

# Advanced Manufacturing National Program Office

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## AM NPO Status and Intra-Commerce programs

### Briefing for the NIST Visiting Committee on Advanced Technology

19 June 2012

Mike Molnar  
Chief Manufacturing Officer  
National Institute of Standards and Technology

# Agenda

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Advanced Manufacturing National Program Office

AMNPO Strategic Workplan

Intra Commerce related programs

# Agenda

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## Advanced Manufacturing National Program Office

- Introduction, Organization
- Plan/Lead/Build Overview

## AMNPO Strategic Workplan

- Workplans from NSTC and AMP Recommendations
- Early Actions
  - National Network of Manufacturing Institutes
  - NNMI Pilot

## Intra Commerce related programs

- Advanced Manufacturing Jobs and Innovation Accelerator
- Reinvestment via Select USA
- Advanced Manufacturing Technology Consortia

# Advanced Manufacturing National Program Office (AM NPO)

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## Advanced Manufacturing National Program Office

- Announced by Secretary Bryson, December 19, 2011
- Addresses PCAST call for integrated federal focus on advanced manufacturing
- Hosted by Department of Commerce/NIST

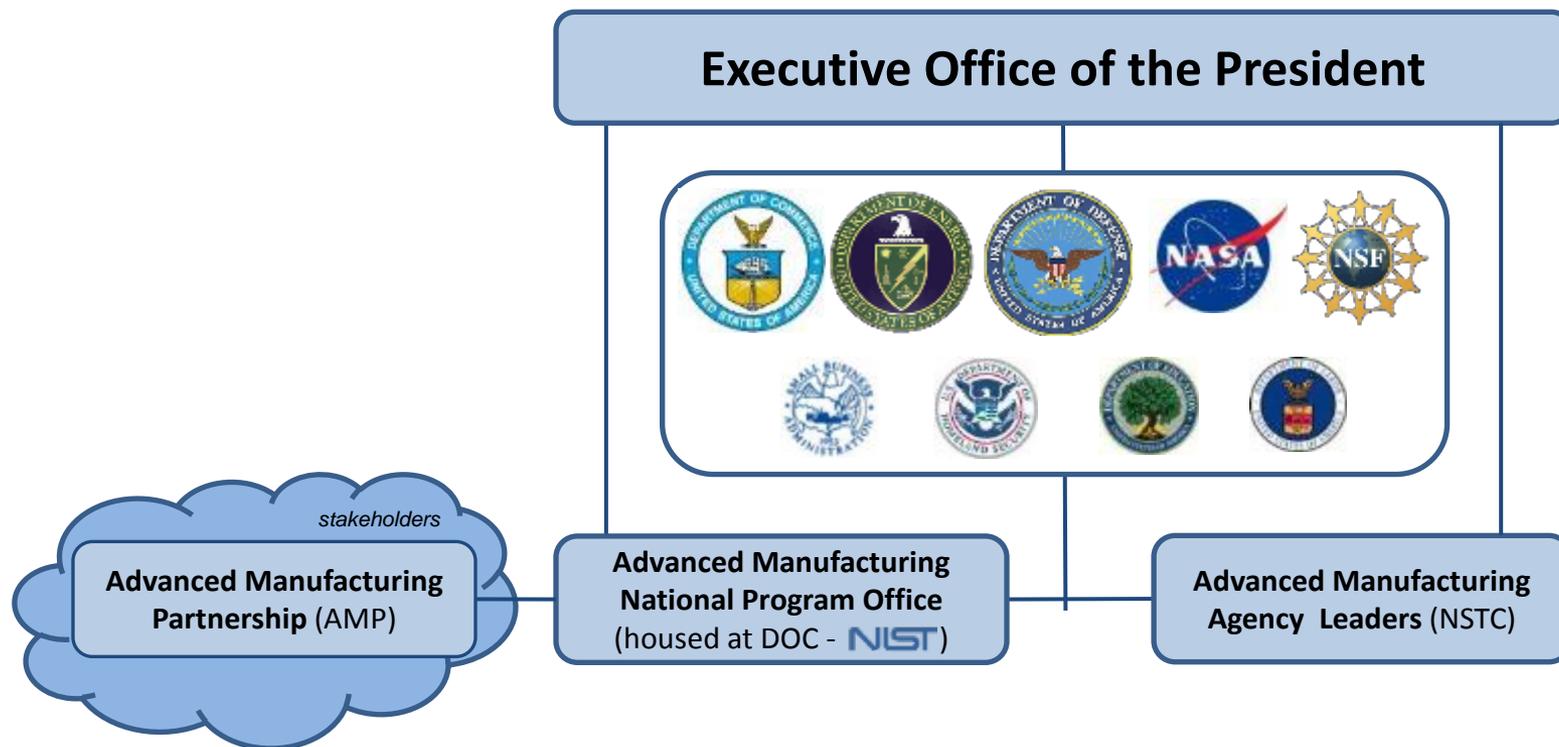
## The AM-NPO will:

- Provide interagency planning/coordination of advance manufacturing programs
- Lead federal initiatives as chartered from EOP, specifically NSTC and PCAST/AMP
- Provide a linkage to the private-sector partnerships between manufacturers, government, and universities.



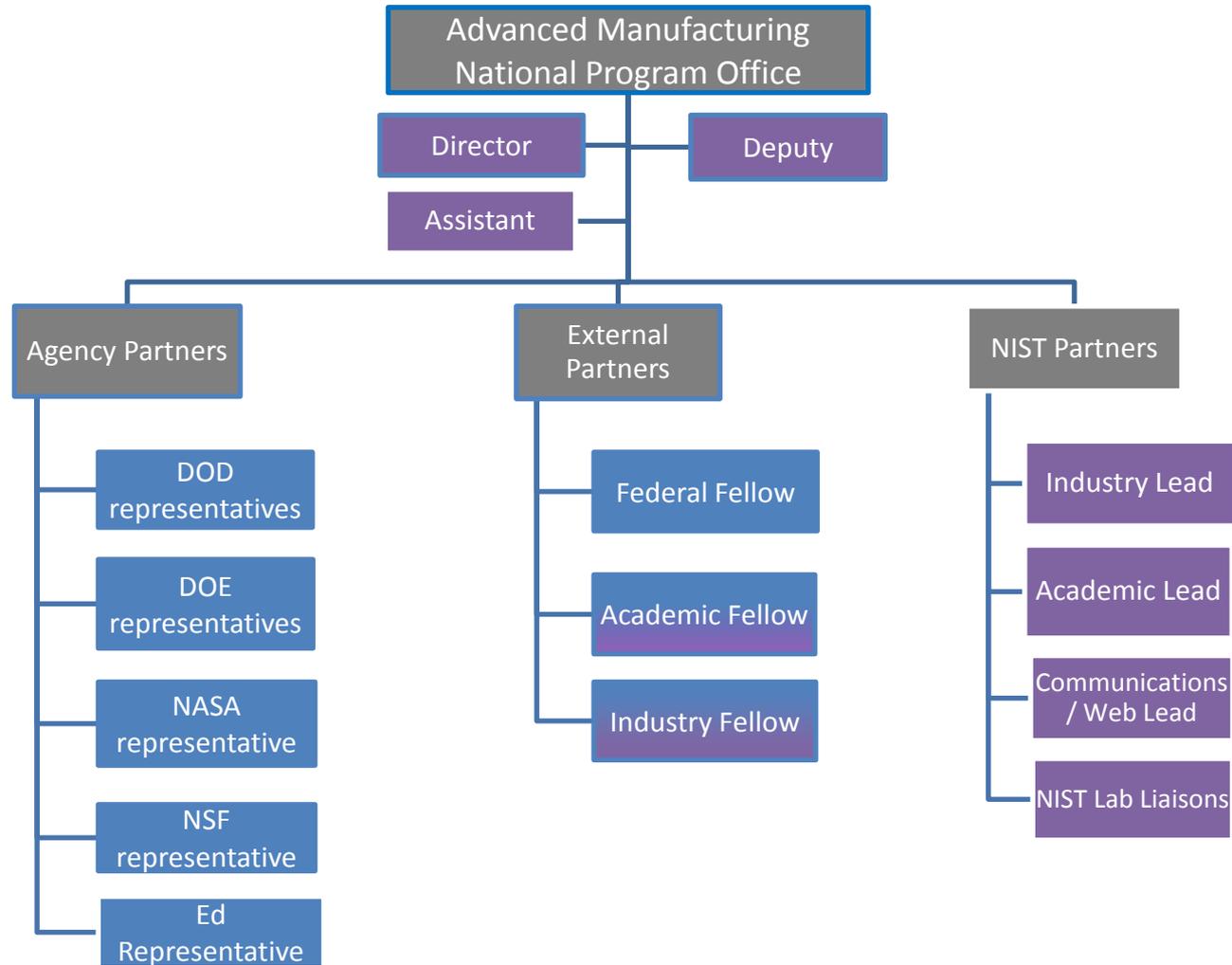
Official White House Photo by Pete Souza

# AM NPO Structure



NPO composed of members from key federal agencies, industry and academia  
Guided by agency leaders within National Science and Technology Council  
Works with agencies to create an integrated interface for advanced manufacturing  
Works with external stakeholders to establish/strengthen AMP private-public partnerships

# AM NPO Organizational Plan



**Legend:** Purple – NIST funded, Blue – Other funded

**MANUFACTURING**.GOV

COMMERCE DATA TOOLBOX EVENTS CONTACT



**SUPPORTING U.S. MANUFACTURERS**

**U.S. DEPARTMENT OF COMMERCE**

**ADVANCED MANUFACTURING**

A national effort to support the creation of good jobs through U.S. manufacturing.

**LEARN MORE**

**MAKE IT IN AMERICA**

Learn more about the partnerships and programs boosting domestic manufacturing across America.

**LEARN MORE**

**RESHORING**

Moving manufacturing production back to the United States.

**LEARN MORE**



## ABOUT THE ADVANCED MANUFACTURING NPO

To maintain the partnership's momentum, [U.S. Commerce Secretary John Bryson](#) has initiated formation of the National Program Office (Advanced Manufacturing NPO). Hosted by the National Institute of Standards and Technology (NIST), the office will be staffed by representatives from federal agencies with manufacturing-related missions as well as fellows from manufacturing companies and universities.

Also recommended in [PCAST's advanced manufacturing report](#), the Advanced Manufacturing NPO is charged with:

- *Convening and enabling industry-led, private-public partnerships focused on manufacturing innovation and engaging U.S. universities, and*
- *Designing and implementing an integrated whole of government advanced manufacturing initiative to facilitate collaboration and information sharing across federal agencies.*

By coordinating federal resources and programs, the Advanced Manufacturing NPO will enhance technology transfer in U.S. manufacturing industries and help companies overcome technical obstacles to scaling up production of new technologies.

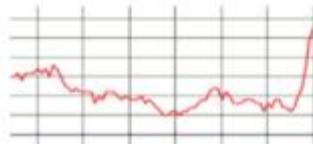
## WHO IS PART OF THE ADVANCED MANUFACTURING NPO?

## NEWS MANUFACTURING.GOV



President Proposes National Network for

## INDICATORS & DATA MANUFACTURING TRENDS



What the data are telling us about U.S. manufacturing

200,000 jobs were added in December, while the

## UPCOMING EVENTS FOR MANUFACTURERS

**MARCH 19-21, 2012**  
[Innovation Engineering Leadership Institute](#)  
Woodstock, Vermont

The Innovation Engineering Leadership Institute (IELI) uses advanced education programs and digital tools that build confidence in your ability to lead the creation, communication and commercialization of meaningful ideas.

**APRIL 23-25, 2012**  
[Innovation Engineering Leadership Institute](#)

# Advanced Manufacturing – National Program Office

## FY2012 Priorities – Plan, Lead, Build

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### 1. Plan: Strategic plans for Advanced Manufacturing

Single-agency advanced manufacturing activities: coordinate strategy, programs, and projects for Federal activities supporting AMP through NSTC



- DOD – ManTech, DARPA MDF, others



- DOE – EERE/AMO, BES, NNSA, EERE/Advanced Vehicles, others



- DOC – NIST Labs, NIST MEP, ITA, EDA, BEA, BLS, others



- NSF – ERC, IUCRC, Fellowships, ATE, CDMMI, others



- SBA – SBIR/STTR linkage, capital program



- DOL – ETA Training programs



- ED – Curriculum development, Registered Apprenticeships, others



- DHS – SECURE Early Procurement



- NASA – Adv Mfg office, other agencies: DOT, USDA, EPA

# Advanced Manufacturing – National Program Office FY2012 Priorities – Plan, Lead, Build

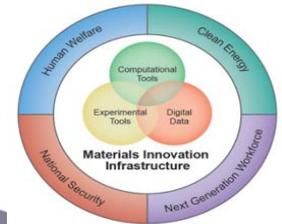
## 2. Lead: Provide whole-of-government interface to stakeholders

### Implement National Strategy for Advanced Manufacturing:

- *PCAST/AMP Recommended Objectives:* Enabling Innovation, Securing Talent Pipeline, Improving Business Climate
- *NSTC Recommended Objectives:* technology investment, workforce development, infrastructural technologies, partnerships, investment level
- Form / lead NSTC Adv Mfg Subcommittee Task Force groups for prioritizing and implementing objectives
- Task Force groups will execute and report progress towards plan

### Multi-agency activities: coordinate Federal activities supporting AMP

- Materials Genome Initiative (NIST, NSF, DOE, DOD, ...)
- National Robotics Initiative (NIST, NSF, NASA, ...)
- Manufacturing Jobs Accelerator (EDA, NIST-MEP, DOL-ETA, ...)
- Defense Production Act Committee (DOD, DHS, DOC, DOE, ...)
- Develop joint solicitations for
  1. Manufacturing Innovation Applied R&D
  2. Manufacturing workforce development, education
- Coordinate Department and Agency early procurement



MEP • MANUFACTURING  
EXTENSION PARTNERSHIP



## ***Advanced Manufacturing – National Program Office FY2012 Priorities – Plan, Lead, Build***

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### **2. Lead:** *Provide whole-of-government interface to stakeholders*

#### Electronic outreach

- *Federal advanced manufacturing web portal* – provide overarching interface for all federal activities and programs touching advanced manufacturing at [manufacturing.gov](http://manufacturing.gov)
- *Open government and manufacturing* – provide a single interface for government data on manufacturing activity through [manufacturing.data.gov](http://manufacturing.data.gov)

#### Physical outreach, U.S. regional planning meetings, public events

- Convene regional NNMI workshops for public input on design, communications and building support for authorization
  - 2012 target: 6 well executed workshops
- Public event outreach: Presence at all major manufacturing conferences
  - 2012 target: 12 major keynote speeches, 24 panels/events/talks

# Advanced Manufacturing – National Program Office FY2012 Priorities – Plan, Lead, Build

## 3. **Build:** *Pilot multi-agency initiative in Additive Manufacturing*

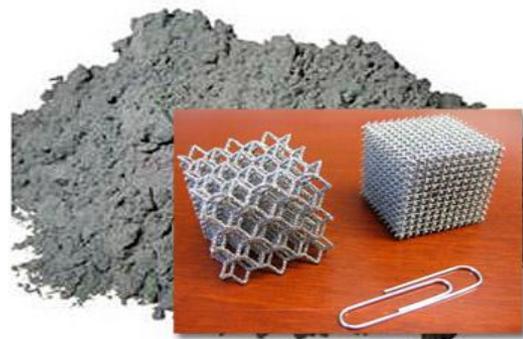
### **NOT a Pilot Institute for Manufacturing Innovation (IMI)**

Demonstrate the concept of a multiple-agency, industry, an academia jointly executing a single program.

Learn through the process of standing up the Pilot with our federal partners, and use lessons learned to benefit the design and structure of the NNMI.



Credit: Oak Ridge National Labs



Credit: NIST

### Award Schedule

BAA released on 8 May 2012

Proposer's Day held on 16 May 2012

**Proposal Due Date: 14 June 2012**

Agreement Award ~ 15 Aug 2012



Questions: [NNMI2012@wpafb.af.mil](mailto:NNMI2012@wpafb.af.mil)

# Agenda

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## **AMNPO Strategic Workplan**

- **Workplans from NSTC and AMP Recommendations**
- **Early Actions**
  - **National Network of Manufacturing Institutes**
  - **NNMI Pilot**

## Intra Commerce related programs

- Advanced Manufacturing Jobs and Innovation Accelerator
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# Workplans from NSTC/AMP

## Structure

- Goals – objectives/recommendations
- Metrics – short/long, priority, timing
- Mappings – AMP, Agency plans and programs

## Example

- NSTC Goal #2: *Increase worker skills* – support coordinated curricula for AM, expand career, tech educational programs
- Metrics - # industry partnerships w/providers
- Mappings – AMP 2.2, 2.3, 2.4, 2.5; DofEd

Source	THEMES	Objectives	Action Items	Timing	Lead
NSTC 1.1	<b>Accelerate investment in advanced manufacturing technology</b>	Increase coordination of adv. mftg investments with non-Federal investors	Identify and document the instances of firms in federal programs that are scaling up	ongoing	AMNPO
NSTC 1.2		Purchase adv. mftg products made early in the scale-up phase	Identify and document the list of federal user facilities - obtain usage data from each of these facilities	ongoing	AMNPO
NSTC 1.3		Invest in targeted areas of critical importance to national security.	Identify and document all DPA investments	ongoing	DPAC
NSTC 2.1	<b>Increase AM worker skills, adapt education/training to demand.</b>	Support coordination of education and training curricula with adv. mftg needs	Further develop the NAMS skill certification system to include many more types of technologies and applications	ongoing	ED
NSTC 2.2		Expand support for adv. mftg career and technical education programs	Identify and document the number of individuals in such vocational programs	ongoing	ED

# AMP Committee and Report



Andrew Liveris  
CEO, Dow Chemical



Susan Hockfield  
President, MIT

**AMP Steering Committee**: Leading experts from industry and academia, operating under PCAST providing recommendations on advanced manufacturing

1. Technology Development
2. Infrastructure and Shared Facilities,
3. Education and Workforce Development
4. Manufacturing Policy

## **AMP report completed, public release coming up**

- Recommendations in three areas: innovation, talent, and policy environment
- Well-aligned with earlier reports, e.g. PCAST 2011, NSTC 2012

## **Two early actions announced by Administration:**

- 1) Coordinated “whole of government” effort via Adv. Mfg. National Program Office
- 2) Pursue the “missing middle” via manufacturing innovation hubs

# President Announces NNMI

*"We have got to have this all across the country. I want everybody thinking about how are we making the best products, how we are harnessing the best ideas, and making sure they are located here in the United States. And sparking this network of innovation across the country it will create jobs and will keep America in the manufacturing game."*



White House photo

## ***President Proposed a National Network for Manufacturing Innovation***

- The President's Budget proposes a \$1 billion investment from mandatory funding to create this new National Network for Manufacturing Innovation.
- Startup investment for network, up to fifteen Institutes for Manufacturing Innovation
- Serve as regional hubs of manufacturing excellence that will help to make our manufacturers more competitive and encourage investment in the United States.

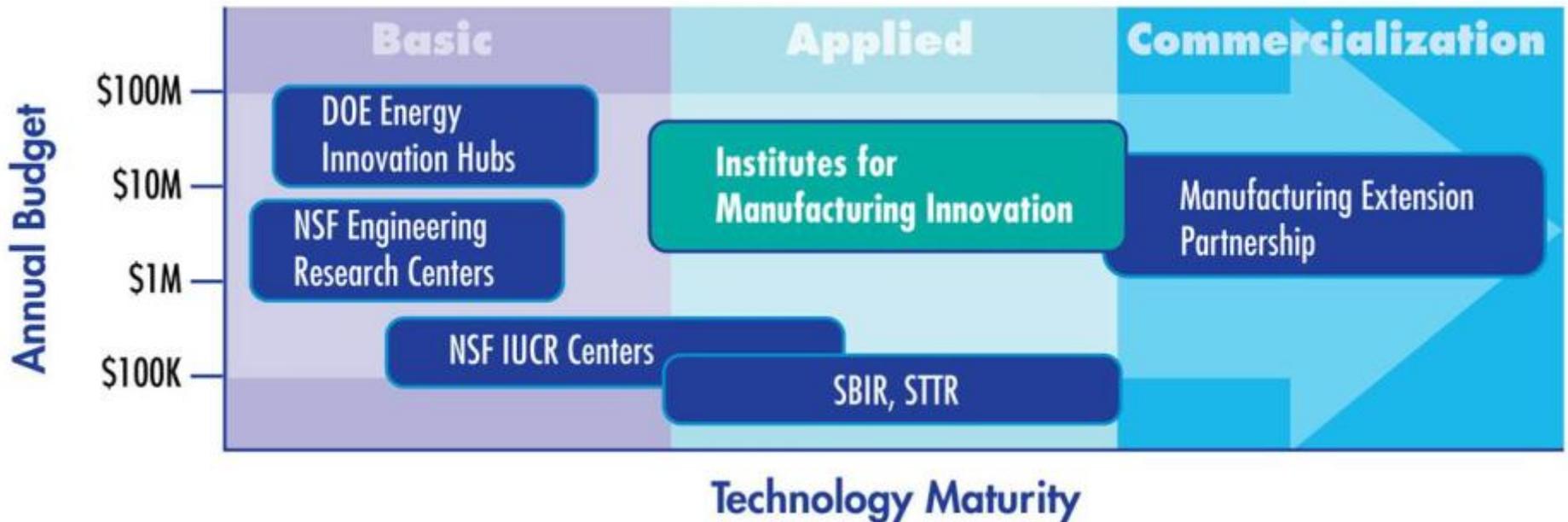
## ***Announced moving ahead now with 2012 Pilot Center***

- Pilot center will be funded from existing resources and authorities from the Departments of Defense, Energy, and Commerce , NASA and NSF

# Focus on Scale Up—Missing Middle

**Basic science**  
Largely government funded

**Commercialization**  
private sector owned/funded





# Institute Major Activities



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Credit: Dmitry Kalinovsky /Shutterstock



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**Tech Integration - Development of innovative methodologies and practices for supply chain integration**

**Small/Medium Enterprises**

- Engagement with small and medium-sized manufacturing enterprises (SMEs).

**Applied Research & Demo projects for**

- reducing cost/risk on commercializing new tech.
- Solving pre-competitive industrial problems

**Institute**



Source: istockphoto



Credit: Lisa Young/Shutterstock

**Education, technical skills and Workforce development**

Education and training at all levels for workforce development

# NNMI Public Outreach, Engagement in Design

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## Objectives

- Engage public and “crowdsource” design of IMIs and NNMI
- Build NNMI interest and support in Industry and Academia for legislative authorization
- Communicate Administration’s Mfg Initiative and federal manufacturing programs
- Create visibility of AMNPO “whole of government” partnership by multi-agency representation

## Plan

- NNMI RFI issued – May 4<sup>th</sup> through October 31<sup>st</sup>
- Public workshops around the nation
  - Troy NY – April 25<sup>th</sup>, with Rensselaer Polytechnic Inst.
    - 252 leaders from Academia, Industry, regional government and economic development
    - Comprehensive report, used as basis for future workshops
  - Cleveland OH – July 9<sup>th</sup>, with Cuyahoga Community College
- Inputs on manufacturing.gov
- Online NNMI wiki

# NNMI Workshop Plan

## Partner with private sector

- Hosted with educational institution and regional industry; no cost to host
- Sponsor agency covers fixed costs, participants cover variable (food, beverage) via registration fee
- Confirmed: Troy NY (NIST), Cleveland OH (NASA),
- Planned: Denver CO (DOE), Irvine CA (NIST),
- Tentative: Arlington TX (DOD), Orlando FL @ DMC (DOD)

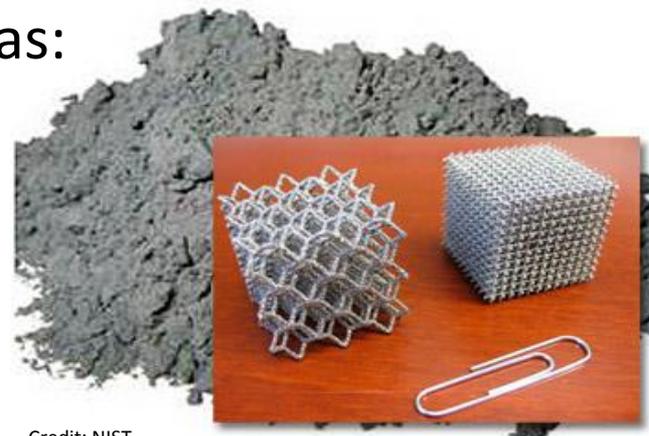


# Pilot Topic Chosen – Additive Manufacturing

- Additive Manufacturing: Process of joining materials to make objects from 3D model data, usually layer upon layer, as opposed to subtractive manufacturing methodologies, such as traditional machining. Synonyms include *additive fabrication, additive processes, additive techniques, additive layer manufacturing, layer manufacturing* and *freeform fabrication* (ASTM 2792-12)

- Wide variety of structural and functional material types and processes
- Any of the following, or combinations of the following, additive manufacturing focus areas:
  - Metallic Components
  - Polymeric/Composite Components
  - Electronic Components

“20% of output of 3D printers is now final products, rather than prototypes. By 2020 it may be 50%.”  
– *The Economist*



Credit: NIST

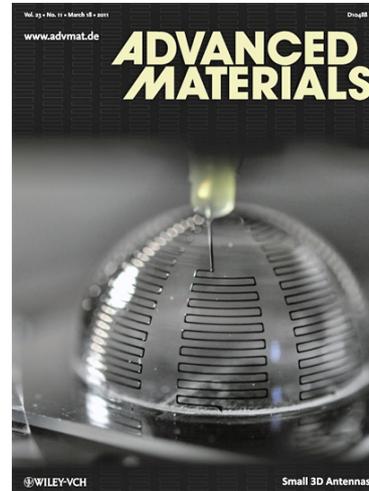
# Additive Manufacturing Pilot

DOD-led, multiagency initiative occurring now

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Much to learn through process of standing up the Pilot with our federal partners - use those lessons to benefit the NNMI design.



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# \$26 Million Federal Funding Opportunity (FFO)



## *Advanced Manufacturing Jobs and Innovation Accelerator Challenge*

- Goal:
  - To assist the development and implementation of regionally-driven economic development strategies that support advanced manufacturing and cluster development.
- Key Dates:
  - May 24, 2012 – FFO published
  - By June 7, 2012 – Online informational webinar
  - July 9, 2012 – Proposals due
  - Sept. 30, 2012 – Awardees selected
  - Nov. 1, 2012 – Start date
- Partnership between:
  - Dept. of Commerce Economic Development Administration (EDA)
  - Dept. of Commerce National Institute of Standards and Technology (NIST)
  - Dept. of Energy Advanced Manufacturing Office (AMO)
  - Dept. of Labor Employment and Training Administration (ETA)
  - Small Business Administration (SBA)
  - National Science Foundation (NSF)

Website: [www.manufacturing.gov/accelerator/index.html](http://www.manufacturing.gov/accelerator/index.html)

Questions: [mfgjobsaccelerator@eda.gov](mailto:mfgjobsaccelerator@eda.gov)

# Advanced Manufacturing Innovation Challenge



## *Benefits to Manufacturers*

The FFO provides funding for many purposes, including to:

- accelerate technological innovation, strengthen capacity in advanced manufacturing, and foster job creation;
- remove obstacles to growth;
- develop a skilled and diverse advanced manufacturing workforce;
- catalyze and leverage private investment; and
- increase exports.

Through our MEP Centers, NIST will:

- share market intelligence about trends in manufacturing,
- reach out to engage manufacturers in this effort, and
- develop strategies and deliver services that will help advanced manufacturing companies thrive and grow.

About 12 projects will be awarded.

Website: [www.manufacturing.gov/accelerator/index.html](http://www.manufacturing.gov/accelerator/index.html)

Questions: [mfgjobsaccelerator@eda.gov](mailto:mfgjobsaccelerator@eda.gov)

# Select USA

## An Information Clearinghouse for Global Investment Community

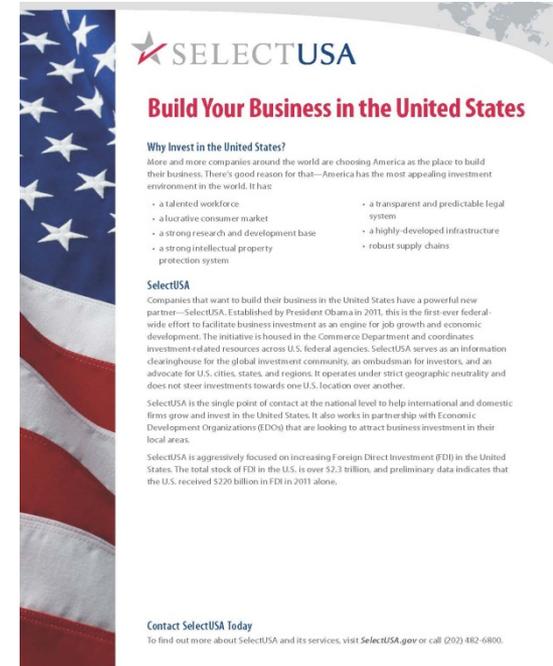
- Connects potential investors with EDOs in U.S. cities, states, and regions.
- Provides investors with information on federal programs and services available to businesses operating in the United States—including grants, loans, and other assistance programs.

## An Ombudsman for Investors

- Helps resolve issues involving federal regulations, programs, or activities related to existing, pending, and potential investments.

## An Advocate for U.S. Cities, States and Regions

- Helps level the playing field for U.S. EDOs competing with foreign locations for new FDI. With SelectUSA, EDOs now have an advocate at the national level to help attract, retain, and grow investment in the United States.



**SELECTUSA**

**Build Your Business in the United States**

**Why Invest in the United States?**  
More and more companies around the world are choosing America as the place to build their business. There's good reason for that—America has the most appealing investment environment in the world. It has:

- a talented workforce
- a transparent and predictable legal system
- a lucrative consumer market
- a highly developed infrastructure
- a strong research and development base
- a strong intellectual property protection system
- robust supply chains

**SelectUSA**  
Companies that want to build their business in the United States have a powerful new partner—SelectUSA. Established by President Obama in 2011, this is the first-ever federal-wide effort to facilitate business investment as an engine for job growth and economic development. The initiative is housed in the Commerce Department and coordinates investment-related resources across U.S. federal agencies. SelectUSA serves as an information clearinghouse for the global investment community, an ombudsman for investors, and an advocate for U.S. cities, states, and regions. It operates under strict geographic neutrality and does not steer investments towards one U.S. location over another.

SelectUSA is the single point of contact at the national level to help international and domestic firms grow and invest in the United States. It also works in partnership with Economic Development Organizations (EDOs) that are looking to attract business investment in their local areas.

SelectUSA is aggressively focused on increasing Foreign Direct Investment (FDI) in the United States. The total stock of FDI in the U.S. is over \$2.3 trillion, and preliminary data indicates that the U.S. received \$200 billion in FDI in 2011 alone.

**Contact SelectUSA Today**  
To find out more about SelectUSA and its services, visit [SelectUSA.gov](http://SelectUSA.gov) or call (202) 482-6800.

U.S. Department of Commerce | International Trade Administration

# Advanced Manufacturing Technology Consortia (AMTech)

This initiative will support R&D in advanced manufacturing and strengthen long term U.S. leadership in critical technologies leading to sustainable economic growth and job creation.

AMTech originally proposed in FY 12 at \$12.3M, *not funded*

President's FY 13 Budget Request: \$21M for AMTech

- House Appropriations Committee H.R. 5326 (5/2/12) - \$21M
- Senate Appropriations S. 2323 (4/19/12) - \$14.5M

AMTech program includes three categories of funding:

1. **Planning awards:** multi-sector consortia to develop a shared vision of industry's research needs via a technology roadmap
2. **Implementation awards:** larger awards to established consortia to facilitate the realization of clearly stated long-term industry research needs
3. **Minimal staff** to initiate and carry out the AMTech program

Deliverables and outputs:

- **Technology roadmaps** that reflect the needs of consortia members representing industry, small business, and other stakeholder groups
- **R&D outputs** as measured by metrics such as direct funding of research activities, generation of new knowledge, attraction of industry and state funding, and creation of new companies and jobs

*Thank you*

**For questions or comments please contact**

***Mike Molnar at [mike.molnar@nist.gov](mailto:mike.molnar@nist.gov)***

**or**

***Advanced Manufacturing National Program Office***

***[amnpo@nist.gov](mailto:amnpo@nist.gov)***