

Education and Workforce Development Strategy and Implementation

Agencies will discuss the successes and future of workforce education initiatives as we grow the advanced manufacturing workforce.



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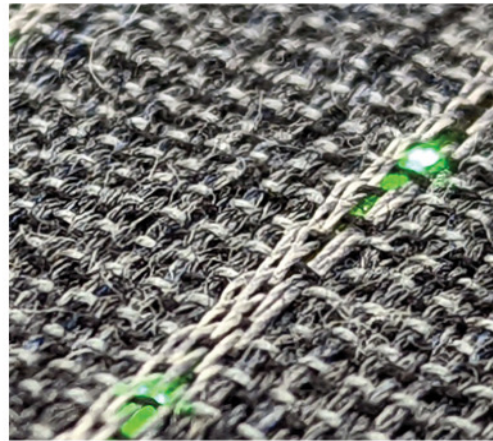
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MANUFACTURING USA



Empowering the Current and Next Generation Workforce

Institutes enable programs that build the advanced manufacturing talent pathways

A rounded rectangular icon with a blue background. It features a globe, a computer mouse, and various data charts and graphs.

VIRTUAL LEARNING

A rounded rectangular icon with a light blue background. It shows two young men in a classroom setting, looking at a computer monitor.

**CAREER &
TECHNICAL
EDUCATION**

A rounded rectangular icon with a light gray background. It depicts a rolled-up white diploma tied with a red ribbon.

CREDENTIALING

A rounded rectangular icon with a blue background. It shows a worker in a hard hat operating a large industrial machine in a factory.

**WORK AND
LEARN**

A rounded rectangular icon with a light gray background. It contains various scientific and technical symbols including a beaker, gears, a lightbulb, a calculator, and the Greek letter pi.

**ACADEMIC
PROGRAMS**

A rounded rectangular icon with a light gray background. It shows a group of stylized human figures in various colors (blue, green, yellow, red) standing together.

**COMMUNITY
ENGAGEMENT**

Our Education and Workforce Network @ Work

2022 Impacts



Support
4,000+
teachers &
trainers and
23,000+
workers



Collaborate on
142+
separate EWD
projects across
the institutes



Engage
106,000+
people with
workforce
knowledge and
skills in advanced
manufacturing



Invested
\$35M
in funding for EWD
projects and
activities

Manufacturing USA is a network of networks and
encompasses a wide variety of workforce interactions...

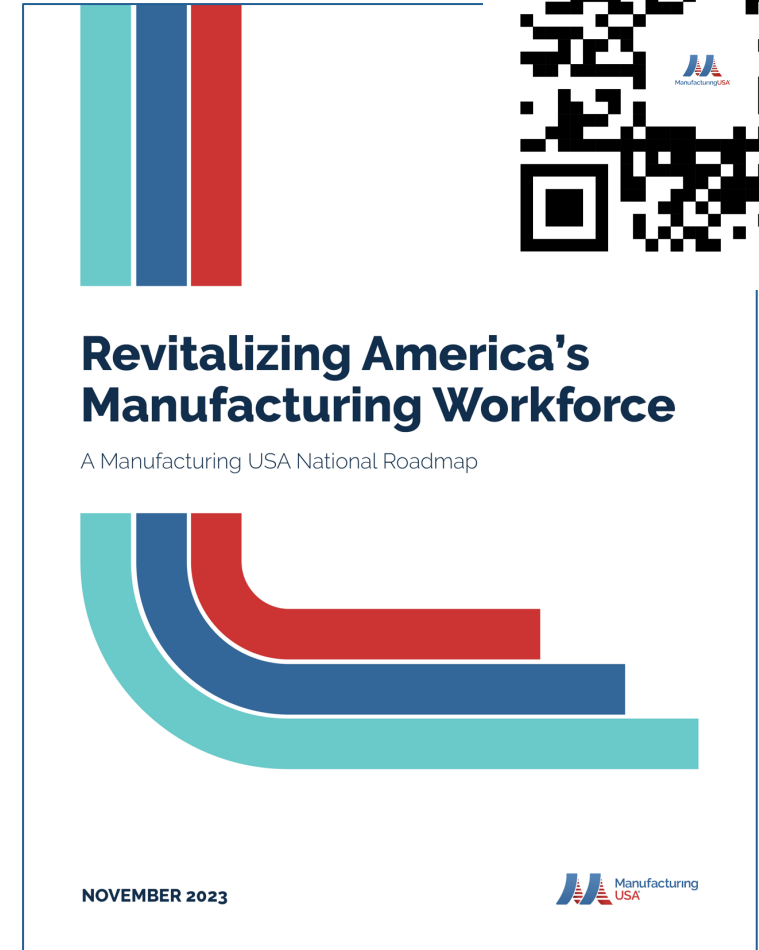
Education and Workforce Development Roadmap

Identify core **priorities & guiding principles**

- Partner with and support institutes
- Engage agency network partners
- Develop advanced manufacturing technologies
- Grow advanced manufacturing workforce

Take away:

First published MFG USA EWD strategy



Priorities

Network identified shared and common workforce development activities:



Priority 1: Equip with skills

Providing opportunities for individuals to develop advanced manufacturing skills and succeed in today's evolving manufacturing ecosystem



Priority 2: Broaden access

Removing barriers to career pathways to expand the advanced manufacturing workforce



Priority 3: Spark interest

Improving perceptions of today's manufacturing careers to encourage the future workforce to pursue pathways to advanced manufacturing careers

Guiding Principles

Three guiding principles drive the Manufacturing USA network's education and workforce development efforts:



Harness data to inform
and anticipate the skills
needed by the workforce



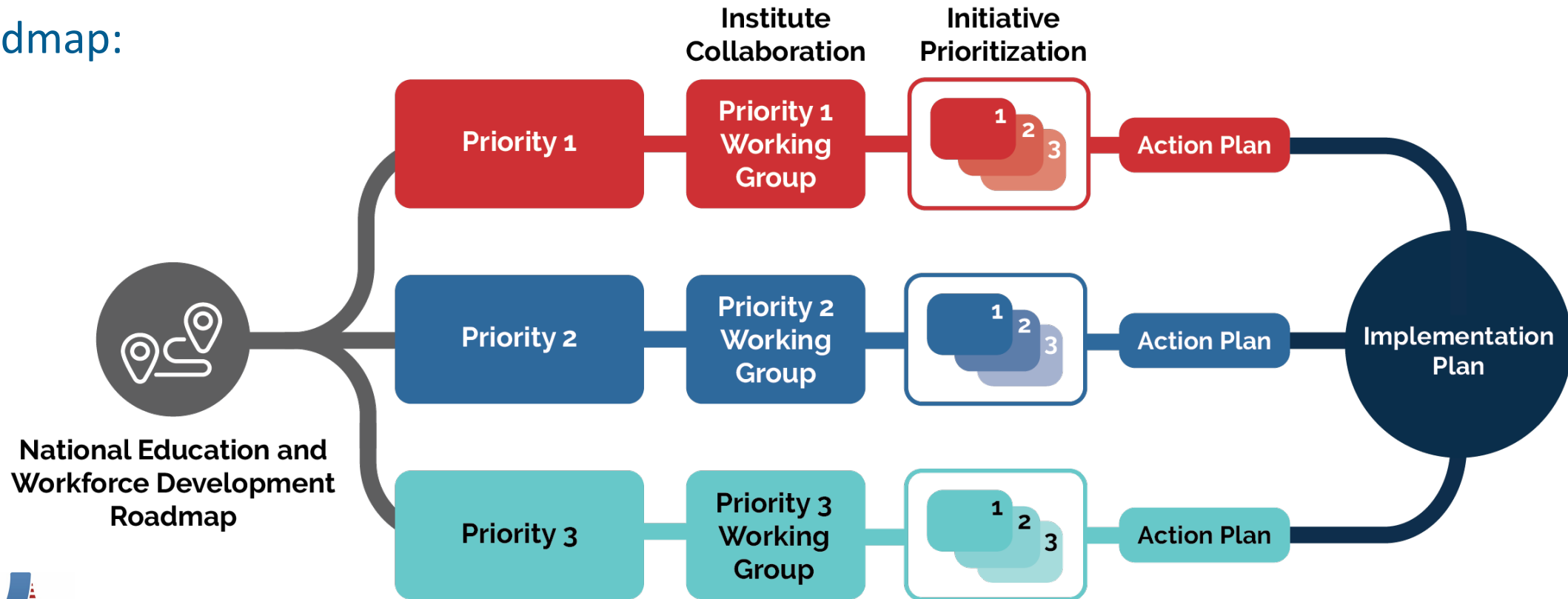
Promote diversity,
equity, inclusion, and
accessibility



Drive local impact
with a national strategy

Implementation

Manufacturing USA institutes stand ready to leverage the groundwork they have put in place and the experts they have in place to undertake the initiatives in this roadmap:



Manufacturing USA EWD Implementation

Network Data, Coordination

- Skills & Competency framework
- Working groups:
 - Pre-apprenticeships
 - Credentialling
- Funding opportunity awareness
- MFG Day Resources

Network Amplification

- SkillsUSA 2024
- NSF Hi-TEC 2024
- IMTS 2024
- SACNAS 2024
- AACC 2025
- NSTA 2025
- HI-TEC 2025

EWD Connect 2.0

- Public facing map
- Highlights institute EWD efforts nationally
- Summer 2024 launch



Regular convening of the MFG USA EWD network

U.S. DEPARTMENT OF
ENERGY

Office of
**ENERGY EFFICIENCY &
RENEWABLE ENERGY**

**ADVANCED MATERIALS &
MANUFACTURING
TECHNOLOGIES OFFICE**

AMMTO Education and Workforce Development Overview

Nebiat Solomon
TM - Education & Workforce Development

April 2024



AMMTO EWD Vision and Mission

Vision Statement

A robust, diverse, and thriving workforce has the skills required to transform and accelerate the development and adoption of innovative materials and manufacturing technologies and drive a globally competitive, clean energy economy.

Mission

To inspire, prepare, grow and support the learners and the workforce to transform materials and manufacturing for America's clean energy future.

AMMTO EWD Offerings and Implementation Models

What are the models of implementation?

– Institute EWD:

- Manufacturing USA institutes design and implement EWD programs relevant to the technology areas associated with their institute. EWD programs are designed to fill gaps in training identified by industry members.

– High Growth Industries:

- AMMTO partners with national labs and other partners to perform job task analysis and develop and implement training programs to provide a well-trained employee pipeline for high growth industries. Examples of high growth industries include battery manufacturing and power electronics manufacturing.

– Technology Areas:

- In technology areas where the R&D investment is in the applied space and where there is an identified need to boost the education and workforce development capabilities, AMMTO invests in targeted EWD at the technology area level. Based on the need, this could range from short, post-high-school courses to the development of robust PhD programs.

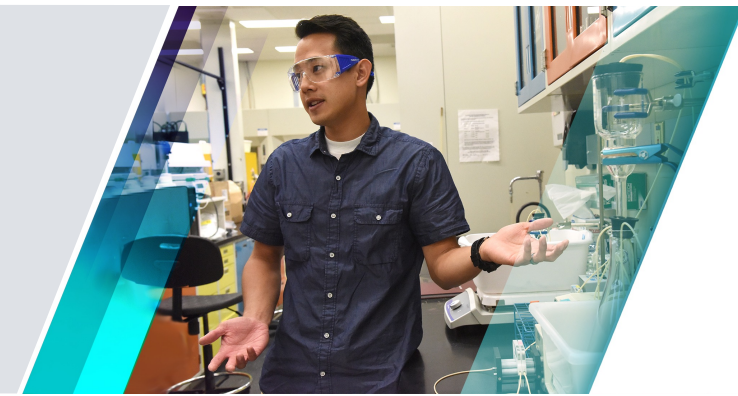
– Supplemental Funding:

- AMMTO utilizes this funding mechanism when there is an opportunity to further leverage expertise, experience and findings of a current R&D partner to expand into the EWD, DEIA and EEEJ arena.

– Community Benefit Plans:

- All new funding opportunity announcements require applicants to have a community benefits plan. These plans are required to address DEIA, Energy Equity and Workforce development. AMMTO TMs work with recipients to ensure the plans are thoughtful and that implementation is done in an impactful way.

AMMTO's Manufacturing USA Institute EWD Initiative Guiding Principles



1

**Encourage and
Facilitate
Collaboration**

2

**Develop & Scale
Innovative
Programs**

3

**Advance
Diversity, Equity,
Inclusion, &
Accessibility
(DEIA)**

4

**Expand Place-
Based Efforts**

Education & Workforce Development (EWD) Supplemental Funding

- FY23 \$3.6M supplemental award for DOE Manufacturing USA Institutes

Program Awardees



Cybersecurity Modular Bootcamp



Smart Manufacturing Credential Aligned Community College Instructor Academy



Advanced Composites Career Pathways Program (ACCP)



Circular Economy Workforce Training for Remanufacturing and E-scrap Industries



Semiconductor Chip Fabrication and Technology Bootcamp

Thank you!!



ManTech Program

- The DoD Manufacturing Technology (ManTech) utilizes advanced manufacturing to secure a more lethal force, strengthen alliances and new partnerships, and reform the Department for greater performance and affordability.
- The DoD ManTech Program was originally created in 1956 as a congressional mandate, written into Title 10 of the United States Code to further national security objectives through the development and application of advanced manufacturing technologies and processes through the below investment portfolios.
 - DoD ManTech 10 USC §4841
- OSD ManTech Investment Portfolios
 - P680 – Manufacturing Science and Technology (MSTP)
 - P350 – Manufacturing Innovation Institutes (MIIs)
 - P351 – Manufacturing Education and Workforce Development (M-EWD)



M-EWD Mission & Vision

MISSION

The Mission of OSD ManTech M-EWD is to work through our stakeholders to build an educated and skilled advanced manufacturing workforce that is prepared to meet the needs of an advanced technology-enabled defense manufacturing sector.

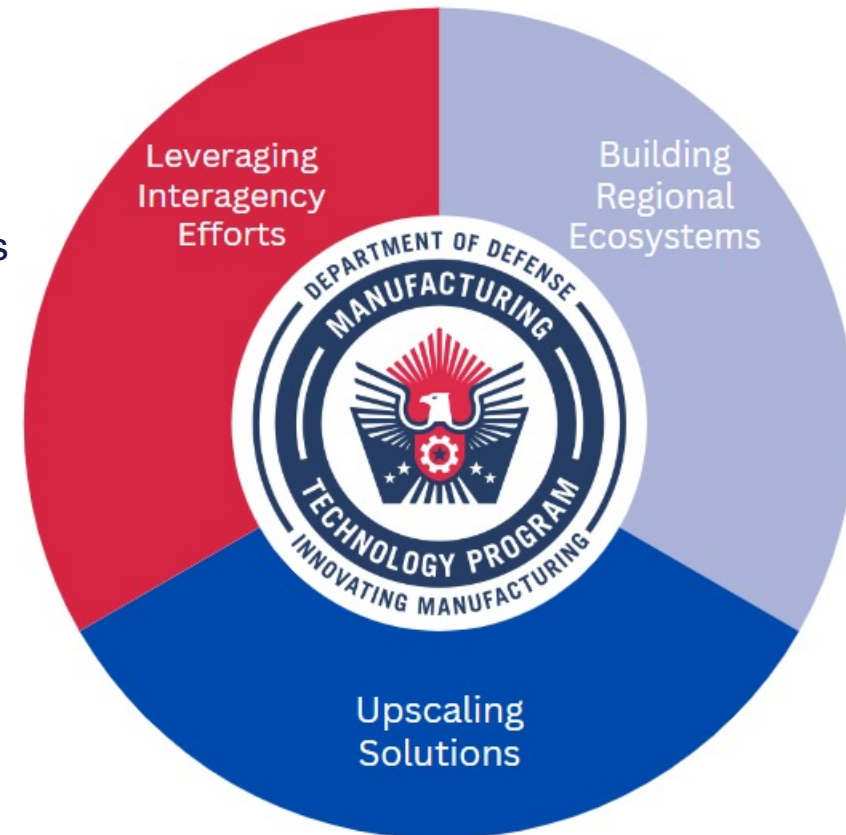
VISION

The Vision for the OSD ManTech M-EWD is to serve as a liaison for connecting defense manufacturing field opportunities, bridging skills gaps, and encouraging an inclusive industry workforce, with the assistance of our Manufacturing Innovation Institutes (MIIs) and other partnerships or collaborations.



M-EWD Strategy

- To achieve our mission and generate engagement, M-EWD Strategy focuses on creating and promoting awareness of our program activities and capabilities through:
 - **Building Regional Ecosystems**
 - Create and grow successful pilot programs that build skills with an applied regional approach.
 - **Upscaling Solutions**
 - Assisting stakeholders seeking funding options.
 - Helping build pathways to scale-up programs geographically, across technologies and across age groups.
 - Sharing best practices among Stakeholders.
 - **Leveraging Interagency Efforts**
 - Convening with Stakeholders, Experts, Practitioners.





M-EWD Building Regional Ecosystems

Current Projects Underway:

- Indiana: Indiana University (IU) Project.
- Massachusetts: MassBridge Linking Industry to Educators Project.
- Iowa: Iowa Army Ammunition Plant (IAAAP) Modernization Project.

- M-EWD is creating and growing successful **pilot programs** that build skills with an applied **regional approach**.
- Projects will incorporate community college and state funding inputs, along with local manufacturers, supply chain companies, technology SMEs, state officials, and other key stakeholders, to better assess skill requirements and adapt educational curriculums, based on workforce and asset data.
- For FY24, M-EWD is engaging in regional projects throughout Indiana, Massachusetts, and Iowa.
- These projects aim to identify and upskill local talent, for translation to statewide talent development.

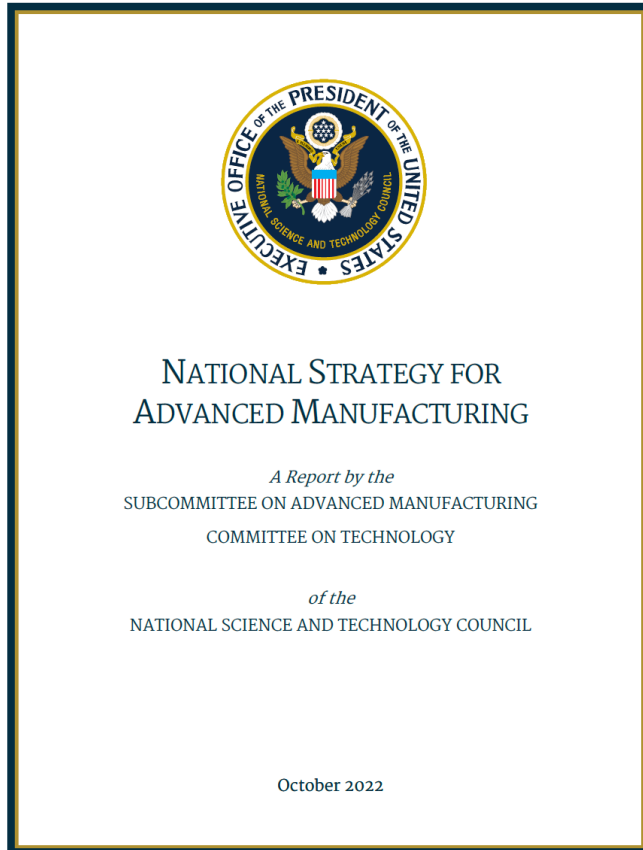


M-EWD Upscaling Solutions

- M-EWD is selecting best practices and solutions used by our MII partners to share and support the upscaling of these practices for the benefit of other institutes.
- M-EWD is hosting annual Internal Call for Proposals (CFP) to identify gaps and share solutions among the MII Network.
 - ARM Institute was the FY24 winning proposal of six joint submissions.
 - Expands an existing competency framework, improving the process to fill industry-wide jobs with a verified, qualifiable workforce, holding job-specific skills.
- M-EWD CFPs promote upscaling techniques applicable to all MII technologies to better prepare future workforce generations in advanced manufacturing.



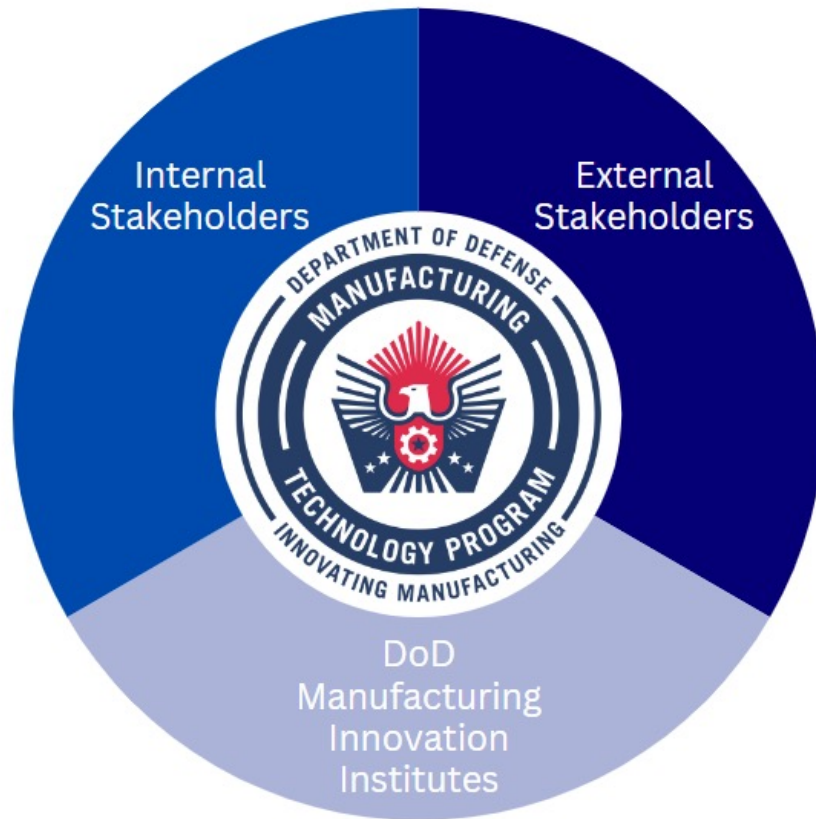
M-EWD Leveraging Interagency Efforts



- To build productive work relationships across the federal government, M-EWD participates in interagency activities to improve current workforce and prepare the future workforce.
- M-EWD chairs the White House Subcommittee on Advanced Manufacturing (SAM) EWD Team.
 - **National Strategy:** Develop and Implement Manufacturing Technologies, Grow the Advanced Manufacturing Workforce, and Build Resilience into Manufacturing Supply Chains.
 - **Workforce Is Highly Integrated:** Strategy includes three Objectives and eight Recommendations addressing manufacturing workforce.



M-EWD Ecosystem

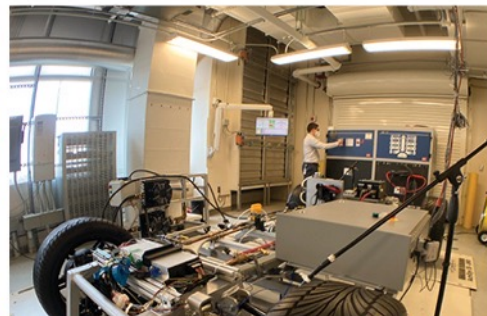


- Stakeholders: Internal groups within our DoD Network, and External within education, workforce, practitioners, and intergovernmental organizations.
 - **Internal:** R&E Leadership and Components, DoD Workforce Organizations, Acquisition and Sustainment Offices, Service based ManTech Programs, Congressional Staff, Senate, and House Committees, White House National Science & Technology Committee and its Subcommittee on Advanced Manufacturing, National Economic Council, and Federal department workforce training programs.
 - **External:** Workforce organizations, Education organizations, Industry, Research, and Economic Development; Intergovernmental organizations.
 - **9 DoD MII Partners:** America Makes, AIM Photonics, ARM Institute, AFFOA, BioMADE, BioFabUSA, MXD, NextFlex, and LIFT.



10 Years of Advancing U.S. Manufacturing





Day 1 Closing Remarks

