

Welcome to the 2020 Industry Resilience Virtual Convening

- All attendees are in listen only mode.
- Attendees can submit questions to our presenters anytime during the webinar by using the questions box you will find in your gotowebinar interface.
- The webinar is being recorded and recordings for all the sessions will be emailed out to all registrants on Friday, May 8th

2020

OEA Industry Resilience Learning
Community Exchange:
Virtual Convening
Webinar 2



Introducing a Powerful New Collaboration to Address the Defense Workforce Challenge

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Department of Economic and
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BLUF – Bottom Line Up Front

Criticality

The DoD needs a resilient industrial base and a DoD workforce with advanced manufacturing skills to be globally competitive, enable technology modernization, and rapidly field weapons systems for a ready and lethal force.

Impact

Without an appropriately skilled and capable workforce the defense industrial base will be at risk; national defense and economic security will suffer.

Problem

In the U.S. manufacturing sector, growth has been curtailed by a scarcity of skilled workers with 53% of open positions unfilled annually due to shortage of talent. The COVID-19 crisis is expected to exacerbate this problem dramatically.

Solution

Lead a multifaceted national manufacturing workforce initiative to accelerate the development of a highly skilled talent pipeline for the manufacturing industrial base and DoD workforce. Focus on execution at the local level.

DoD and the Manufacturing Innovation Institutes are:

- **Actively engaged with a robust coalition of partners** across industry, academia, education and training, federal agencies, as well as state and local governments
- **Developing technology and talent concurrently** with novel education technology, venues, pathways, and pedagogies
- **Leading an extended collaboration network** of economic development efforts across 41 states and counting

These assets and capabilities position DoD to lead a national effort to modernize the manufacturing industrial base workforce and support a rapid and robust recovery from the COVID-19 Crisis.

Problem

Revitalizing domestic manufacturing is essential to national security and to a robust recovery from the COVID-19 crisis. Before the crisis, manufacturing growth was constrained by a workforce skills gap, with 2.4M unfilled jobs projected by 2028.

- Technology Transformation (Industry 4.0)
 - Industry 4.0 skill needs \neq skills of the workforce pool
 - Labor market supply not meeting employer demand
 - Generational shift in workforce interests
- Education System Failing Manufacturing Sector
 - Curriculum lagging rapid technology advances
 - Hybridization of skills needs across disciplines
 - Insufficient connectivity with industry
 - Industry 4.0 education inadequately resourced
- Workforce Development System Not Responsive



IMPACTS
FELT AT
LOCAL
LEVEL

Strategies

- Develop talent & technology concurrently
 - Use new learning tools
learning venues
learning pathways
 - Use of non-traditional learning
 - Enhance existing system: reform CTE
 - Influence workforce development system investment priorities
 - Influence state and local economic development investment priorities
- DISRUPTIVE INNOVATIONS
- apply these to...
-
- The diagram illustrates the application of disruptive innovations to various learning strategies. A large red curly bracket on the right side of the list groups the strategies from 'Use of non-traditional learning' down to 'Influence state and local economic development investment priorities'. A red arrow points from the text 'apply these to...' to this bracket. Additionally, a red curly bracket on the right side of the first three items ('Use new learning tools', 'learning venues', 'learning pathways') is labeled 'DISRUPTIVE INNOVATIONS'.

Implementation

1. DoD will lead a Collective Impact enterprise, integrating efforts across a national network of MIIs and partners
 - Develop and apply foundational workforce development elements, cross cutting capabilities, and novel tactics
 - Develop a co-designed enhanced evaluation framework
 - Model regional solutions guided by real-time data
2. Lead an expanded national network of regional leaders
3. Expand a DoD-lead coalition of Federal agencies
 - Currently partnering with DoE, DoC NIST, ED, and NSF
 - Initial engagements with DoC EDA, and DoL



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America Makes

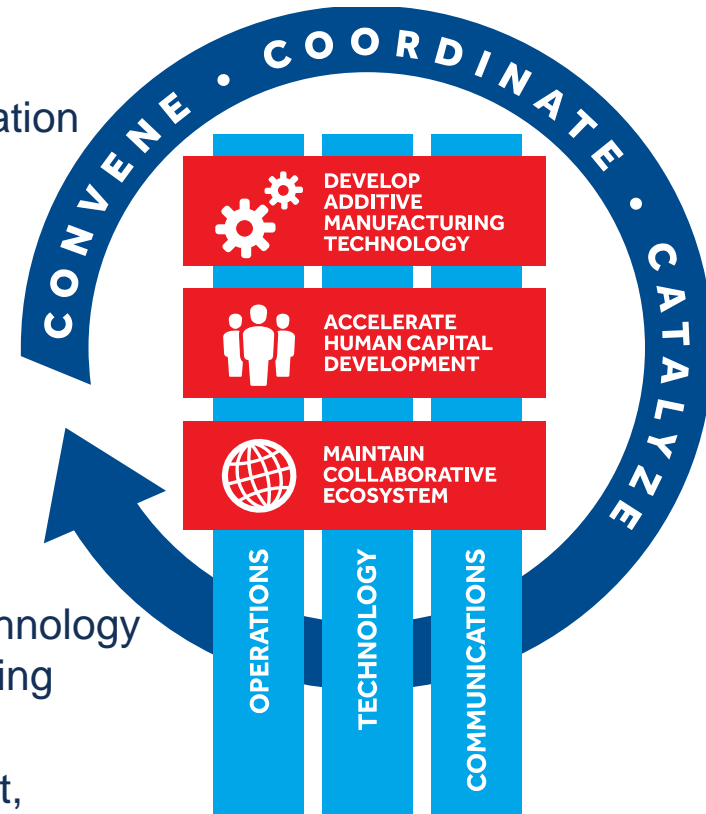
America Makes

The three core activities of the Institute are:

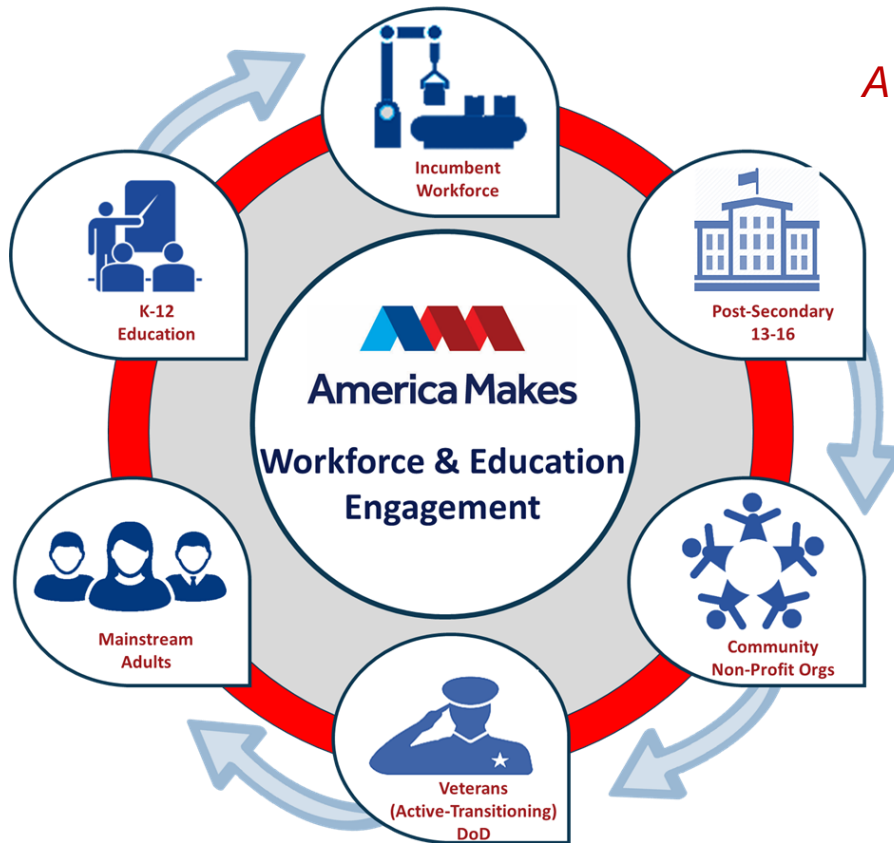
- **Develop Additive Manufacturing Technology:**
Projects, Innovation, Technology Transfer, Implementation
- **Accelerate Human Capital Development:**
Workforce, Education, Training, Outreach
- **Maintain Collaborative Ecosystem:**
Government, Membership, Community

These focus areas are enabled by:

- **Operations:** Run by a not-for-profit organization with a lean and collaborative structure
- **Technology:** A dynamic advanced manufacturing technology including the core AM technologies as well as supporting technologies like the digital thread, standards, etc.
- **Communications:** Spreading the word to government, members, stakeholders, community



America Makes Education and Workforce Development



A Community of Collaboration:

- **Elevating the education and workforce conversation:**
Coordinating, collaborating and catalyzing through research and thought leadership
- **Defining, Identifying and Executing Requirements**
Establishment and maintaining an EWD Roadmap for the additive community
- **Industry Vetted Content and Recognized Credentials:**
Maintaining and establishing bodies of knowledge, frameworks and career pathways through both an industry and defense voice
- **Tailored Training:**
Tailored training offerings to both new and established requirements

Since 2012, America Makes has executed successfully over 114 education and workforce development projects.

In 2019 alone we have impacted nearly 8000 students, teachers, incumbent workers, DoD workers, and warfighters.

America Makes

Proof of Concept – A couple examples

Roadmapping Activity: Industry and Defense

- **Technology, Standards and Education/Workforce Development:**

Aligning the current landscape, assessing gaps, driving investment strategies building stronger supply chains

Project 4026: Distortion Compensation

- **“The only way to achieve this was through America Makes”**

Bringing together three of the largest engine manufacturers within a project along with 3 OEM additive manufacturers all in collaboration around a single focus

MAMLS – Maturation of Advanced Manufacturing for Low-cost Sustainment:

- **40 team members over 45 projects with funding over \$27M/\$8M in cost share:**

MAMLS has had a significant impact on the additive manufacturing technology ecosystem through the identification and development of a community brought together over this multi-phase program over a 4 year period. The program also included training



Photo: Tinker AFB

Collaboration Network



U.S. Department of Defense
Office of Economic Adjustment



The American Manufacturing
Communities Collaborative

Our collective impact reaches communities
and regions across 41 states

Awareness/Inspiration
*“Bringing American Manufacturing to
the dinner table”*

National Competitiveness
Capacity and Agility
Innovative and Cutting Edge
Strong Supply Chain

***Together our voice is strong; our impact
is powerful!***



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History of IMCP to AMCC

- 2014 IMCP federal competition
- 24 regions federally designated
- IMCP evolves beyond the program
- 2018 Summit, AMCC formation

Evolution of the DMCSP

- 2018 DOD Report and NDAA Authorization
- 2019 Congressional briefings and DMCSP Appropriation
- 2020 A Network of Networks to advance common purpose

Filling an American Gap

- Manufacturing resilience is key to economic and national security
- This complex work requires an ecosystem approach with partners
- An ascendant movement requires an alignment of multiple networks

MANUFACTURING

Defense and Commercial

Complementary Competencies and Capabilities



Network of Networks

Complementary competencies to sustain and build manufacturing capabilities



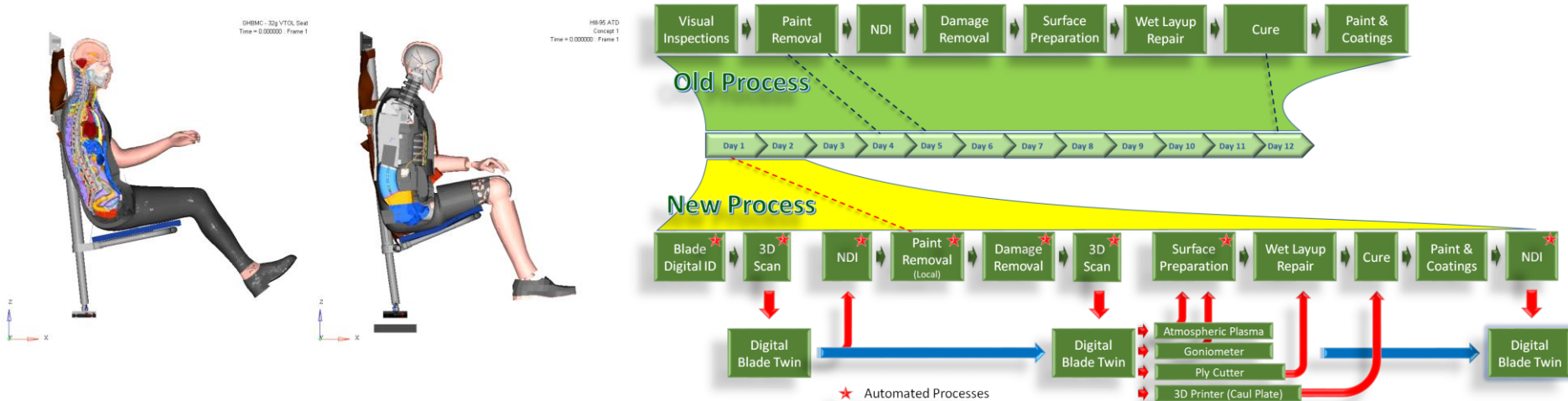
HUMAN CAPITAL

Warfighter and Workforce



- Lifelong education and training
- Unique and not fully interchangeable
- Competencies can be repurposed
- Network of Networks Goals
 - Preserve the capabilities and capacities
 - Build on and extend industry competencies
 - Diversify and revitalize the regional economy and create jobs.

TECHNOLOGY and INNOVATION Dominance and Differentiation

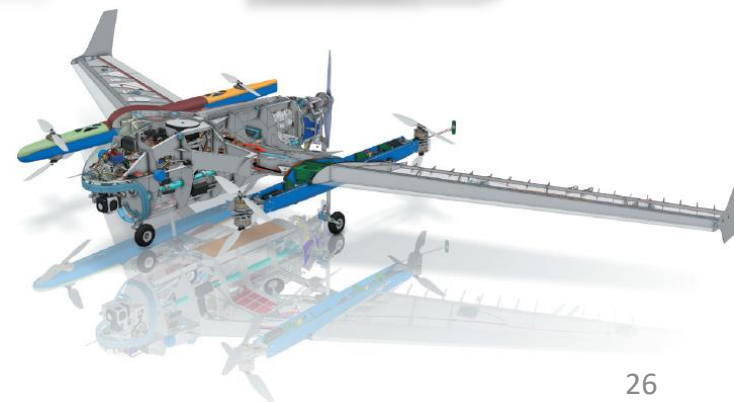


Sustainment Challenges Affecting Selected Air Force and Navy Fixed-Wing Aircraft										
Sustainment challenges	Air Force					Navy				
	B-52	C-17	E-8C	F-16	F-22	AV-8B	C-2A	E-2C	E-2D	EA-18G
Delays in acquiring replacement aircraft				✓		✓				✓
Unexpected replacement of parts and repairs	✓	✓	✓		✓	✓	✓	✓		✓
Delays in depot maintenance	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Shortage of depot maintainer personnel					✓	✓	✓	✓	✓	✓
Parts obsolescence ^a	✓		✓			✓	✓	✓	✓	✓
Diminishing manufacturing source ^b	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Source: GAO analysis of Air Force and Navy data. | GAO-18-678

^aObsolescence means a part is unavailable due to its lack of usefulness or it is no longer current or available for production.

^bDiminishing manufacturing sources is a loss or impending loss of manufacturers or suppliers.



Q&A



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OEA's Mission +

How it Ties into a Broader Collaboration Effort

OEA enables states and local communities to undertake critical force multiplying civilian activities that enhance the readiness and resilience of the Department's assets, and furthers the collaboration and alliances required to sustain our people, installations, and mission at the local level.



How OEA IR Works +

Example of Workforce Wins

- **Delivering READINESS, COMPETITIVENESS, AND INNOVATION** to support defense communities and help DoD supply chain become more resilient
 - Leveraged states and communities across 52 projects in response to \$90B in reductions under the Budget Control Act
- **How OEA Activities Enhance Workforce Development**
 - State of Utah: \$3.8M delivered a state-of-the-art additive manufacturing skilled workforce for Hill Air Force Base
 - Allen County, Ohio: \$3.3M preserved critical workforce skills for production of M-1A2C Abrams tank
 - Commonwealth of Massachusetts: \$2M created coldspray technology capability and workforce training that will support Portsmouth Naval Shipyard

Why a collaboration network and why now?

- Workforce challenges loom large and are shifting dramatically
- Need for regaining manufacturing capability, capacity and competitive advantage increasingly important
- Members of these networks know how to collaborate at the local and regional level; high time to continue sharing those practices across the nation



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Collaborative Approach

- Addressing economic and workforce development issues and opportunities, CT has participated across “linked” state, regional and national networks, offering opportunities to partner and contribute to both national and economic security.
- Allowing for more impactful outcomes and bring to scale competitiveness issues facing our defense industrial base and communities.
- Leveraging local, regional and federal investments with a common purpose.

Connecticut: A Defense Community

Connecticut's unique combination of defense aerospace and shipbuilding makes us a regional leader in both air and sea transportation equipment manufacturing.

According to OEA's 2018 Defense Spending State Report

- CT ranks 8th within the top 10 states by total defense contract spending and 5.7% of GDP.
- CT's top defense contractors include: General Dynamics, United Technologies and Lockheed Martin.
- The defense contracts for Connecticut represents 83% in supplies & equipment, 8% in Research & Development, and 9% Service.

Driving Value

Demand Driven Solutions - Capacity, capabilities, and market driven skills are needed in the workforce to maintain a resilient defense supply chain.

- **Supporting Readiness** – Accelerate growth through supplier networks and cultivate talent development.
- **Fostering Modernization** – Facilitate the adoption of new technologies in small and mid-sized companies.
- **Strengthening Alliances and Building Partnerships** with industry, academia, non-profits, labor, and government to provide real-time data and validate current market conditions.

Q&A



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The Collaboration Network

Expanded national network of regional leaders

Who

- Manufacturing Innovation Institutes
 - American Manufacturing Communities Collaborative (AMCC)
 - DoD OEA Industrial Resilience Learning Community Exchange
- } MEPS

Why

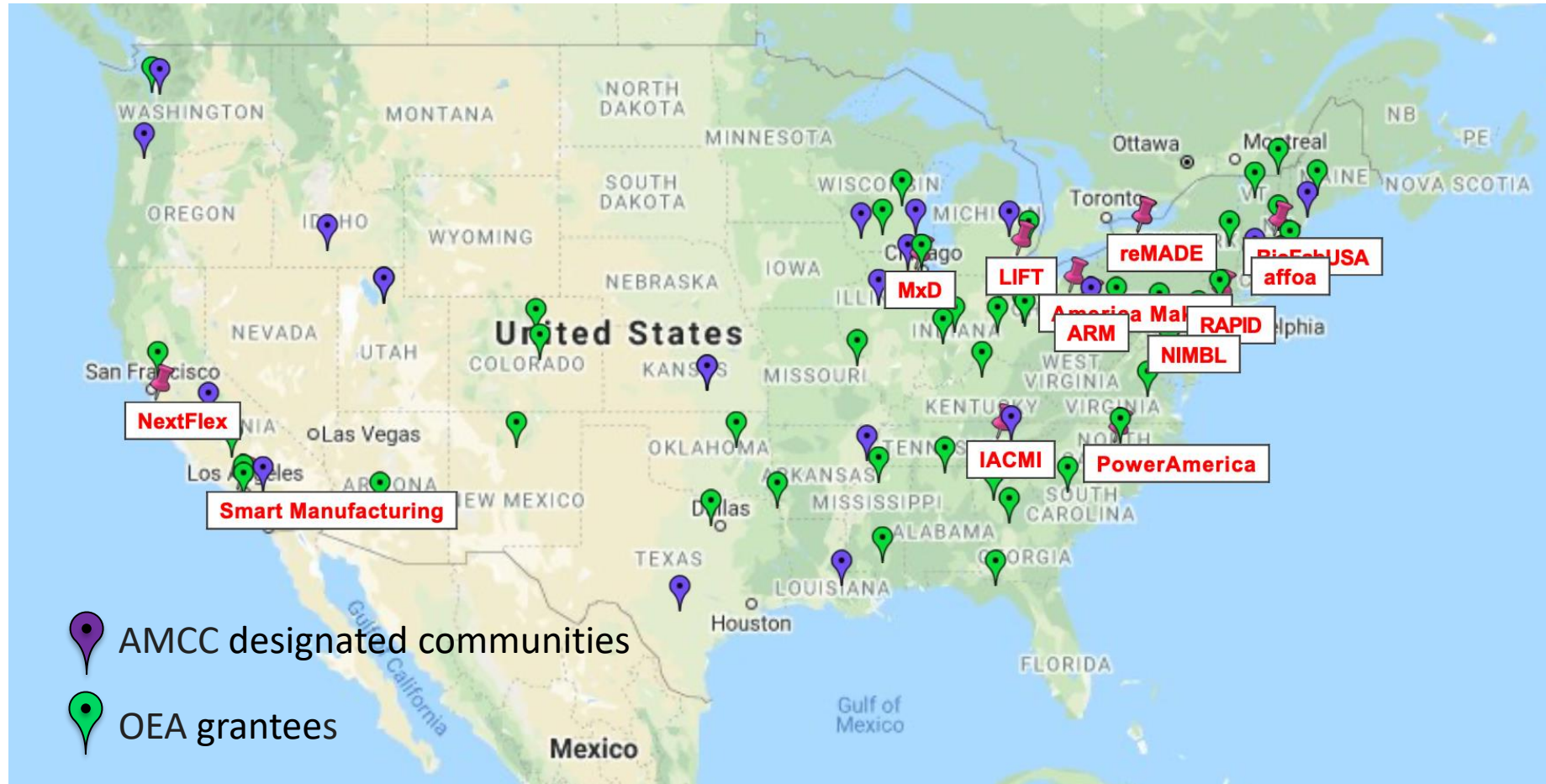
- Aligned efforts for EWD at scale across 41 states
- Collaborate to develop and execute shared strategies
- Employ MII EWD capabilities across a broad network

Opportunity

The Defense Manufacturing Community Support Program

- \$25M FFO expected mid May 2020
- MII Collaboration encouraged
- Team across networks for greater impact

Current Collaborative Network Map



Q&A

Please submit your questions to our presenters by using the questions box you will find in your gotowebinar interface.

Wrap Up

- Join us for the two sessions tomorrow:
 - Webinar 3: 1:00 PM EDT, Panel on "New Partners to Strengthen the DMCSPP"
 - Webinar 4: 2:45 PM EDT, our fourth and final session will address Cybersecurity.
- If you have not registered, go here:
 - Webinar 3 <https://bit.ly/3c4uniG>
 - Webinar 4 <https://bit.ly/2VZHc8h>
- List of Resources: <https://bit.ly/2L0Yhs2>