



OFFICE OF THE SECRETARY OF DEFENSE MANUFACTURING TECHNOLOGY PROGRAM

www.DoDManTech.mil

OSD MANTECH EDUCATION AND WORKFORCE DEVELOPMENT

DoD-MIIs

- DoD-MIIs are part of the Manufacturing USA network: a whole-of-government effort, in partnership with industry & academia
- Strategically aligning resources to address targeted technology spaces
- Creating 'industrial commons' for manufacturing R&D, workforce education and development
- Catalyzing defense and broader industrial 'innovation ecosystems' across the nation

EDUCATION & WORKFORCE DEVELOPMENT

- The institutes retain over 339 academic members from universities, trade schools, and community colleges across 45 states.
- Over **212,200** students, teachers, and incumbent workers have been trained through the DoD-MIIs since 2020.

OSD ManTech EWD works with the DoD MIIs to close the manufacturing workforce gap



REPRESENTATIVE DoD MII INITIATIVES

➤ LIFT OPERATION NEXT

Operation Next brings companies and talent together by preparing separating service members with the skills needed to thrive in an advanced manufacturing career. <http://www.opnextjobs.com/>

➤ BIOFABUSA TEMPTATION

In FY20, BioFabUSA developed the online "TEMptation" game to introduce students in grades 7-12 to the world of Tissue Engineered Medical Products (TEMP) and biomanufacturing. <https://www.armiusa.org/ewd-temptation>

➤ NEXTFLEX FLEX FACTOR

FlexFactor™ is a month-long program that exposes students to the vast range of professional opportunities within advanced manufacturing and innovation. <https://www.nextflex.us/learning-portfolio/flexfactor/>

➤ AMERICA MAKES ADDITIVE MANUFACTURING COURSES

America Makes launched additive manufacturing courses using funding from the Office of Naval Research, America Makes now has 14 courses live with a total of 14,752 students and workers already engaged. <https://www.americamakes.us/workforce-education/>

DoD MANUFACTURING INNOVATION INSTITUTES (DoD MIIs)

➤ America Makes: The National Additive Manufacturing Innovation Institute

Est. August 2012 – Youngstown, OH

➤ MxD: Manufacturing x Digital

Est. February 2014 – Chicago, IL

➤ LIFT: Lightweight Innovations For Tomorrow

Est. February 2014 – Detroit, MI

➤ AIM Photonics: American Institute for Manufacturing Integrated Photonics

Est. July 2015 – Albany & Rochester, NY

➤ NextFlex: America's Flexible Hybrid Electronics Institute

Est. August 2015 – San Jose, CA

➤ AFFOA: Advanced Functional Fabrics of America

Est. April 2016 – Cambridge, MA

➤ BioFabUSA: Advanced Regenerative Manufacturing Institute

Est. December 2016 – Manchester, NH

➤ ARM: Advanced Robotics for Manufacturing

Est. January 2017 – Pittsburgh, PA

➤ BioMADE: Bioindustrial Manufacturing & Design Ecosystem

Est. October 2020 – St. Paul, MN





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RESEARCH & DEVELOPMENT

- DoD institutes create opportunities for 890+ small and medium businesses to participate on projects with 280+ large manufacturers.
- **Total Technology Projects**
375+ On-going
860+ Completed

METRICS

- Since their inception, DoD-sponsored institutes have led over 490 EWD projects.
- In FY22 alone, DoD MIIs invested over \$14.6M and engaged with over 77,460 learners including:
 - 30,167 K-12 students,
 - 36,021 postsecondary students,
 - 8,796 incumbent workers,
 - and 2,478 teachers.



DoD Cybersecurity requirements, while critically important to the U.S. manufacturing base, can seem overwhelmingly complex, especially when the need is to consider both manufacturing information and operational technologies.

AVAILABLE CYBERSECURITY RESOURCES

➤ MANUFACTURING x DIGITAL

In partnership with the Department of Defense, MxD equips U.S. factories with the digital tools, cybersecurity, and workforce expertise needed to begin building every part better than the last. As a result, more than 300 partners increase their productivity, win more business, and strengthen U.S. manufacturing.

<https://mxdusa.org/partners/#government>

Example Tool - MxD HIRING GUIDE: CYBERSECURITY IN MANUFACTURING

A groundbreaking guide to assist U.S. manufactures build the workforce they need to protect the industry from growing cyber threats <https://www.mxdusa.org/hiringguide/>

➤ NIST MANUFACTURING EXTENSION PARTNERSHIPS (MEP)

MEP Centers provide assistance with implementation of cybersecurity protections to safeguard Controlled Defense Information & Controlled Unclassified Information within defense manufacturing supply chains.

<https://www.nist.gov/mep>

MANUFACTURING FACTS

MANUFACTURING JOBS PROVIDE:

12M

Employment for over 12 million people, as the 5th largest employment sector in the U.S.



Path to upward mobility, since more than 81% of jobs require no work experience for an entry-level position.



Manufacturing employs about 9% of the total workforce in the U.S. **but almost 36% of all the engineers in the country.**



More in benefits; earning 32% more in benefits per hour than employees in service industries.



7% more in salary than in service industries.

Salary Premiums paid to recruit qualified talent (as skilled machinists retire).



Stability, with lower turnover and higher tenure than overall private sector non-manufacturing jobs.

November 18, 2021, *Manufacturing myths – debunked!* NIST. from <https://www.nist.gov/mep/manufacturing-infographics/manufacturing-myths-debunked>.