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# **The National Network for Manufacturing Innovation (NNMI): now known as Manufacturing USA**

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***National Defense Industrial Association  
Manufacturing Division Meeting***

***October 20, 2016***

Ms. Tracy Frost, Director  
Manufacturing Innovation Institutes  
Office of the Deputy Assistant Secretary of Defense  
for Manufacturing and Industrial Base Policy  
U.S. Department of Defense



# DASD(MIBP) ManTech Office Roles and Responsibilities



- **Oversee** the DoD ManTech Program on behalf of USD(AT&L)
  - Work with Component ManTech Programs through the Joint Defense Manufacturing Technology Panel (JDMTP), S&T Enterprise
  - Provide an integrated program view; represent overall program to Congress, others
- **Execute** the Defense-wide Manufacturing Science & Technology (DMS&T) Program Element (a DoD ManTech Program component)
  - Cross-cutting, extremely high-leverage advanced manufacturing R&D investment vehicle for the Department
  - Core and Congressionally directed segments
- Actively **support/lead** national advanced manufacturing initiatives
  - Interagency/EOP collaboration: OSTP, DOC, DOE, DoEd, NASA, USDA, etc.
  - Congress, industry associations
  - Example initiative: National Network for Manufacturing Innovation (NNMI) Program
- **Support** industrial readiness mission through active coordination across key ODASD(MIBP) functions
  - Manufacturing
  - Business Intelligence & Analytics
  - Industrial Base Assessments
  - Global Markets & Investments



# The DoD ManTech Program Strategy

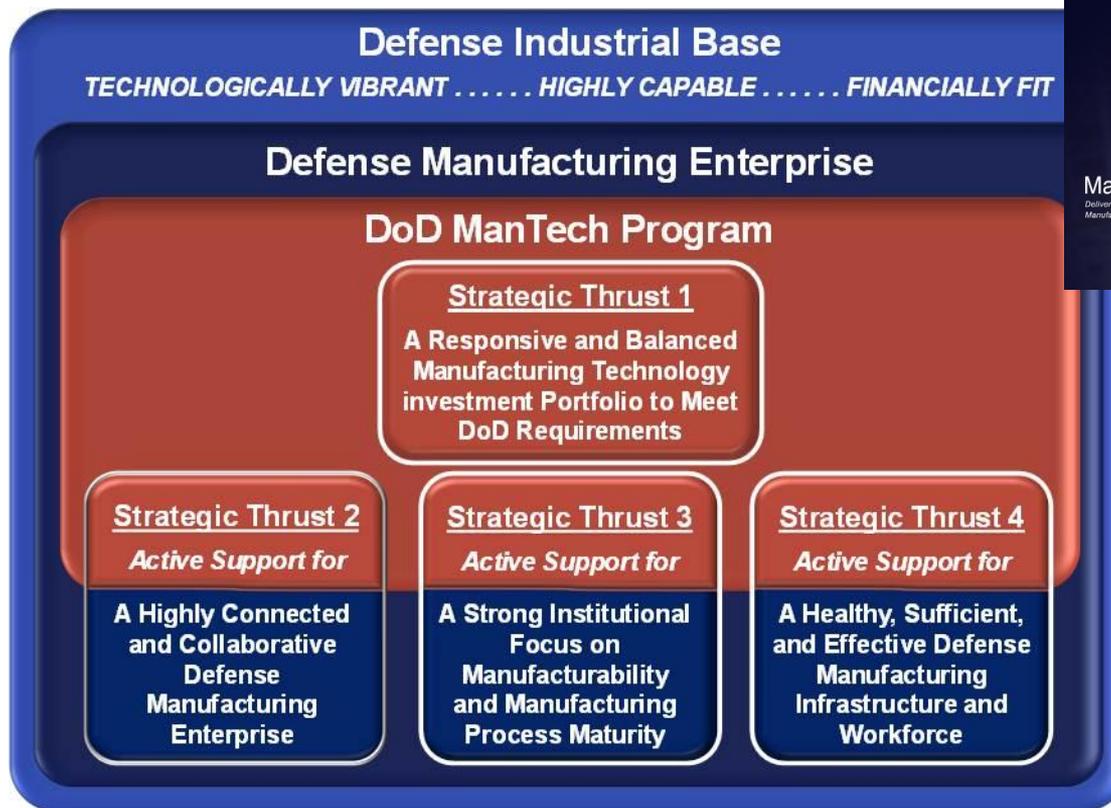


**Strategic Thrust 1:**  
**“Responsive & Balanced  
Portfolio”**

**Strategic Thrust 2:**  
**“Highly Connected &  
Collaborative Enterprise”**

**Strategic Thrust 3:**  
**“Institutionalize ‘Moving  
Manufacturing Left’ ”  
(earlier)**

**Strategic Thrust 4:**  
**“Infrastructure &  
Workforce”**



***Delivering advanced manufacturing processes for robust & affordable technology transition powerfully contributes to a healthy and resilient industrial base.***



# DoD ManTech FY 2017 President's Budget (\$K)

		<u>FY 15</u>	<u>FY 16</u>	<u>FY 17</u>	<u>FY18</u>	<u>FY19</u>	<u>FY20</u>	<u>FY21</u>	<u>TOTAL</u>
									<u>FY17-FY21</u>
<b>DoD ManTech - FY 2017 President's Budget \$K</b>									
OSD DW	0603680D8Z	88,135	156,743	158,398	136,848	116,354	89,326	70,288	571,214
Air Force	0603680F	51,613	52,630	46,344	45,386	43,906	44,780	45,675	226,091
Army	0708045A	73,419	60,422	62,287	61,300	59,480	62,102	63,344	308,513
Navy	0603680N	36,031	57,074	56,712	57,797	58,832	60,706	60,711	294,758
DLA	0603680F*	20,405	22,605	31,259	36,483	35,605	35,567	36,035	174,949
<b>Total</b>		<b>269,603</b>	<b>349,474</b>	<b>355,000</b>	<b>337,814</b>	<b>314,177</b>	<b>292,481</b>	<b>276,053</b>	<b>1,575,525</b>

\*DLA: realignment of funds from PE 0708011S, PE 0603712S, and funds from DLA Procurement DW

### Congressional Actions:

- DLA +\$10M for metal casting effort
- Related: DPA Title III +\$20M to \$64M



# Manufacturing USA updates



- National Network for Manufacturing Innovation (NNMI) is rebranded to Manufacturing USA
- Manufacturing Day held 7 Oct
- DoE/DoC competitions



# Manufacturing USA: A Game Changing Opportunity



- Establish a presence, at scale, to address the complexity of manufacturing scale-up
- Create an Industrial Commons, supporting future manufacturing hubs, with active partnering between all stakeholders
- Emphasize/support longer-term investments by industry
- Combine R&D with workforce development and training
- ***Overarching Objective: Unleash new U.S. advanced manufacturing capabilities and industries – for stronger global competitiveness and economic & national security***





# DoD MII Acquisition Strategy Model



- Technology focus area selection—involved analytical process
  - Significant coordination across DoD & federal S&T enterprises
  - Deep engagement with Industry/academia via RFIs, workshops
  - Congressional reporting on business case, technical needs, process.
- Solicitation phase: DODGARS (non-FAR ) based, 6-8 months long, initiated via funding opportunity announcement (FOA)
  - DoD uses 2-step FOA process
  - DoD and DOE require award to 501(c)(3) non-profit
  - Award instrument: Cooperative Agreement or Technology Investment Agreement (TIA)
  - Pre-award negotiations with selectee have ranged from one to several months
- Many lessons learned from previous Institutes feed into process
- MII award typically announced by cabinet level or higher principal (previous officials: SECDEF, VPOTUS, POTUS)



# DoD and DoE Established MIIs



**America Makes**

*America Makes* (The National Additive Manufacturing Innovation Institute)—DOD-Led; Established **August 2012**



**POWER AMERICA**

*Power America* (Next Generation Power Electronics Manufacturing Innovation Institute)—DOE-Led; Announced **January 2014**



**DMDII**

*Digital Manufacturing & Design Innovation Institute* (DMDII)—DOD-Led; Established **February 2014**



*LIFT -- Lightweight Innovations for Tomorrow* (Lightweight & Modern Metals Manufacturing Institute)—DOD-Led; Established **February 2014**



*Institute for Advanced Composites Manufacturing Innovation* (IACMI)—DOE-Led; Announced **January 2015**



*AIM Photonics – American Institute for Manufacturing Integrated Photonics*—DOD-Led; Established **July 2015**

*NextFlex* (Flexible Hybrid Electronics Manufacturing Innovation Institute) —DOD-Led; Established **August 2015**



*AFFOA* (Advanced Functional Fabrics of America) —DOD-Led; Established **April 2016**

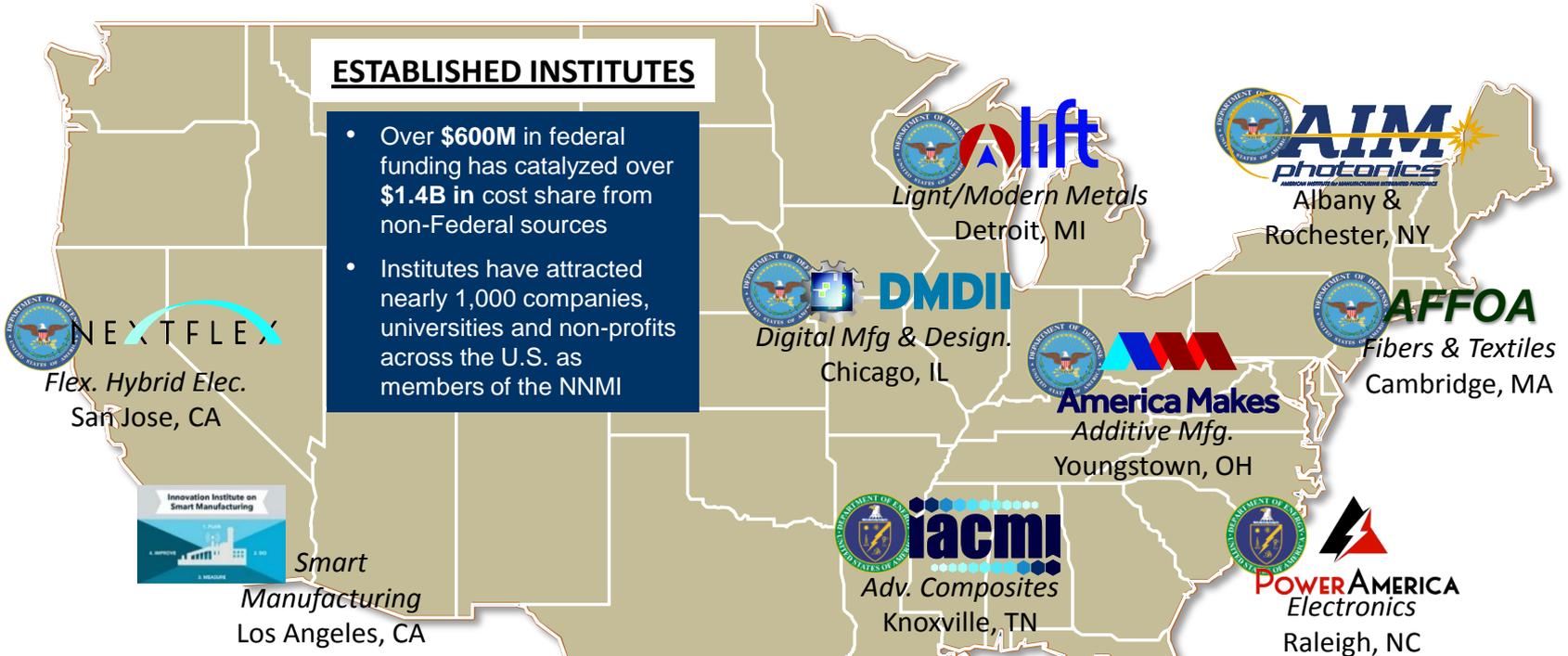


*Smart Manufacturing Innovation Institute*—DOE-Led; Announced **June 2016**



# Building a National Network of Institutes

## Network Status and Growth Plans



### INSTITUTES IN COMPETITION/DEVELOPMENT



**Open Topic Competition for up to 2 MILs**



- Advanced Tissue Biofabrication**
- Robotics in Manufacturing Environments**



- Modular Chemical Process Intensification**
- Reducing Embodied Energy and Decreasing Emissions**



# Advanced Tissue Biofabrication Manufacturing Innovation Institute (ATB-MII)



- Technology Focus
  - Cell & Material Selection & Sourcing: standardization of starting materials, post-delivery assurance of tissue identity, viability, function and efficacy
  - Biofabrication Platforms: transform standardized starting materials into novel and evolving tissue and tissue-related end-products
  - Process Design and Automation: improve the scale, throughput, automation, and reproducibility of engineered tissues
  - Tissue Finishing and Testing Technologies: non-destructive or minimally destructive test/sensors, real-time monitoring/sensing technologies
- DoD funding level: \$80 million to be matched at least 1:1 by proposing team
- Acquisition Schedule
  - NOI release released 23 May 2016; FOA released 13 June 2016
  - Proposers' Day #1 held 17 June 2016; Proposers' Day #2 held 23 June 2016
  - Award: January 2017 targeted





# Robots In Manufacturing Environments Manuf. Innovation Institute (RIME-MII)



- Technology Focus
  - Collaborative Robotics: Humans and Robots working together
  - Adaptation, learning & repurposing: Enabling technology for future advances
  - Autonomy & mobility: expanded range of applications
  - Dexterous manipulation: expanded range of complex applications
  - Perception and sensing: enablers for Collaborative Robotics
  - Testing, verification & validation: ensure robust systems
- DoD Funding level: \$80M to be matched at least 1:1 by proposing team
- Acquisition Schedule
  - NOI released June 19, 2016; FOA released late July 2016
  - Two Proposers' Days conducted August 10 and 12, 2016
  - Award: Early Calendar Year 2017





# Manufacturing USA Reports 2016



## NATIONAL NETWORK FOR MANUFACTURING INNOVATION PROGRAM ANNUAL REPORT

Executive Office of the President  
National Science and Technology Council  
Advanced Manufacturing National Program Office

February 2016



**First Annual Report  
on the NNMI Program**



## NATIONAL NETWORK FOR MANUFACTURING INNOVATION PROGRAM STRATEGIC PLAN

Executive Office of the President  
National Science and Technology Council  
Advanced Manufacturing National Program Office

February 2016



**First Strategic Plan  
on the NNMI Program**



# Beyond the stand-up phase...



## **Mature Technology – Transition Technology – Develop Workforce**

- Awareness of federal programs
- DoD Institute Engagement Strategy
  - Users guide
  - Conference
  - Online community and resources