Building a new partnership
The National Network for Manufacturing Innovation
Visiting Committee on Advanced Technology
June 7, 2016
NNMI Authorized by the
Revitalize American Manufacturing & Innovation (RAMI) Act

September 15, 2014 –
Passed House
100 Cosponsors (51D, 49R)

December 11, 2014 –
Passed Senate with 2015 Appropriations
18 Cosponsors (10D, 7R, 1I)

December 16, 2014 –
Signed By President Obama

118 Bipartisan RAMI Bill Sponsors
The Revitalize American Manufacturing Innovation Act (RAMI) calls upon the U.S. Secretary of Commerce to establish:

1. The “Network for Manufacturing Innovation Program” — to convene and support a network of Institutes *(Network function)*

2. The National Program Office at NIST — to oversee and carry out the Program *(coordination, network support, and reporting function)*

3. New “Centers for Manufacturing Innovation” — using an open topic, open competition process *(establish new Institutes)*
The vision of the National Network for Manufacturing Innovation (NNMI) Program is a future in which American technological leadership continues to sustain revolutionary advances in manufacturing that enhance America’s global competitiveness — resulting in increased economic growth and security, high-paying and highly skilled jobs.

The NNMI Program is composed of the collective of Institutes and a connective Network, each with a complementary mission.

- **The NNMI Program mission** is to advance American domestic manufacturing innovation by creating an effective manufacturing research and development infrastructure for U.S. industry and academia to solve industry-relevant problems.

- **The NNMI Institutes mission** is to build U.S. leadership in and create regional impact around specific emerging technology areas by combining the efforts of the U.S. government, industry, and academia to solve the technological, workforce, and deployment challenges to advance these technologies into commercial production.

- **The NNMI Network mission** is to maximize the integrated impact of the manufacturing innovation institutes on U.S. manufacturing competitiveness.
Current NNMI Institutes — Portfolio

DMDII  Digital Manufacturing and Design Innovation

Education and Workforce Development

America Makes
3D Additive Mfg.

LIFT
Lightweight Metals

Power America
Power Electronics

IACMI
Composites Mfg.

AIM Photonics
Integrated Photonics

Nextflex
Flexible Hybrid Electronics

AFFOA
Fibers & Textiles

Domain - Specific

Enterprise

Modeling, Simulation, Standardization
NNMI Network Goals and Key Functions

**Network Goals**

- Deliver long-term value to the U.S. manufacturing economy by amplifying the positive impacts of individual institutes
- Support the diverse business and operational models of Institutes
- Respond to lessons learned, evolving needs, and external change

**Network Top Level Functions**

- Establish the Network
- Facilitate value-added, intra-Network collaboration
- Foster robust communication between the Network and external stakeholders
- Sustain, strengthen and grow the Network
NIST is extensively engaged with every institute...

NIST Laboratory Programs
• NIST has lab programs and activities related to every NNMI institute.
• Summary document of engagement

MEP Engagement
• MOU in place with DOD and DOE
  ▪ Increase small manufacturer awareness of Institute focus areas, resources
  ▪ Facilitate small manufacturer informing Institute research
  ▪ Facilitate small manufacturer participation in Institute research
  ▪ Help deploy results of Institute research to small manufacturers

MEMORANDUM of UNDERSTANDING
BETWEEN THE
U.S. DEPARTMENT OF DEFENSE
OFFICE OF THE SECRETARY OF DEFENSE
DEPUTY ASSISTANT SECRETARY OF DEFENSE FOR
MANUFACTURING AND INDUSTRIAL BASE POLICY
AND THE
U.S. DEPARTMENT OF COMMERCE
NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY
HOLLINGS MANUFACTURING EXTENSION PARTNERSHIP

May 2015
Facilitates expanded collaborations involving NNMI Institutes and MEP Centers, embedding MEP Center representatives at participating Institute(s)

**Purpose**

To enhance the scale of Institute impacts on small U.S. manufacturers by **conducting new pilot projects** that **broaden and deepen engagements** involving NNMI Institutes and MEP Centers

**Objectives**

- Create approaches to engaging small U.S. manufacturers in the work of NNMI Institutes through hands-on assistance mechanisms and services such as those that are currently, or could be, offered by MEP Centers

- Develop and test business models for serving needs of small U.S. manufacturers in technology areas of NNMI Institutes by leveraging the resources, assets, and assistance capacities of MEP Centers

- Facilitate knowledge and best practice sharing between NNMI Institutes and MEP Centers – as set within the framework of the NIST-DOD MOU

- Cultivate an enhanced nationwide network of partnerships among NNMI Institutes and MEP Centers for the benefit of small U.S. manufacturers.
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2016 Network Thrusts

• Network Branding and Communications

• Shared Services
  – Information and Best Practice Sharing
  – Technology Coordination among Institutes

• Online, secure services system design and launch
  – Committed to a basic online system by April, a complete and robust system by Q4.
  – Voice of Customer interviews with Institutes
  – We are implementing services in order of highest priority as determined by institutes
We launched a trial Shared Services Site
And implemented a shared calendar

- Events are entered by the agencies and by institute staff
- Information is relevant to institute directors
- Calendar events can be directly imported into personal calendars on all common platforms (Outlook, Google Calendar, etc.)
And are Setting up a Shared Practices Library

• With document areas that are well organized, easy to navigate, and searchable.
• Documents have full titles and clear brief descriptions.

<table>
<thead>
<tr>
<th>Type</th>
<th>Name</th>
<th>Description</th>
<th>Published</th>
<th>Source</th>
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<tr>
<td></td>
<td>DMDII Membership Agreement (v3.2)</td>
<td>This file is the membership agreement (version 3.2) for joining DMDII. It is applicable to industry and academic organizations joining DMDII at any tier level.</td>
<td>12/8/2015</td>
<td><a href="http://dmdii.uilabs.org/membership/become-a-member">http://dmdii.uilabs.org/membership/become-a-member</a></td>
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<td>IACMI Membership Application</td>
<td>This is a membership application form for joining IACMI. It is applicable to all types of organizations.</td>
<td>1/1/2016</td>
<td><a href="http://iacmi.org/membership/apply-for-iacmi-membership/">http://iacmi.org/membership/apply-for-iacmi-membership/</a></td>
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<td>PowerAmerica Membership Agreement</td>
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<tr>
<td></td>
<td>America Makes Sub-Recipient Agreement</td>
<td>This is an agreement used by America Makes to engage with a sub-recipient on projects.</td>
<td>5/24/2016</td>
<td><a href="https://www.americamares.us/membership/become-a-member">https://www.americamares.us/membership/become-a-member</a></td>
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First NNMI Reports Released

First Annual Report on the NNMI Program

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

February 2016

First Strategic Plan on the NNMI Program

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

February 2016
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Upcoming 2016 Award

Flexible Hybrid Electronics
San Jose, CA

Additive Manufacturing
Youngstown, OH

AIM Photonics
Rochester, NY

AFFOA — Fibers and Textiles, Cambridge MA

Digital Manufacturing & Design
Chicago, IL

Lightweight Metal Manufacturing
Detroit, MI

Advanced Fiber—Reinforced Polymer Composites
Knoxville, TN

Wide Bandgap Semiconductors
Raleigh, NC

Future Network Goal: 45 Regional Hubs

New Institutes Planned for 2016

Open topic competitions

Selected topic competitions supporting agency mission, using agency authorities and budgets
Next Institute Topics under Consideration

**DoD**
- Bioengineering for Regenerative Medicine
- Assistive and Soft Robotics
- Bioprinting across Technology Sectors
- Cybersecurity for Manufacturing
- Advanced Machine Tools and Control Systems
- Certification, Assessment, and Qualification

**DoC**
- Per RAMI legislation, DOC/NIST runs “open topic” institute competitions where any topic not already covered may be proposed.
- Institute competition is presently underway
- Subject to funding availability, intention is to award at least two institutes from the 2016 competition

**DoE**
- Modular Chemical Process Intensification
- Sustainable Manufacturing — Recycling and Remanufacturing
- Materials for Harsh Service Conditions
- High Value Roll to Roll (R2R) Manufacturing

- Topic selected
Uses new authorities under the Revitalize American Manufacturing and Innovation Act (RAMI) —

Proposals accepted on any topic not already covered by existing NNMI institutes or in-process competition

• Key attributes
  • Open topic competition
  • Up to $70 M federal share per Institute
  • Each institute to serve as a regional hub with well-defined focus area
  • Two-step process, Pre-Applications then Invited Full Applications — each step to be open no less than 60 days
• FAQs Developed
  – 100 plus Questions Answered
  – Available On-line
• Proposers’ Day Conference
  – Details next slide
• Webinars Conducted
  – Resources and FAQs
    • Budget & Operating Plan Template
    • Document Library
    • Event Recordings
  – NNMI Institute Budget – June 8th
    • RAMI Requirements
    • How to Convey an Understandable Budget
    • Cost Share
  – Proposal Feedback Provided to Successful Applicants on 5/23
NIST Proposers’ Day - March 8, 2016

• Event Purpose:
  – To provide additional details regarding the Requirements
  – To provide opportunity to ask questions
  – To provide networking opportunities

• Content Presented at the Event:
  – Educate Attendees details about the competition
  – elements of a complete and competitive application
  – how applications will be evaluated
  – leveraging the network of NIST MEP Centers
  – administrative and award requirements

• Meeting Format:
  – A live event with simulcast webinar
  – 100 plus Attendees at NIST;
  – 145 online Attendees;
  – Twitter reach - 299,723 accounts
# NIST Competition Schedule

**Compressed Schedule for January 2017 Announcement**

<table>
<thead>
<tr>
<th>Work Phase</th>
<th>Item</th>
<th><strong>2016-NIST-NNMI-01 Competition</strong></th>
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<tr>
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<td>Status</td>
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<tr>
<td><strong>FFO</strong></td>
<td>FFO Published</td>
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<tr>
<td><strong>Competition Outreach</strong></td>
<td>Events (Proposer’s Day)</td>
<td>✓</td>
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<tr>
<td></td>
<td>Events (Webinar #1 – Resources &amp; FAQs)</td>
<td>✓</td>
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<tr>
<td></td>
<td>Events (Webinar #2 – Assembling a Budget)</td>
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<td></td>
<td>Pre-Applications Due</td>
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<tr>
<td></td>
<td>Pre-Application Notifications</td>
<td>✓</td>
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<tr>
<td></td>
<td>- Invitations to submit Full Applications were issued those applicants with merit</td>
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<tr>
<td><strong>Competition</strong></td>
<td>Full Applications Due</td>
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<tr>
<td></td>
<td>- Technical reviews</td>
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<td></td>
<td>- Panel deliberations</td>
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<td></td>
<td>- Orals</td>
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<td></td>
<td>- Final Ranking</td>
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<tr>
<td></td>
<td>Recommendations to Selecting Official</td>
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<tr>
<td></td>
<td>Selecting Office decision final</td>
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<tr>
<td></td>
<td>Packages to Grants &amp; Negotiations</td>
<td></td>
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<tr>
<td><strong>Award(s)</strong></td>
<td>Cooperative Agreement signed, Institute Award Announced</td>
<td></td>
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<tr>
<td></td>
<td>Institute(s) Start</td>
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