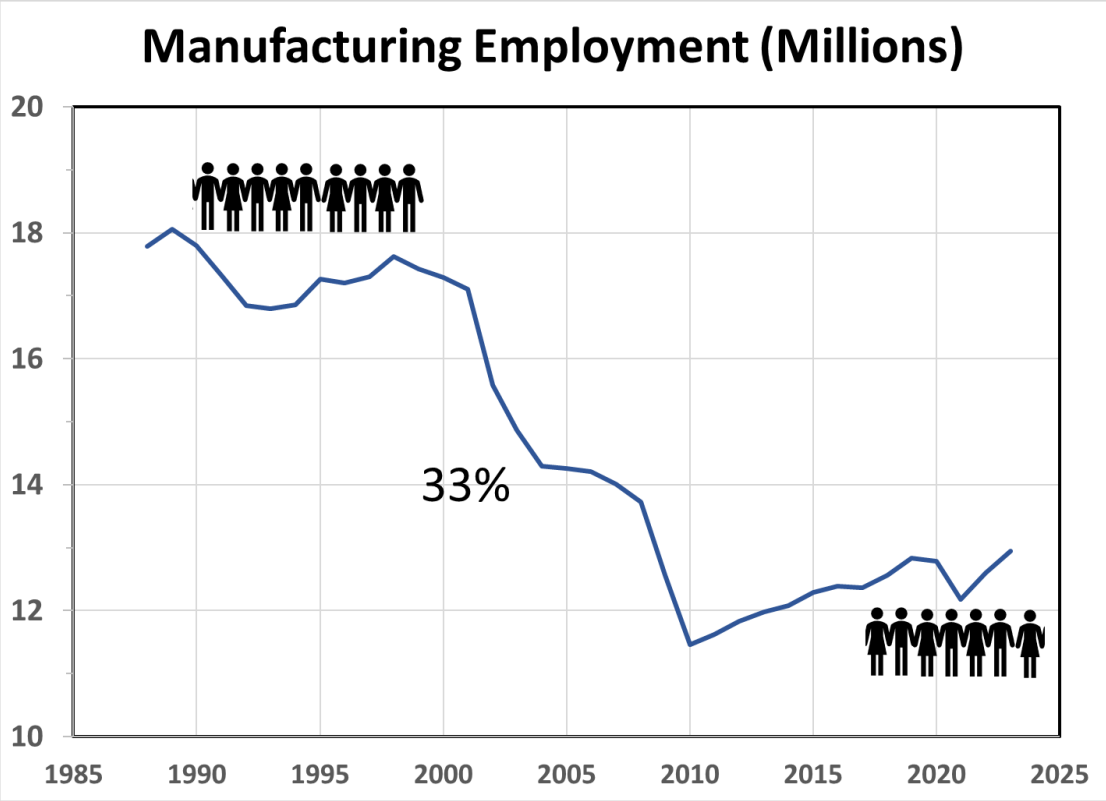
BUILDING A SUSTAINABLE FUTURE

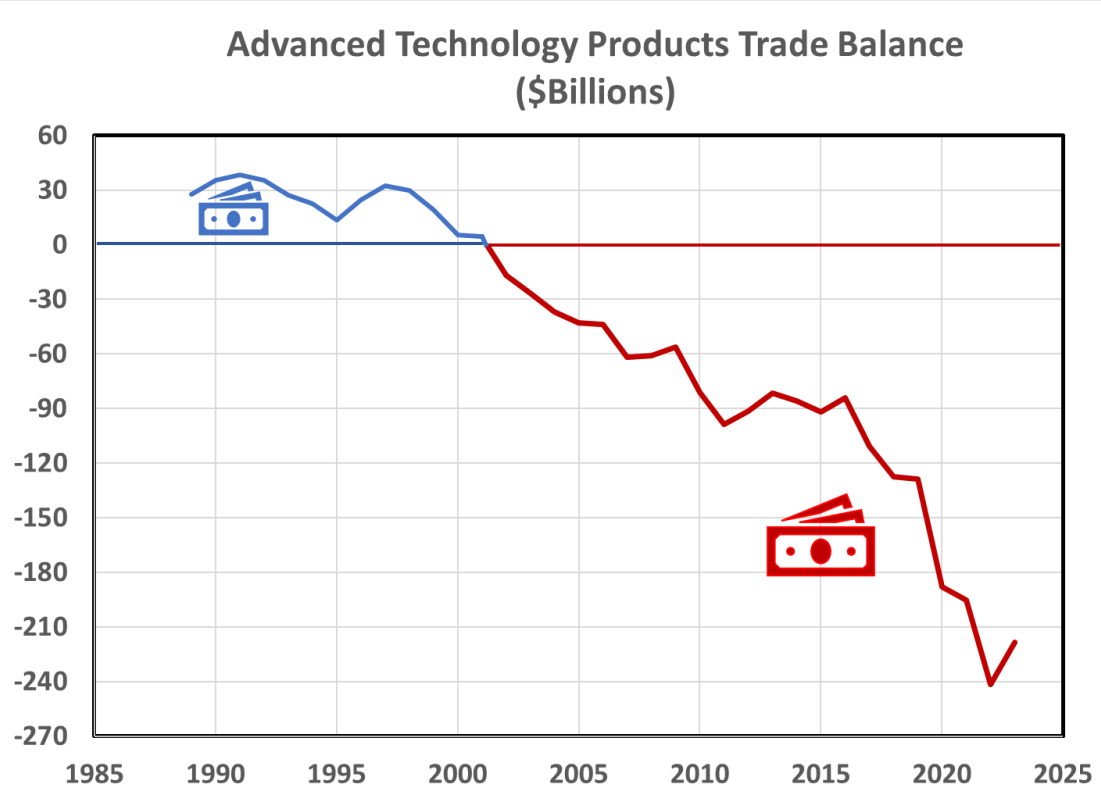
ManufacturingUSA

Economic Drivers

Advanced manufacturing has a key role in the U.S. innovation ecosystem

- Highest value manufacturing, supporting high wages
- Highest economic multiplier (4x to 12x)
- Greatest source of next innovation





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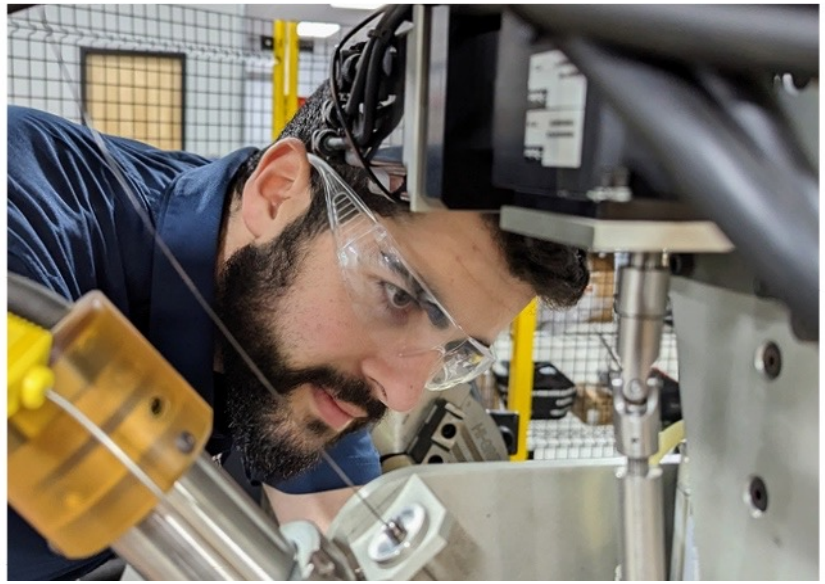
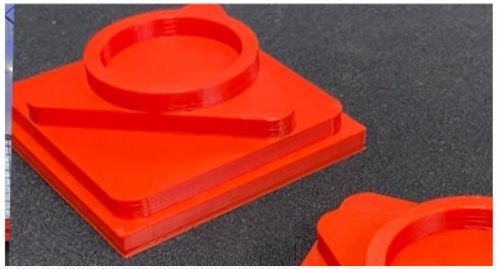
Invention to Production – Sustaining Innovation Leadership

- U.S. leads the world in innovation and invention
- Institutes were created to help ensure these inventions get out of the labs and turned into products **manufactured in the U.S.** – instead of other countries.



ManufacturingUSA




MANUFACTURING USA OVERVIEW









MFG USA Vision and Mission

VISION: Securing U.S. Global Leadership in Advanced Manufacturing

MISSION: Connecting people, ideas, and technology to:

- Solve industry-relevant advanced manufacturing challenges
- Enhance industrial competitiveness and economic growth
- Strengthen our economic and national security

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MFG USA Strategic Goals

GOAL 1

Increase the competitiveness of U.S. manufacturing

GOAL 2

Facilitate the transition of innovative technologies into scalable, cost-effective, and high-performing domestic manufacturing capabilities

GOAL 3

Accelerate the development of an advanced manufacturing workforce

GOAL 4

Promote a network of institutes that build long-term support for and from their communities

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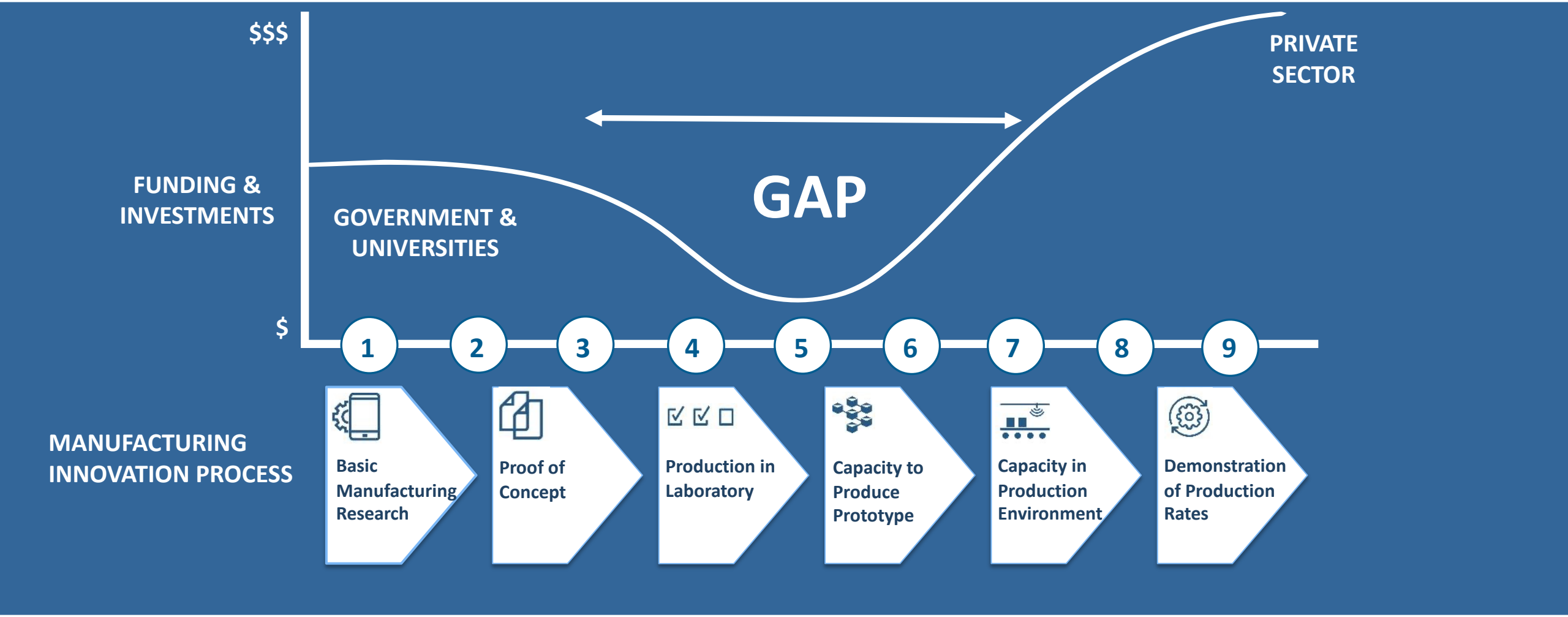
MFG USA: Expanding Industry Applied Research

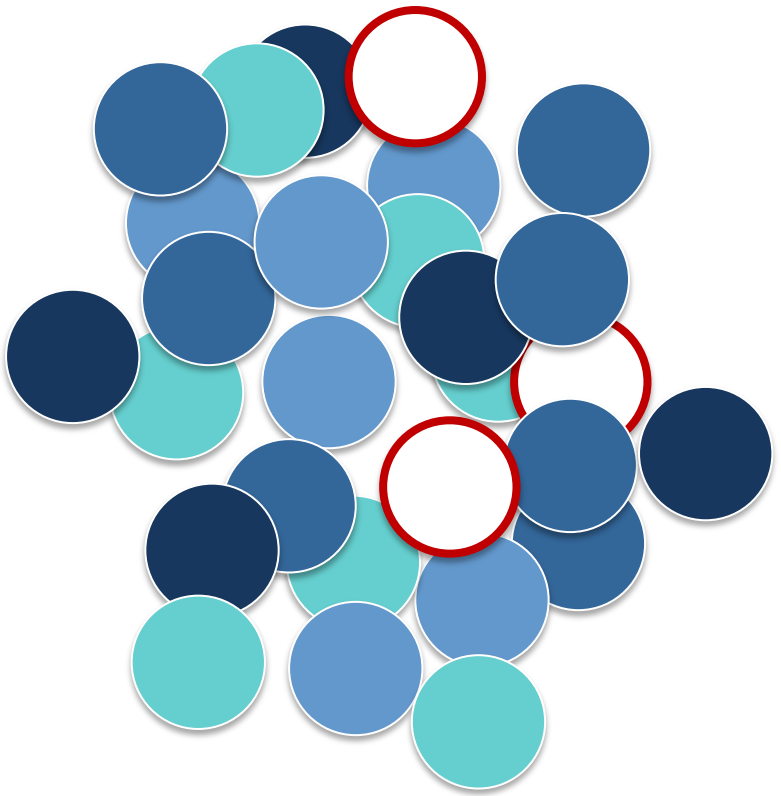


ManufacturingUSA

MFG USA: Building Advanced Manufacturing Ecosystems

Transformational change via collaboration

What are the existing ecosystem resources and capabilities?



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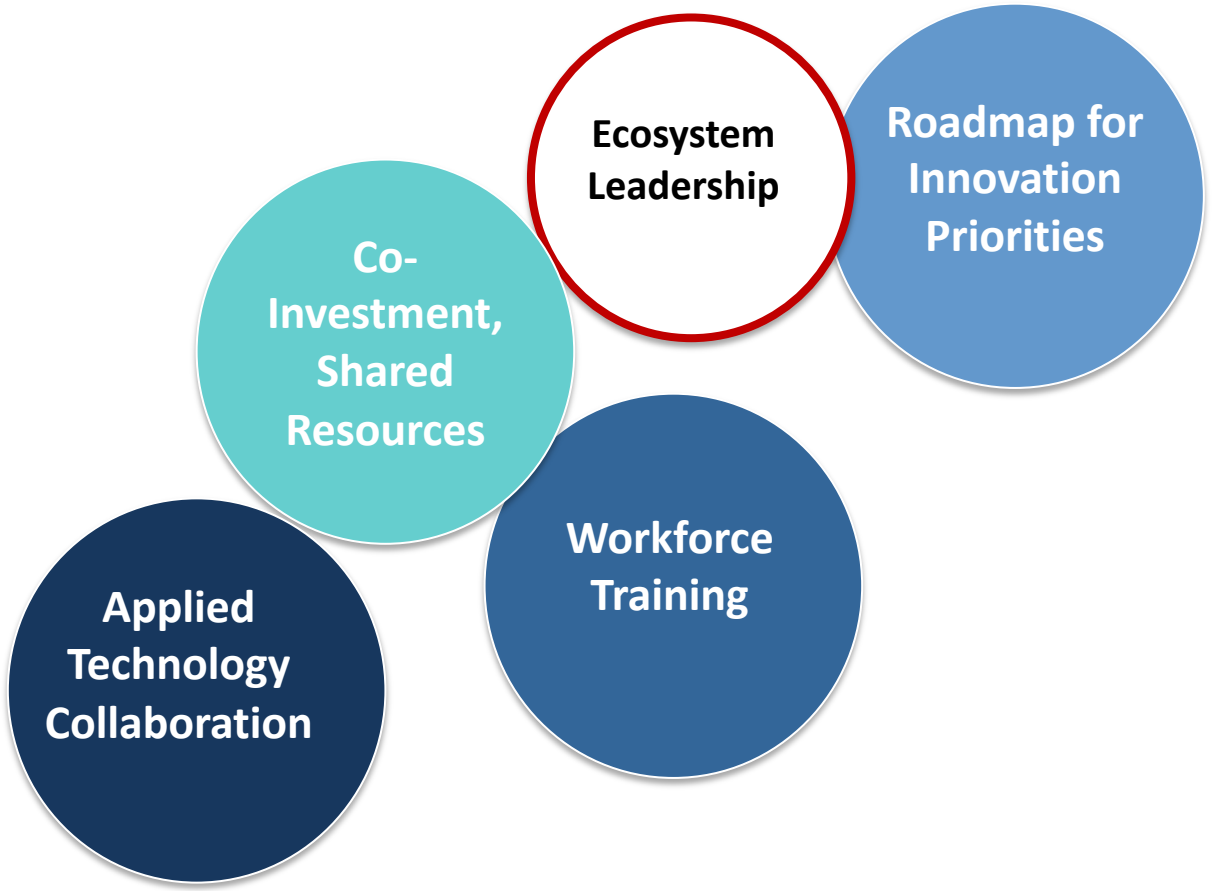
MFG USA: Building Advanced Manufacturing Ecosystems

Institute technology plan, business plan, and partnership plan

How can the institute effect transformational change by aligning shared needs and resources?



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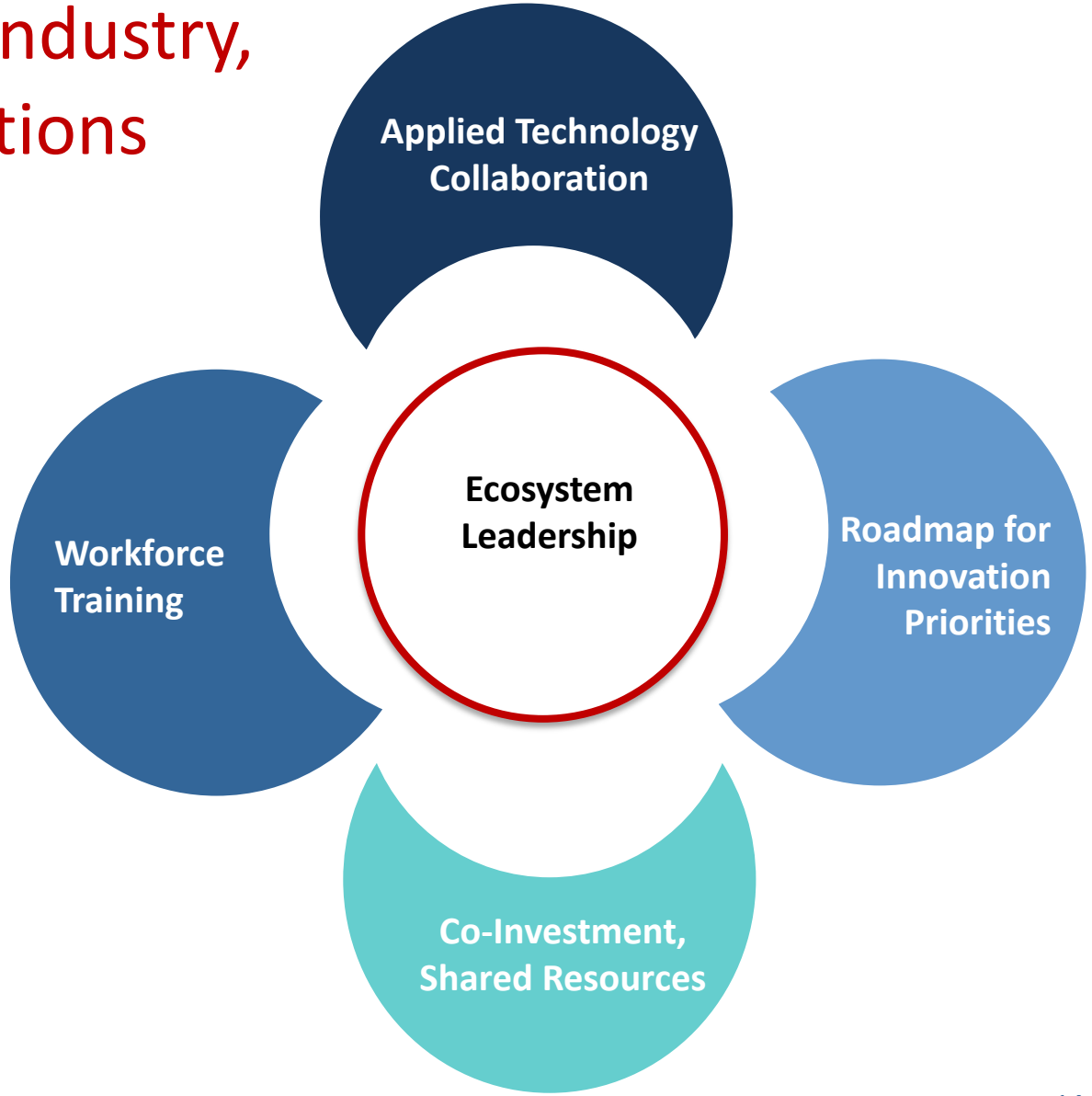
MFG USA: Building Advanced Manufacturing Ecosystems

Institutes convene a partnership of industry, academia, and stakeholder organizations

How can we integrate assets to create new, shared capabilities?



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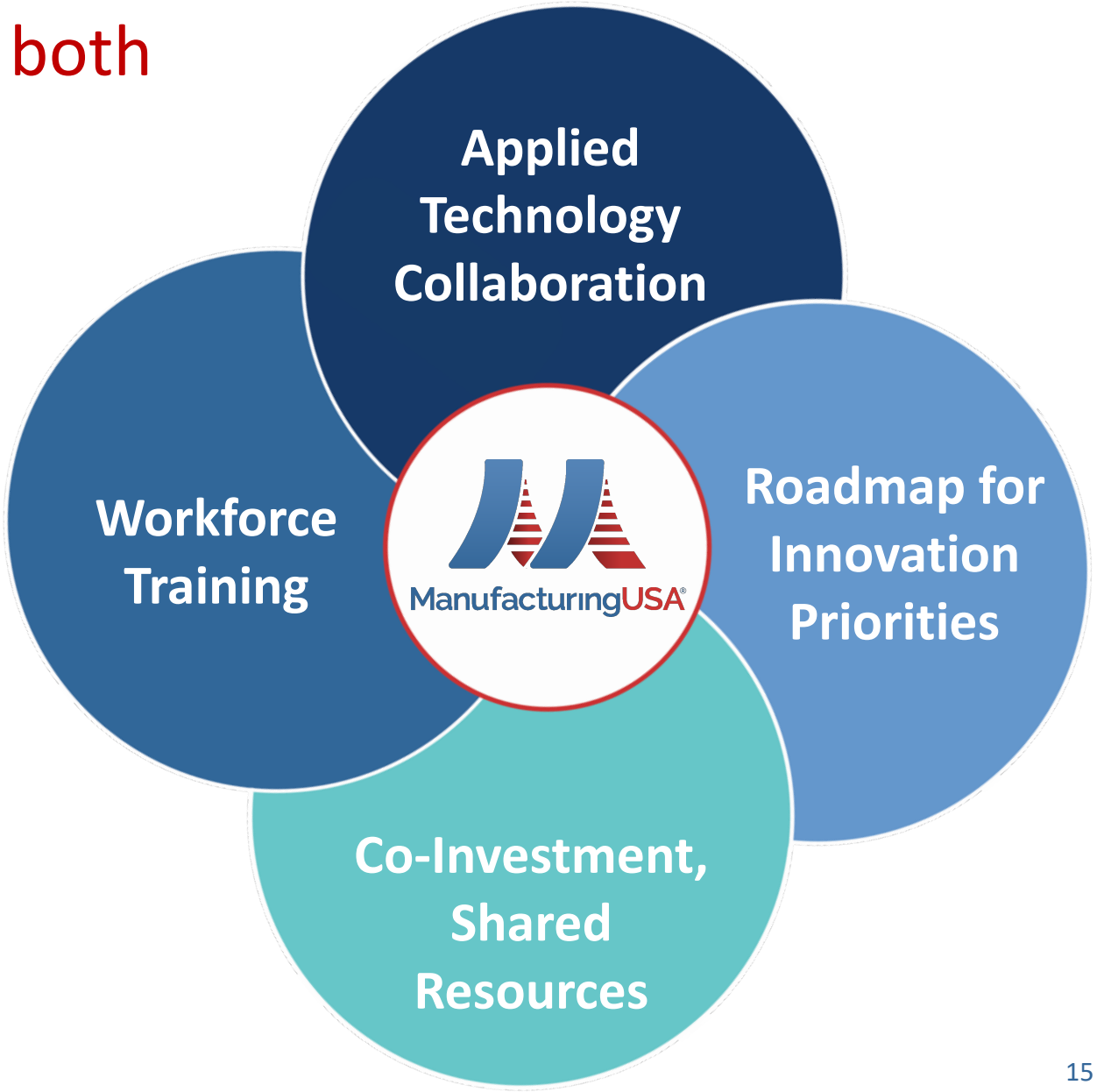
MFG USA: Building Advanced Manufacturing Ecosystems

Forging collaboration connections both inside and outside of the institute

How does the institute dynamically progress towards shared goals and addressing ecosystem needs?



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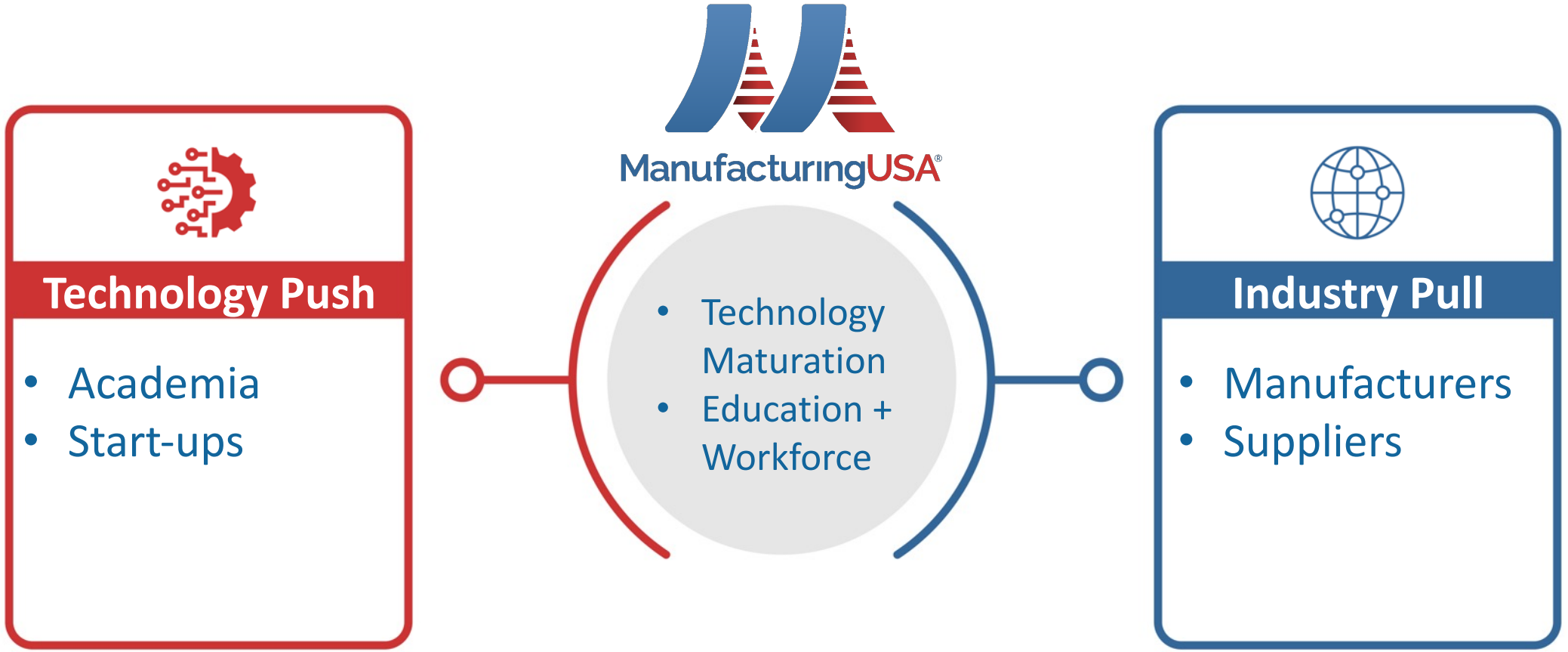
Partnership: Academia/Tech Providers + Industry/Tech Users



Balanced Portfolio of Institute Projects

Institute Led Projects

- Multi-year, cross-institute programs
- Shared testbeds
- High-cost, high co-investment
- Industry-defined user requirements

Member Led Projects

- Both Tech and Workforce
- Discrete projects proposed by small teams
- Short timelines, lower cost
- Co-investment about 1:1

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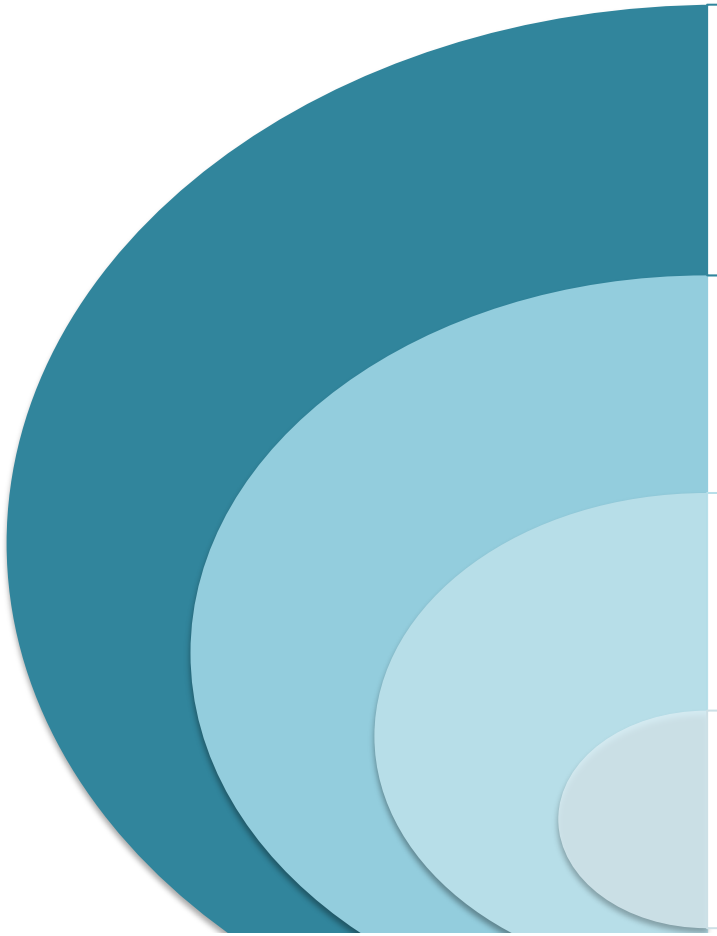
Examples of Institute Delivery Mechanisms



Derisked Technology	• Prototypes • Techno-economic Analyses • Quality Management Systems Compatibility
Shared research materials	• Open Source and Surrogate materials • Standards and best practices
Case studies, Roadmaps	• Industry Priorities • Commercialization Planning • Pathways to Funding
Education & Workforce Development	• Access to industrially relevant equipment and Training Curricula • Industry partnerships

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10 Years of Manufacturing USA

A growing network of 17 Industry-led Innovation Institutes

ELECTRONICS	AIM PHOTONICS — Integrated Photonics, *Albany, NY*, *Rochester, NY*	NEXTFLEX — Flexible Hybrid Electronics, *San Jose, CA*	PowerAmerica — Wide Bandgap Semiconductors, *Raleigh, NC*
MATERIALS	AFFOA — Advanced Fibers and Textiles, *Cambridge, MA*	The Composites iacmi Institute — Advanced Composites, *Knoxville, TN*, *Detroit, MI*	LIFT — Advanced Materials, *Detroit, MI*
ENERGY/ ENVIRONMENT	RAPID — Modular Chemical Process Intensification, *New York, NY*	REMADE INSTITUTE — Sustainable Manufacturing, *Rochester, NY*	CESMII — Smart Manufacturing, *Los Angeles, CA*; EPIC — Industrial Process Decarbonization, *Tempe, AZ*
DIGITAL/ AUTOMATION	America Makes — Additive Manufacturing, *Youngstown, OH*, *El Paso, TX*	ARM INSTITUTE — Advanced Robotics & AI, *Pittsburgh, PA*	MxD — Digital Manufacturing & Cybersecurity, *Chicago, IL*; CYMANII — Cybersecurity in Manufacturing, *San Antonio, TX*
BIO-MANUFACTURING	biofabusa — Regenerative Manufacturing, *Manchester, NH*	NIIMBL — Biopharmaceutical Manufacturing, *Newark, DE*	BioMADE — Bioindustrial Manufacturing, *St. Paul, MN*

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Upcoming NIST Institutes: Digital Twin for Semiconductor Manufacturing, CHIPS for America Artificial Intelligence for Resilient Manufacturing, NIST OAM

Manufacturing USA Network at a Glance

2022 Impacts

Work with

2,500+

Member Organizations

Collaborate on

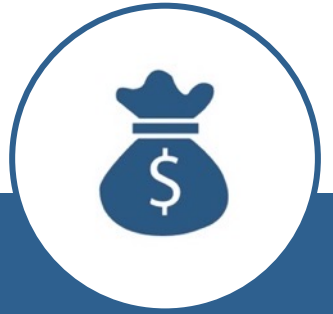
670+

major applied research and development projects

Engage

106,000+

people with workforce knowledge and skills in advanced manufacturing



Invest

$416M

in these activities from state, industry, and federal funds

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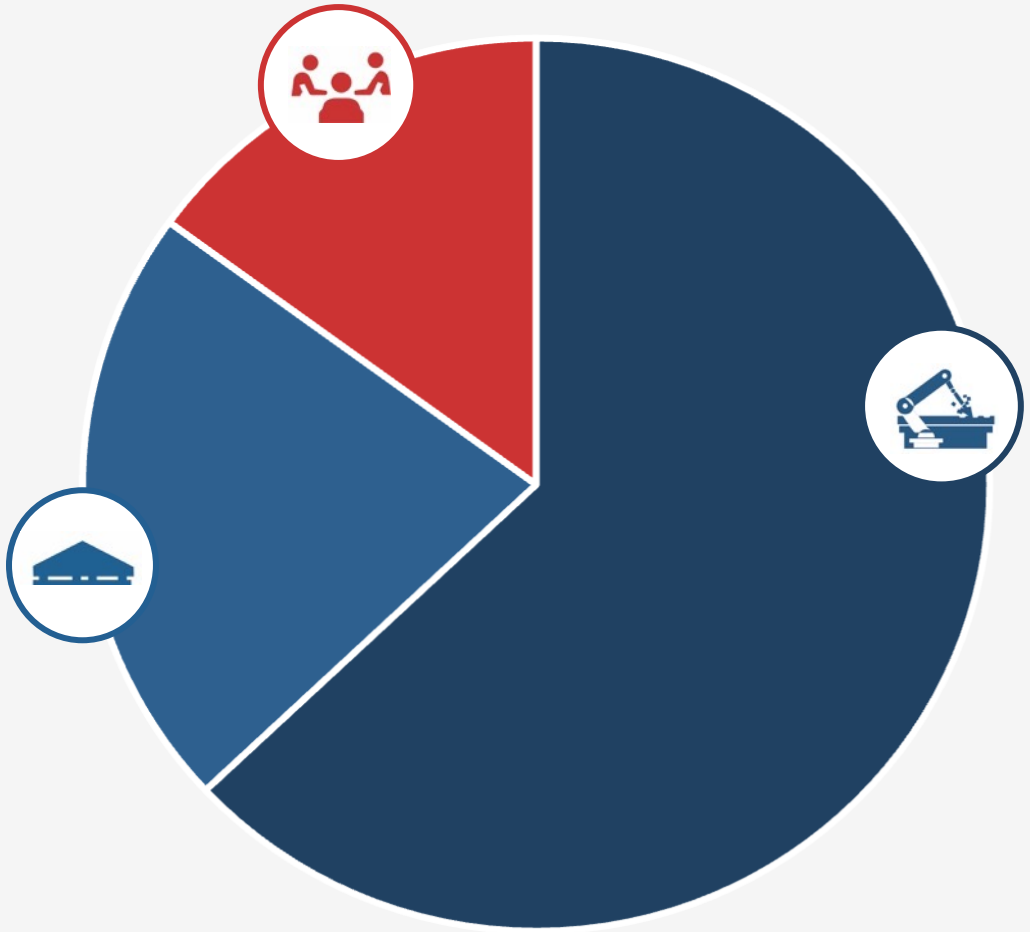
Our efforts help ensure **what's invented here is made here by a skilled American workforce.**

MFG USA Membership: Over 2,500 Organizations



63% Manufacturing Firms

72% are small and medium-sized

22% Community Colleges, Major Research Universities

15% State and Local Economic Development Entities

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MFG USA Technology Development: Over 670 Major Projects in the Pipeline

The institutes do impressive work to secure U.S. leadership in advanced manufacturing, develop advanced manufacturing technologies, empower the workforce, and build sustainable innovation ecosystems

CESMII – THE SMART MANUFACTURING INSTITUTE

Roadmap for Automotive Smart Manufacturing

ARM INSTITUTE

Advancing Robotics for Manufacturing Composite Materials

CYMANII – the cybersecurity manufacturing innovation institute

Saving Energy with Secure Digitization

lift – Where Manufacturing Technology and Talent Matter

Expanded Reach into Puerto Rico

MxD – The Digital Manufacturing & Cybersecurity Institute

Cyber Resource Hub

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MFG USA Education and Workforce Development Roadmap

Priority 1: Equip with Skills
Equip an advanced manufacturing workforce with evolving skills

Priority 2: Broaden Access
Broaden access to advanced manufacturing career pathways

Priority 3: Spark Interest
Spark interest in advanced manufacturing careers to secure a steady workforce talent pool

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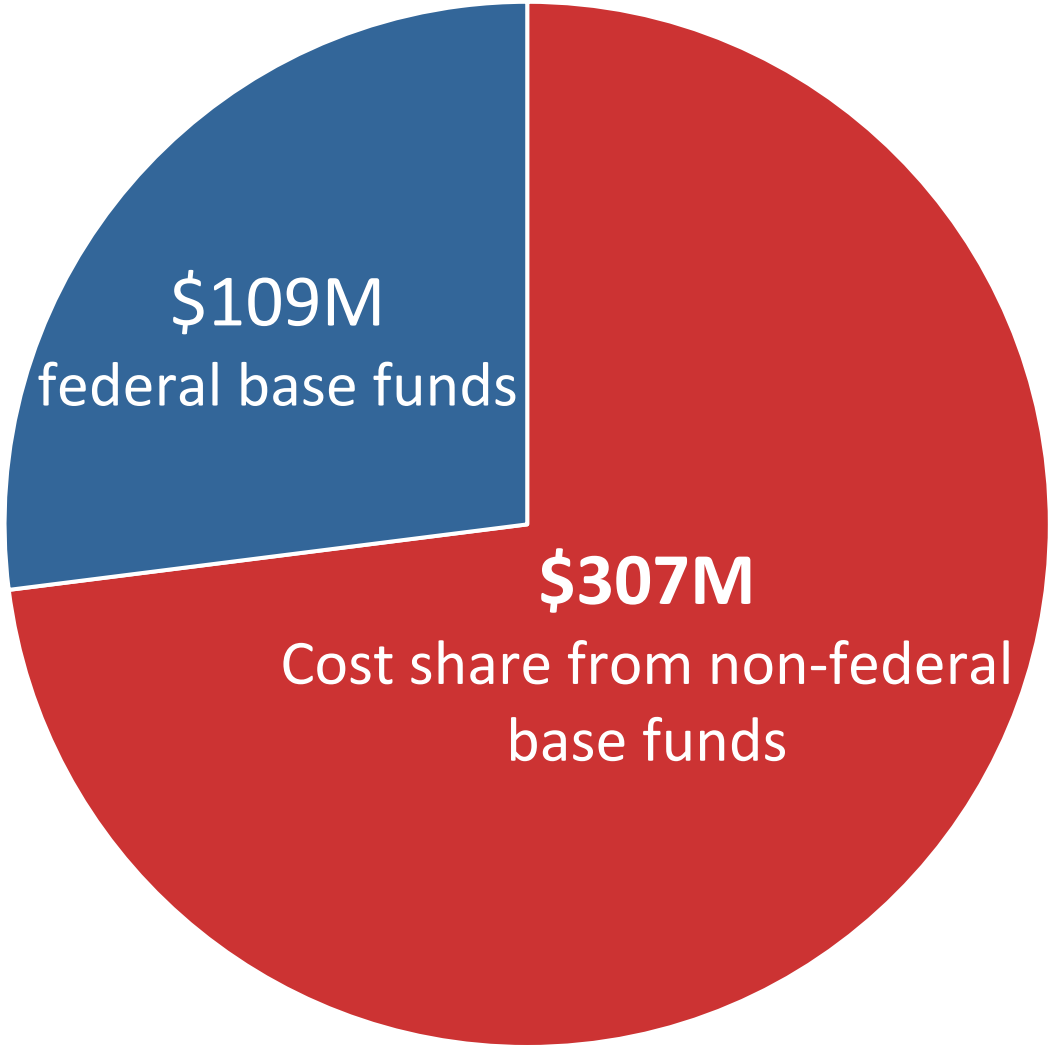
MFG USA Catalyzing Co-Investments



$416M Total Investments

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Example: Institutes Establishing New Ecosystems

National Institute for Innovation in Manufacturing Biopharmaceuticals (NIIMBL)

- **+200** members in **+25** states
- **3:1** co-investment from non-federal partners last year
- **Institute footprint of $582M**

Chrysler purchased the land in Newark, DE in 1938

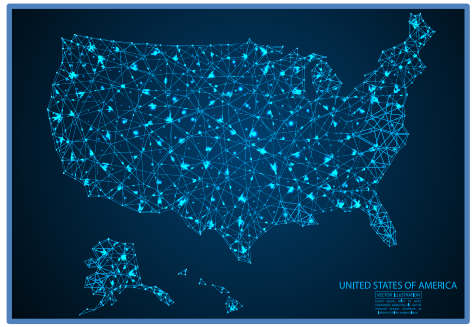
Plymouth and Dodge manufacturing

University of Delaware purchased the site in 2009

NIIMBL headquarters 2022

MFG USA Program Office Supporting the Network

Convene, Coordinate, Support Manufacturing USA



Public Service Award Funding

Cross-Network Coordination, including new Manufacturing USA Council

Advanced Manufacturing Education and Workforce Development

Shared Resources and Services

Triennial Strategic Plan + Annual Report to Congress

Information to the Public, including ManufacturingUSA.com

NIST-Sponsored Manufacturing USA Institutes

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New NIST Manufacturing USA Institute Competitions

Digital Twins for Semiconductor Manufacturing Institute

$285 million federal award

Award Announcement scheduled for later this year

AI for Resilient Manufacturing Institute

$70 million federal award

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MFG USA: Building the Future Through Collaboration Partnerships

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Get Involved: ManufacturingUSA.com @MFGUSA MFGUSA

AI for Resilient Manufacturing - Proposers Day

Scope of the Notice of Funding Opportunity

Kelley Rogers, Ph.D.
Deputy Director, Office of Advanced Manufacturing
National Institute of Standards and Technology

August 20, 2024

NIST NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY
U.S. DEPARTMENT OF COMMERCE

Opportunity

VISION: Securing U.S. Global Leadership in Advanced Manufacturing

AI is a disruptive technology - nations that can deploy AI safely in industrial applications will have a global competitiveness and national security advantage.

AI in a Market-Driven Economy

ISO Definition of Artificial Intelligence (AI):

A technical and scientific field devoted to the engineered system that generates outputs such as content, forecasts, recommendations, or decisions ***for a given set of human-defined objectives.***

[ISO/IEC 22989:2022]

Human-defined objectives are often limited by self-interest.

Opportunity

Executive Order on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence

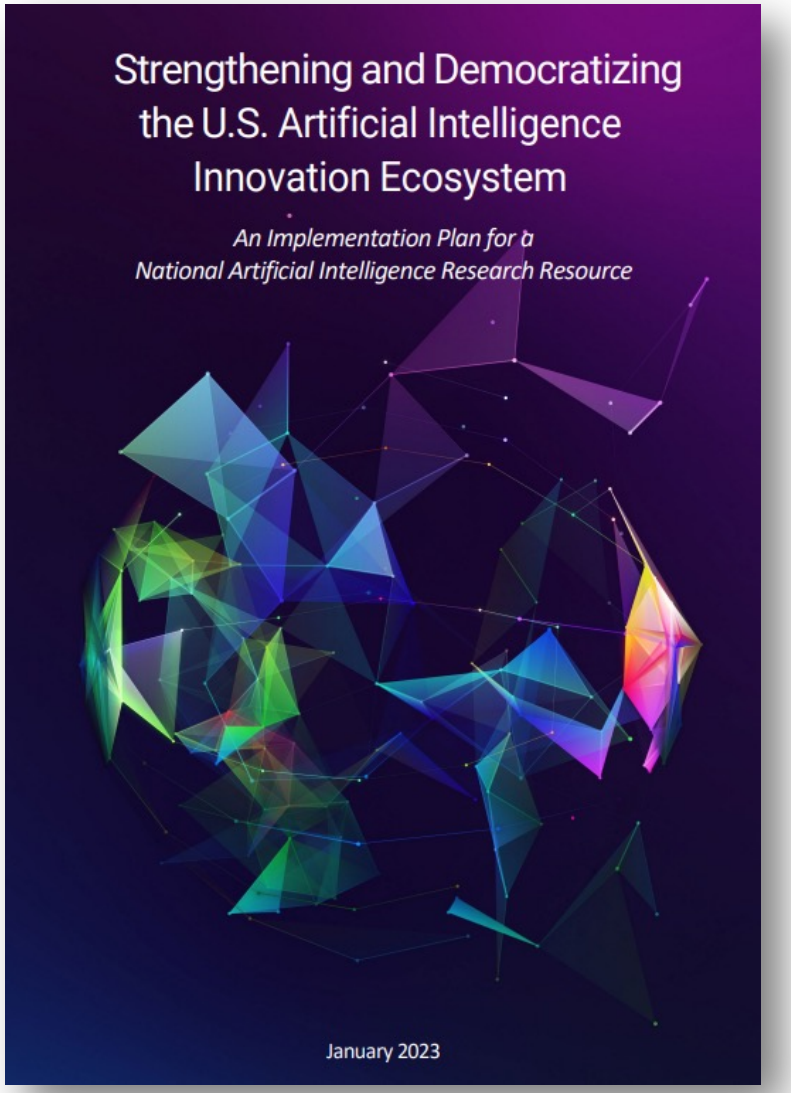
October 30, 2023

POLITICO: https://www.politico.com/news/2023/10/30/bidens-executive-order-artificial-intelligence-00124395. October 30, 2023

Other Federal AI Efforts: NAIRR

National Artificial Intelligence Research Resource (NAIRR) Pilot Program

- Directed by 2023 Executive Order
- National infrastructure that provides AI resources and tools to the research and education community
- NSF-led with 12 federal agencies and 26 non-governmental partners
- Two-year pilot to support fundamental, translational, and use-inspired AI research

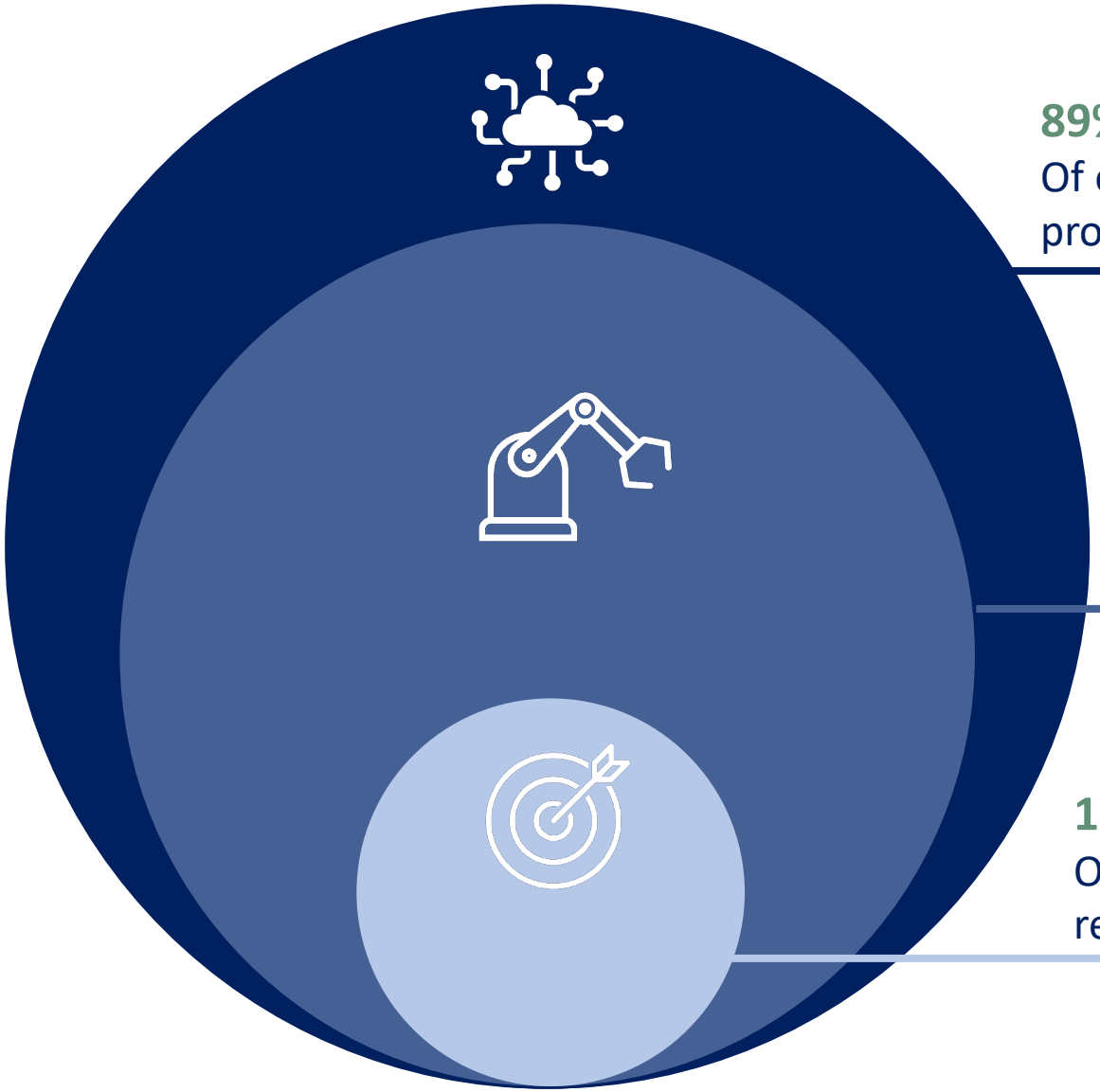


NAIRR: https://nairrpilot.org/

Benefits of AI in Manufacturing

- Product Innovations
- Enhanced Decision Making
- Business Transformation
- Improved Productivity and Efficiency
- Reduced Operational Cost
- Data-Driven Business Models
- Strengthen Resilience
- Enhanced Supply Chain
- Employee Experience
- New Skill Acquisition
- Improved Quality Control
- Predictive Maintenance

Industry Outlook for AI in Manufacturing



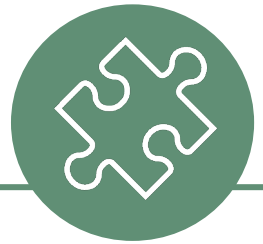
89%
Of executives aim to implement AI into their production

68%
Of manufacturers have already started their AI journey and have fully implemented at least one AI use case

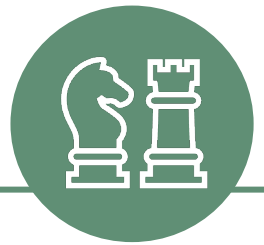
16%
Of AI adopters have successfully achieved their AI related targets

Credit: Harnessing the AI Revolution in Industrial Operations: A Guidebook; World Economic Forum and Boston Consulting Group; October 2023

Barriers to AI Adoption in Manufacturing



Mismatch between AI capabilities and operational needs



Absence of a strategic approach and leadership communication

Insufficient skills at the intersection of AI and operations

Data availability and absence of a data governance structure

Lack of explainable AI models in manufacturing

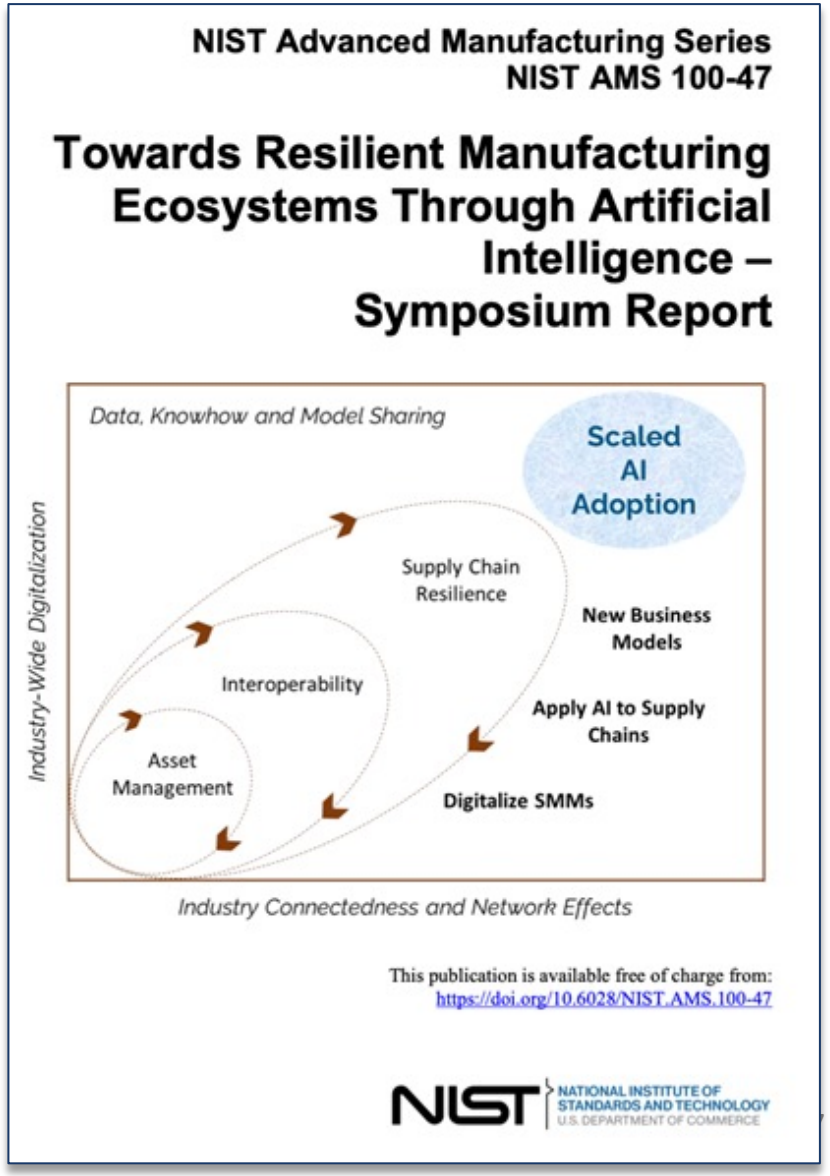
Significant customization efforts across manufacturing use cases

Adapted from: World Economic Form: Unlocking Value from Artificial Intelligence in Manufacturing

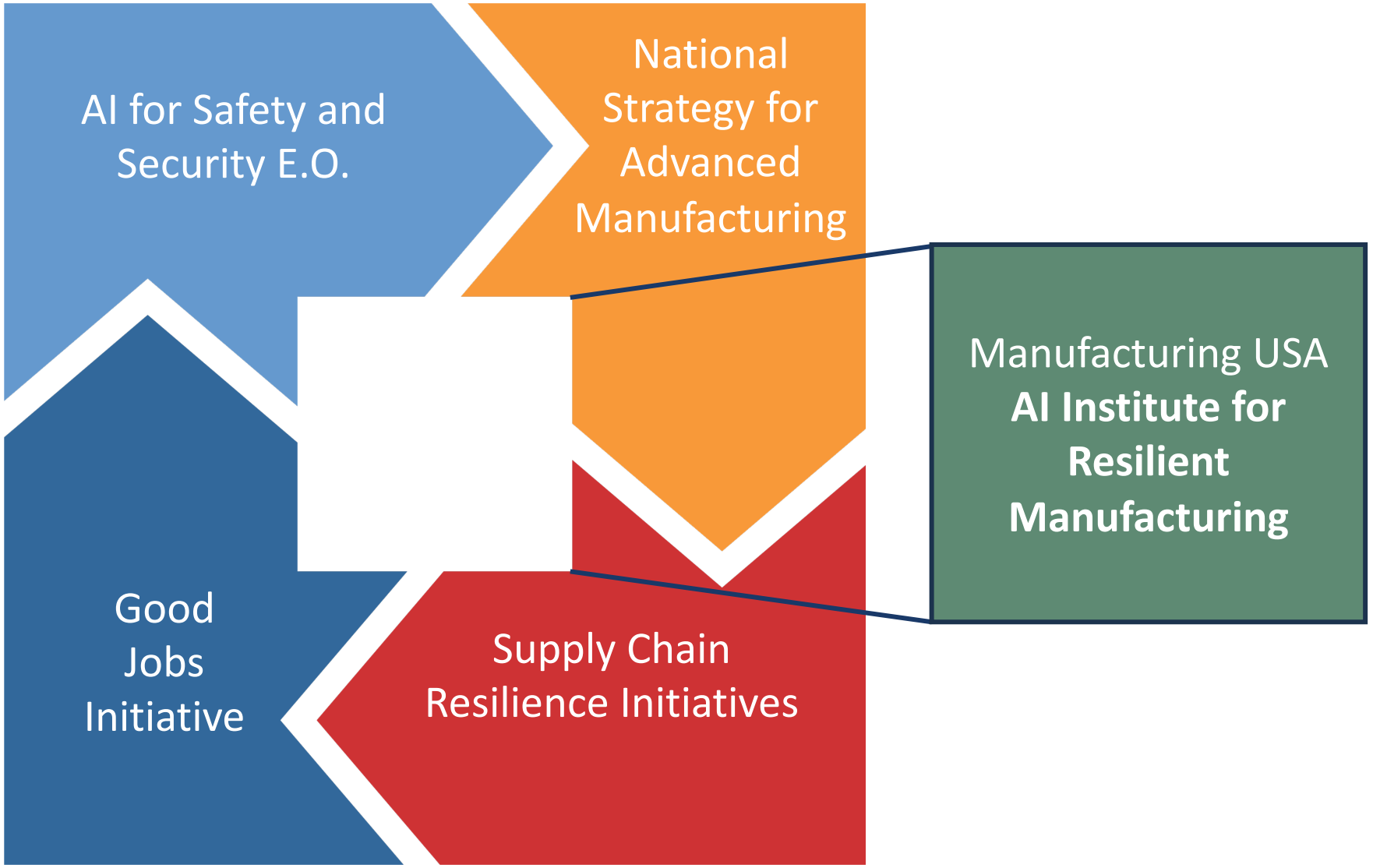
Resilient Manufacturing Ecosystems through AI

Recommendations for the adoption of AI in manufacturing

- Public Private Partnerships
- AI Software Tools, Models, and Infrastructure
- Scaling and Deployment
- Manufacturing Workforce
- Small and Medium-sized Manufacturers
- AI Adoption Throughout Established Supply Chains
- New Business Models



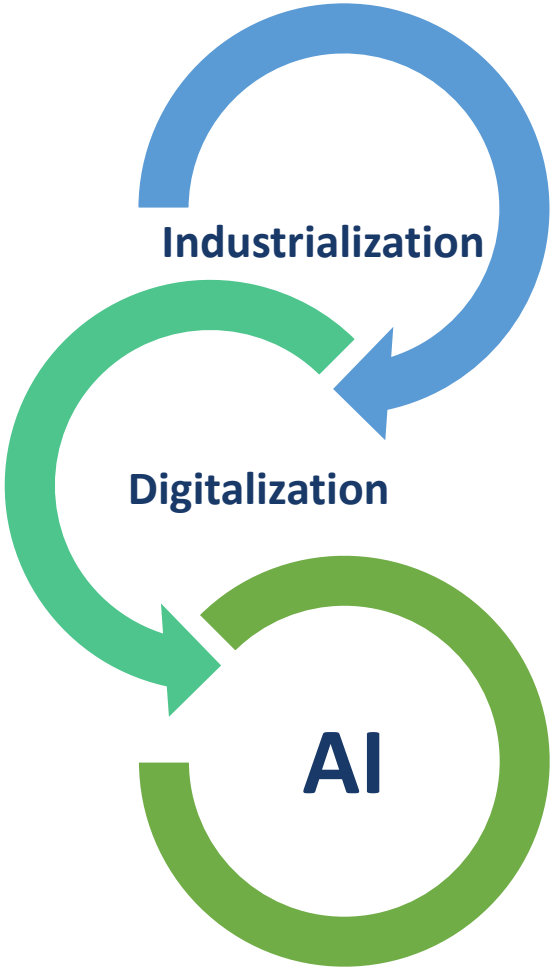
Convergence on National Priorities



Federal Drivers for AI in Manufacturing

Timely opportunity and need for the U.S. Government to be a catalyst to ensure that AI innovation for manufacturing:

- Addresses **resilience**, not just cost/quality/agility
- Is implemented responsibly and reliably
- Is trusted and accessible
- Benefits domestic manufacturers, suppliers, and workers



Small to Medium Manufacturers

- Nearly 75% of the U.S. manufacturing sector is made up of companies with fewer than 20 employees
- Small to medium-sized manufacturers generate half of all industrial output and employ close to 9% of the U.S. workforce
- **U.S. economic competitiveness requires that AI tools reach domestic small manufacturers and suppliers**

https://nam.org/manufacturing-in-the-united-states/facts-about-manufacturing-expanded/

AI for Resilient Manufacturing

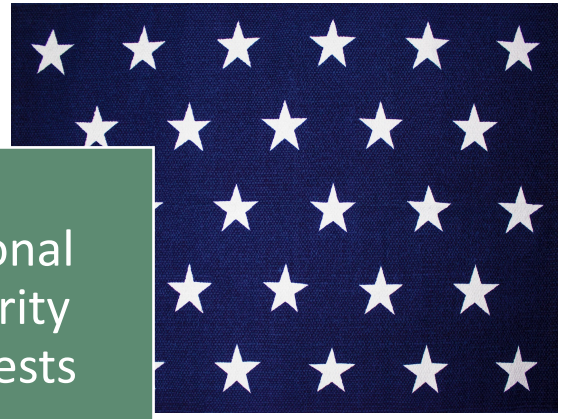
Resilience: *the ability of a given system to prepare for and adapt to unexpected events; to quickly adjust to sudden disruptive changes that negatively affect performance; to continue functioning during a disruption (sometimes referred to as "robustness"); and to recover quickly to its pre-disruption state or a more desirable state.*

-*Adapted from Brookings Institute*
How to build more secure, resilient, next-gen U.S. Supply Chains
Dec. 3, 2020

Credit: Adobe Stock

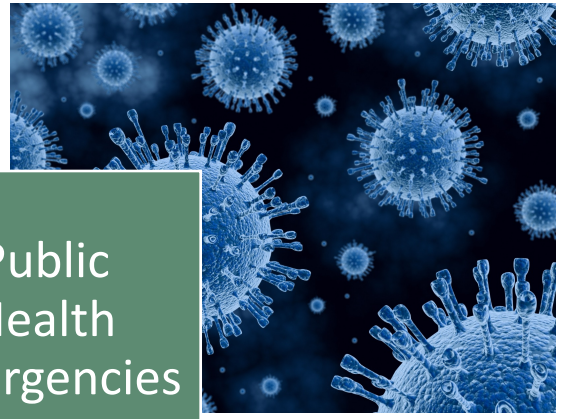
Examples of Resilience Drivers

National Security Interests



Extreme Climate Events

Public Health Emergencies

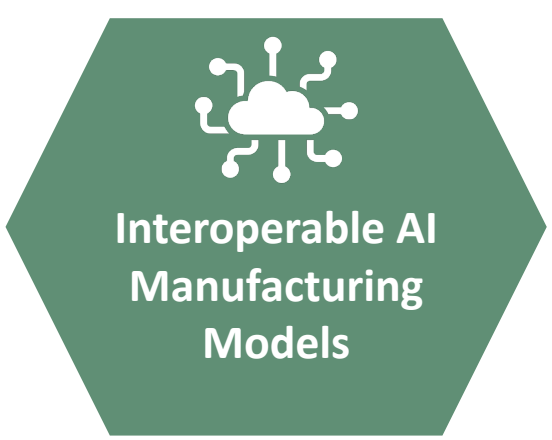


Infrastructure Failures

Energy Sustainability

Equity/Just Transitions

Ecosystem Wide Benefits



Competition Outcome: Ecosystem Leadership

Competition will select the applicant most capable of establishing and leading an innovation ecosystem that will accelerate the use of AI for manufacturing applications

Partnership with capabilities to meet industry's technical priorities for innovation

Partnership to develop industrially relevant Education and Workforce Development training resources

Governance, operational, business development capabilities

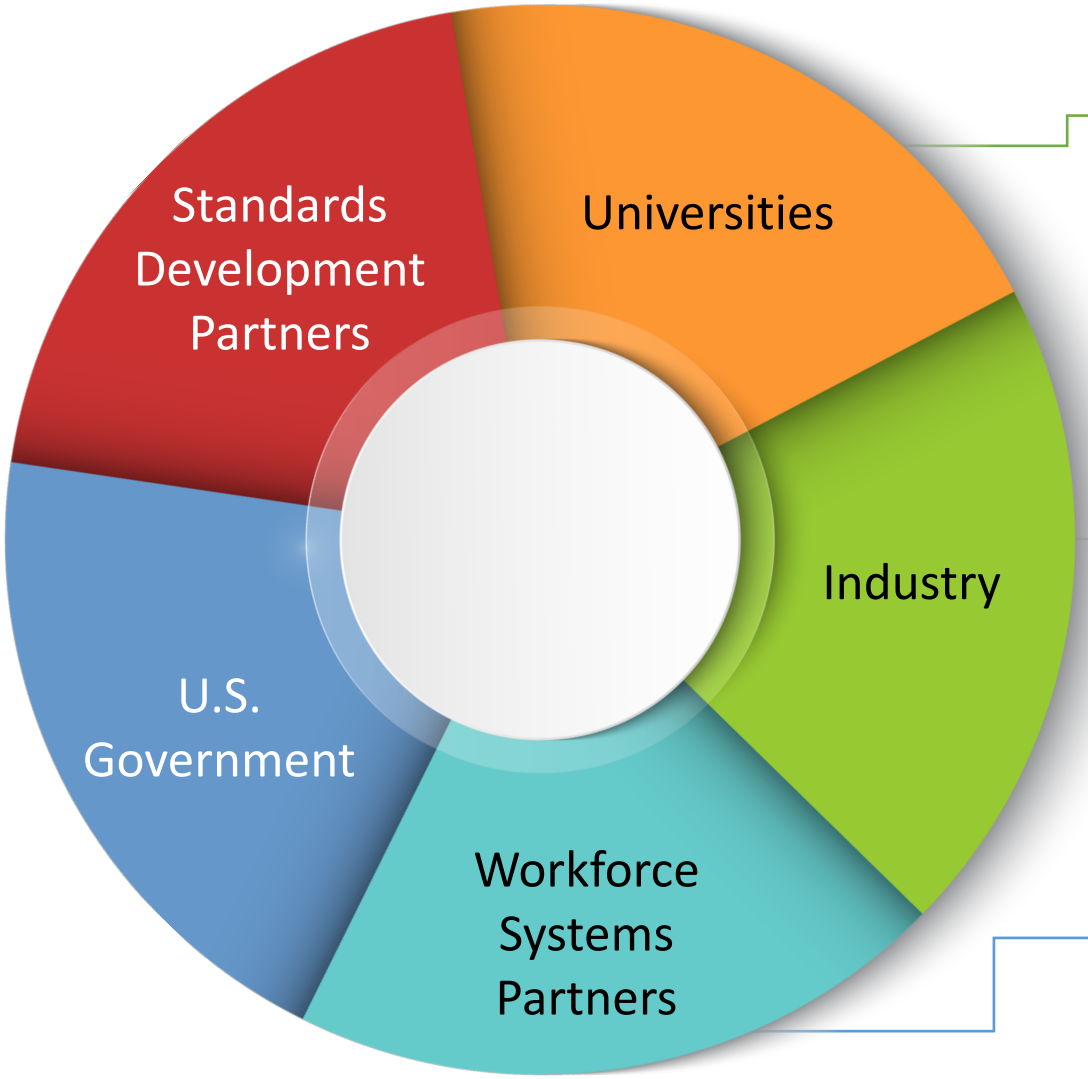
Applicant Flexibility: Focus Area

- Rapid qualification
- Working capital needs
- Supply chain networks
- Predictive maintenance
- Process efficiency and robustness

Applicants have the flexibility to propose a wide range of potential topics using AI as a tool to address resilience of manufacturing

Examples are solely for illustrative purposes

Ecosystem-Level Partners



AI Tools, R&D, Workforce Training, etc.

Manufacturers, Supply Chain and Process Optimization Vendors, Software Developers, Suppliers, etc.

Community Colleges, Labor Unions, Trade Schools, State Economic Development Entities, etc.

Critical Partners for:

- Key Expertise
- Cost share required
- Impact

Elements of a Complete and Competitive Application

Lisa Fronczek, Acting Division Chief

Program Operations, Office of Advanced Manufacturing

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U.S. DEPARTMENT OF COMMERCE

Constraints and Legal Disclaimer

If there is a discrepancy between what is presented here, in the published funding opportunity, or in the corresponding Notice of Intent, the published funding opportunity controls.

Funding and Period of Performance

- $70M over 5-7 years
- Minimum of 1:1 Non-federal cost share required by statute
- Potential for renewal after initial award

Two Stage Competition

Stage 1: Concept
Summer 2024

- Publication of NOFO
- Submission of Concept Papers
- Merit Reviews

Stage 2: Full Proposal
Fall 2024 – Winter 2025

- Invitations to Submit Full Proposals
- Merit Reviews
- Site Visits TBD

Award selection and announcement anticipated in Spring 2025, subject to successful negotiations of terms and conditions

Eligibility

Open to all non-federal entities

Excluding individuals or sole-proprietors
Excluding foreign entities
Excluding existing Manufacturing USA institutes
Excluding FFRDCs

Lead applicant is limited to a single concept submission

- ✓ Limit only applies to lead applicant entity
- ✓ Entities may be a partner on multiple proposals

Applicant Flexibility

- Applicants for this upcoming funding opportunity may choose:
  - A specific industrial sector (or cluster of sectors) of focus for the proposed institute, **or** a focus on cross-cutting tools that may be tailored for more than one industrial sector
  - Specific application area(s) within the broader topic of AI for Resilient Manufacturing

- Regardless of the applicant's choice, applicants will be required to define clear time-bounded deliverables

Non-Duplication Requirement

As **required** by the Manufacturing USA authorizing statute, NIST will ensure that the AI for Resilient Manufacturing institute *will not substantially duplicate* the work of the existing network of institutes.

Applicants are encouraged to familiarize themselves with the scope of the existing 17 Manufacturing USA institutes, as well as the planned CHIPS-funded Digital Twins for Semiconductor Manufacturing institute* prior to developing concepts.

*** Funding opportunity launched May 2024**

Concept Paper Requirements

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What is a concept paper?

Concept Paper Requirements

- *Standard Funding Form* – SF 424 R&R
- *Technical Narrative*
  - Executive Summary (2 pages)
  - Concept Paper Narrative (20 pages)
  - Budget – Rough Order of Magnitude (ROM)

Executive Summary

- Summary/abstract of the proposed effort (**2 pages**)
- Things to include:
  - Name of applicant
  - Director/Principal investigator(s)
  - Title
  - Objectives
  - Description
  - Methods to be employed
  - Potential impact (benefits & outcomes)
  - Major participants (for collaborative activities)
- Do **NOT** include proprietary or sensitive business information

Concept Paper Narrative

- No more than **20 pages** single-spaced
  - Includes graphs, images, etc.
  - Any more than 20 pages will be redacted for reviewers
- Narrative Components
  - Proposed AI Manufacturing USA institute
  - Description of how the proposed institute will be **non-duplicative** and complementary to the work within the existing network

Budget Information

- Rough Order of Magnitude (ROM)
- Anticipated expenses for institute's initial award period
- Things to keep in mind:
  - Budget for cost increases over the lifetime of the award
  - Include cost of living adjustments

Proposal Components

Cost-Share Requirements

- Definition – portion of the project **not** paid by federal funds
- Non-federal dollars must be greater than or equal to federal (> 1:1 matching)
- Applicant must demonstrate
  - Commitment of cost-share specified (letters of commitment)
  - Sufficiency and availability of committed cost share from non-federal sources
  - Extent to which cost share is accessible and useful in conducting the work of the institute
- Types
  - Cash - cash contributed to the project
  - In-kind -Non-cash contributions (e.g., Equipment and/or services)

Why the Need for Cost-Share?

Goal: *stable and sustainable business model to mitigate need for long-term federal funding*

Credit: Adobe Stock

Integrated Education and Workforce Development

Manufacturing USA institutes must develop integrated Education and Workforce Development (EWD) portfolios to keep pace with technology deployment

Research Security – Full Proposal

Research security is technology protection in action. It provides a localized first line of defense, employing balanced risk management protocols that safeguard science and innovation by mitigating foreign threats to critical and emerging technologies and the underlying scientific research ecosystem

AI Risk Management – Full Proposal

To help developers, users, and evaluators of AI systems better manage AI risks that could affect individuals, organizations, society, or the environment

Data Management Plan – Full Proposal

1. Who is involved in the research

2. The overall intent of your research (for yourself and others)

3. An outline of what kind of data you'll gather and about how much

4. Where you'll store the data during the research and in the future

Credit: Adobe Stock

Supplemental Resources

Competition Resources and sample templates are available online to aid in the development of the request proposal information.

Disclaimer: The NOFO contains all the application requirements. Applicants are not required to use the templates on this page, which is provided for your convenience. However, applicants must ensure their application materials contain all required information as specified in the NOFO.

Advice from Alexander Graham Bell

Before anything else, preparation is the key to success.

Application Evaluation Process

Lisa Fronczek, Acting Division Chief

Program Operations, Office of Advanced Manufacturing

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY
U.S. DEPARTMENT OF COMMERCE

Competition Milestones

Concept Papers	Full Proposal Applications	Selection
September 30, 2024	**January 2025**	**Earliest March 2025**
• Administrative Review • Merit Reviews (at least 3) • Evaluation Panel • Invitations for applicants to submit Full Proposals	• Administrative Review • Merit Reviews (at least 3) • Evaluation Panel • Site Reviews, for some	• Selecting Official – review feedback and **Selection Factors** • Recommendation to NIST Grants Management Division (GMD) • Award (subject to negotiation)

Differences in Evaluation Criteria Between Concept Paper vs. Full Application

Evaluation Criteria	Concept Paper	Full Application (invitation only)
Potential to Fulfill a Recognized National Need with Substantial Broad-Based Benefits and Demonstrated Industry Leadership	✓	✓
Proposed Manufacturing USA Institute	✓	
Institute Operations and Management		✓
Education and Workforce Development		✓
Leadership, Capabilities, Qualities, and Experience		✓
Resources, Qualifications, and Experience	✓	
Resources, Cost-share, and Sustainability		✓

National Need, Broad-based Benefits, and Industry Leadership (40 pts)

Mission and
Technical Scope

National Impact and
Broad-Based Benefits

Leadership and Involvement
Across the Ecosystem

National Need, Broad-based Benefits, and Industry Leadership (40 pts)

Mission and Technical Scope

National Impact and Broad-Based Benefits

Leadership and Involvement Across the Ecosystem

The quality, innovativeness, and merit of the mission and technical scope of the proposed AI Manufacturing USA Institute and its potential impact on the resilience of US Manufacturers

National Need, Broad-based Benefits, and Industry Leadership (40 pts)

Mission and Technical Scope

National Impact and Broad-Based Benefits

Leadership and Involvement Across the Ecosystem

Magnitude, quality, and likelihood of the envisioned national impacts and broad-based benefits that would arise from the proposed Institute.

National Need, Broad-based Benefits, and Industry Leadership (40 pts)

Mission and Technical Scope

National Impact and Broad-Based Benefits

Leadership and Involvement Across the Ecosystem

Quality, magnitude, adequacy, and evidence of leadership and involvement from academia and especially industry, assembled to date, towards creating a sustainable and equitable AI for Manufacturing USA institute.

Proposed Manufacturing USA Institute (30 pts)

BUSINESS PLAN

Conceptual vision and plan of the institute's business structure, organization, management, and operations model.

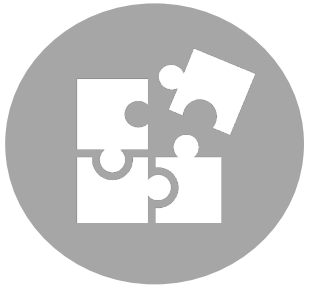
EDUCATION AND WORKFORCE DEVELOPMENT

Conceptual vision and plan for the proposed institute's integrated education and workforce development.

Resources, Qualifications, and Experience for the Proposed Institute (30 pts)

Rough Order Of Magnitude (ROM) Budget

The appropriateness and cost-effectiveness of the ROM budget with respect to carrying out the work and objectives as described in the program narrative.

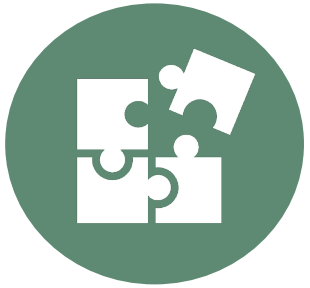


Cost-Share Or Matching

Qualifications, And Experience

Resources, Qualifications, and Experience for the Proposed Institute (30 pts)

Rough Order Of Magnitude (ROM) Budget



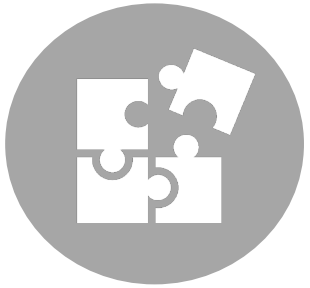
Cost-Share Or Matching

The evidence, quality, reasonableness, and sufficiency of the financial commitment from partners assembled to date, for establishing the proposed institute

Qualifications, And Experience

Resources, Qualifications, and Experience for the Proposed Institute (30 pts)

Rough Order Of Magnitude (ROM) Budget



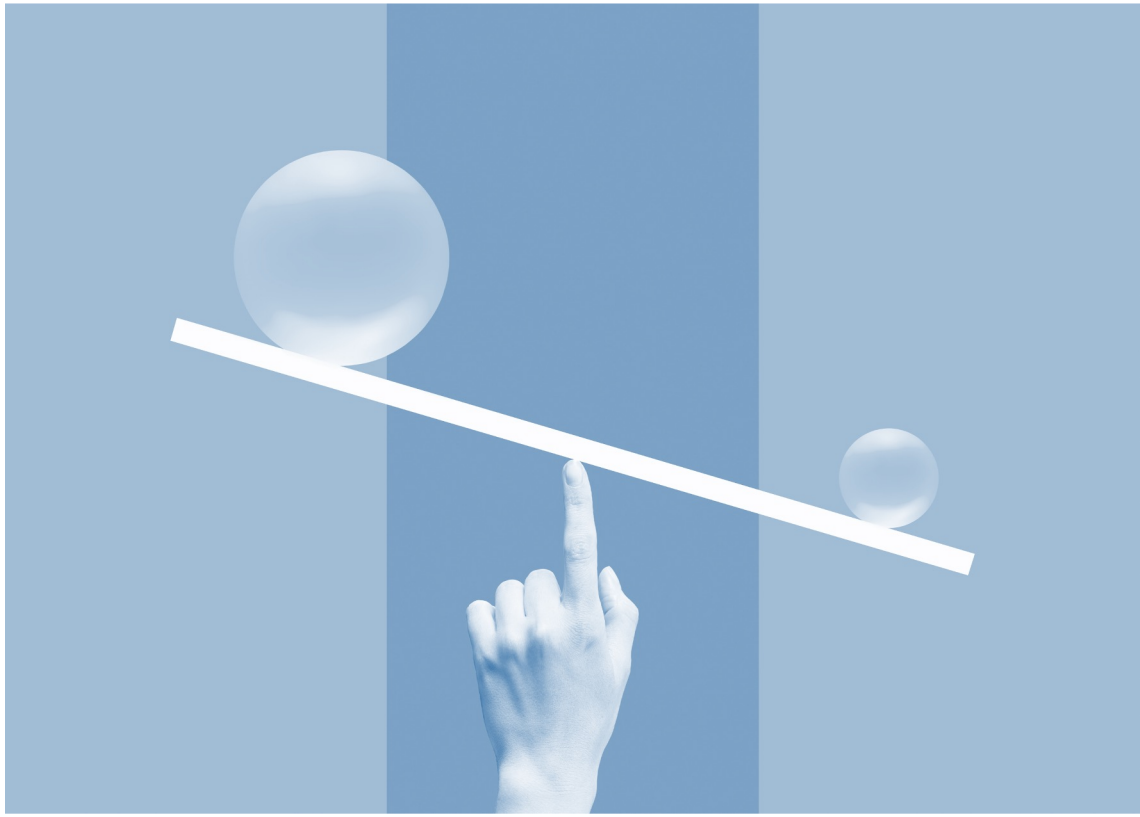
Cost-Share Or Matching

Qualifications, And Experience

Quality, degree, and appropriateness of the qualifications of the lead organization(s), organization director, key personnel, and other key organizations and personnel.

Selection Factors

- The funding opportunity defines Selection Factors in Section 5.1.3
- Selection Factors are considered by the Selecting Official after completion of the merit review and process



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Statutory Requirements for Evaluation

NIST will evaluate applications for merit and for alignment with program purposes and statutory requirements according to:

- the authorizing legislation for Manufacturing USA, 15 U.S.C. § 278s,
- and 42 U.S.C. 18971, *Expanding opportunities through the Manufacturing USA Program*
- and 42 U.S.C. 18972, *Promoting domestic production of technologies developed under Manufacturing USA Program*.

Covered Entities defined in 42 U.S.C. 18971	Historically Black Colleges and Universities
	Tribal Colleges or Universities
	Minority Serving Institutions
	Minority-Owned Enterprises
	Rural Serving Institute of Higher Education

Key Dates

Milestone	Date
NOFO Published	July 22, 2024
Informational Webinar	July 25, 2024
Proposers Day	August 20, 2024 (today)
Concepts papers due	September 30, 2024
Proposal Invitation	November 2024
Full Proposal Due	January 2025 (deadline will be specified in the invitation to submit Full Proposals)
Selection Announcement & Anticipated Award	Spring 2025

Questions?

Answers to Frequently Asked Questions can be found on the OAM website: https://www.nist.gov/oam/ai-resilient-manufacturing-institute-competition

All questions regarding the Funding Opportunity should be submitted via email.

ManufacturingUSA@nist.gov
Subject line: “AI for Resilient Manufacturing”

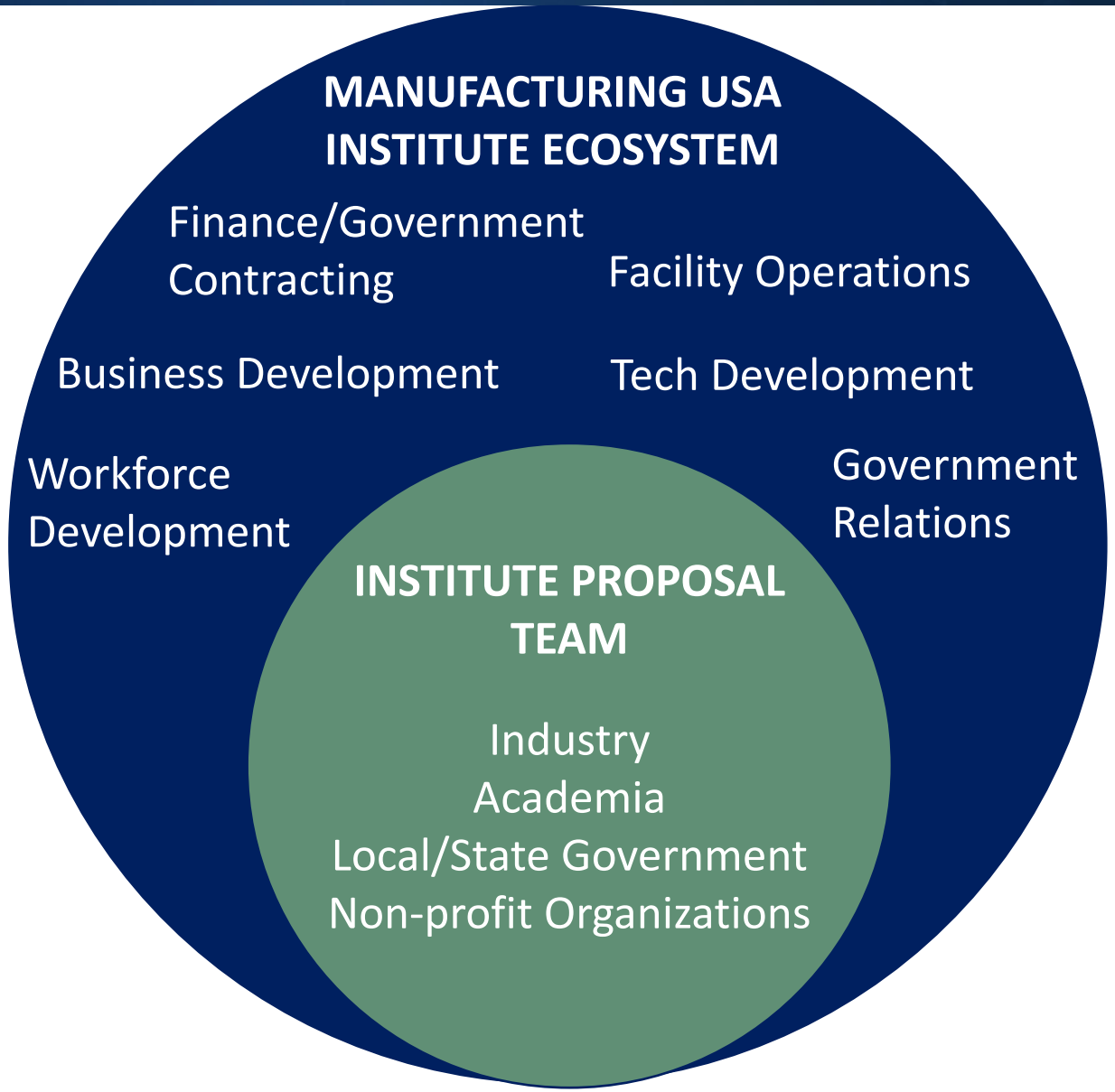
Teaming for a Great Proposal

Don Ufford
Office of Advanced Manufacturing
National Institute of Standards and Technology

August 20, 2024

NIST NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY
U.S. DEPARTMENT OF COMMERCE

Team Member Considerations



Enhancing Team Effectiveness

When creating your team, consider the benefits a diversity of members brings to your proposal:

- Enhanced Creativity and Innovation
- Better Decision-Making
- Improved Financial Performance
- Increased Employee Satisfaction
- Broader Market Reach

Credit: Adobe Stock

Teaming Considerations

When developing your team consider its ability to:

- Attract industry, academic, and non-profit members
- Translate early-stage R&D into de-risked applications and a trained workforce
- Develop an organization that can set a sustainable vision, lead operations and create relationships that connect with real industry needs
- Solicit team members from multiple skill groups

Outcome-Focused Teaming Opportunities

As your team is growing, look for delivery-driven partners from industry, academia, and non-profit sectors who:

- Understand the marketplace
- Are committed to implementing outcomes
- Have the ability to contribute matching resources
- Provide committed and motivated leadership at all levels

R&D Teaming Considerations

Strong teams have the ability to transition early-stage private and academic R&D into de-risked industrial applications.

- Understanding of what is coming through the R&D pipeline
- Resources and capability to execute and deliver applied R&D
- Motivated to lead technical workforce development
- Passion for and history of implementing effective outcomes

Organizational Considerations

Great teams will develop a proposal including an organization that can set a sustainable vision, lead operations, and create relationships that connect with real industry needs and includes:

- World-leading industry/academic/non-profit team members who are active and committed
- Globally recognized leadership
- Inspired Institute-based team members

Team Members from Multiple Skill Groups

What Skill Groups Might You Consider for Your Proposal Team?

Interactive Session

- Technical Skills
  -
  -
  -
- Organizational Skills
  -
  -
- Other

Representative Skills to Consider

1. Strategic thinking for gathering, classifying, and aggregating data at scale
2. AI methods, tools, and algorithm development
3. Data cleaning and signal processing for compatibility
4. AI safety and security
5. Manufacturing equipment, sensing, and data acquisition
6. Manufacturing data management
7. Workforce development
8. Government contracting
9. Economic development
10. Communications and marketing

Skill Group Connections

In-Person Interactions

1. Stand when your skill group is called
2. Place a colored dot on your name tag if interested
3. Register your interests in SLIDO as appropriate
4. Have lunch and connect

Hybrid Interactions

1. Register your interests in SLIDO as appropriate
2. Feel free to share contact information if desired

REMINDER – Join the Teaming Partner List

(Voluntary and Optional)