

# Designing for Impact I: Workshop on Building the National Network for Manufacturing Innovation



ADVANCED MANUFACTURING NATIONAL PROGRAM OFFICE

## Plenary Session

Rensselaer Polytechnic Institute  
Troy, New York

25 April 2012

# US Advanced Manufacturing

## Towards a National Network of Manufacturing Institutes

Jason Miller

Special Assistant to the President for Manufacturing Policy

Mike Molnar

Director, Advanced Manufacturing National Program Office

# Agenda

- **Why Manufacturing Matters**
- Administration Advanced Manufacturing Efforts
- Proposed NNMI / IMI Principles
- Pilot Institute in Additive Manufacturing
- Workshop Mission Today

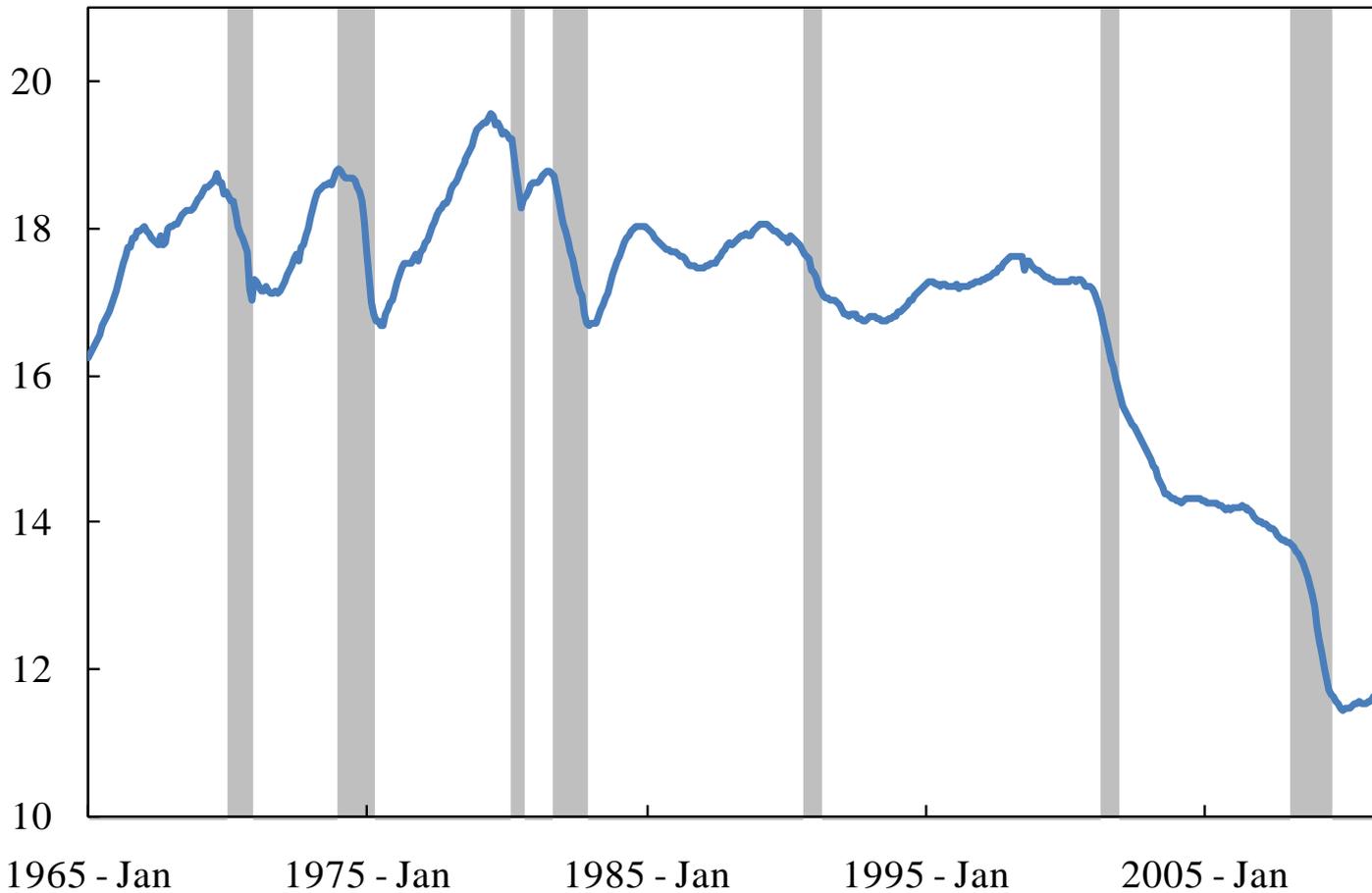
# An Economy “Built to Last” depends on Manufacturing



- 34 second clip of President in SOTU inserted here
- Emphasis on manufacturing

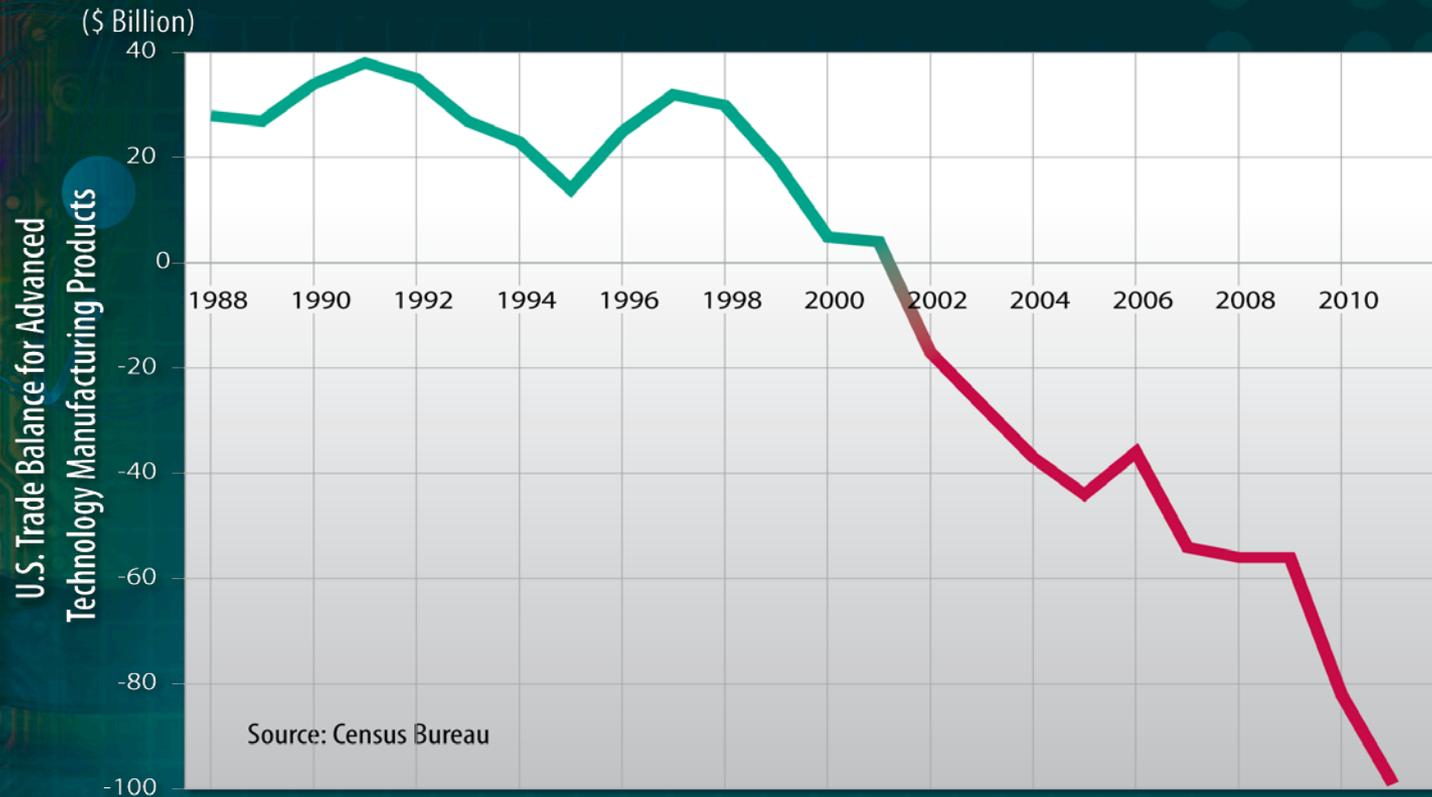
# Manufacturing Employment

Millions



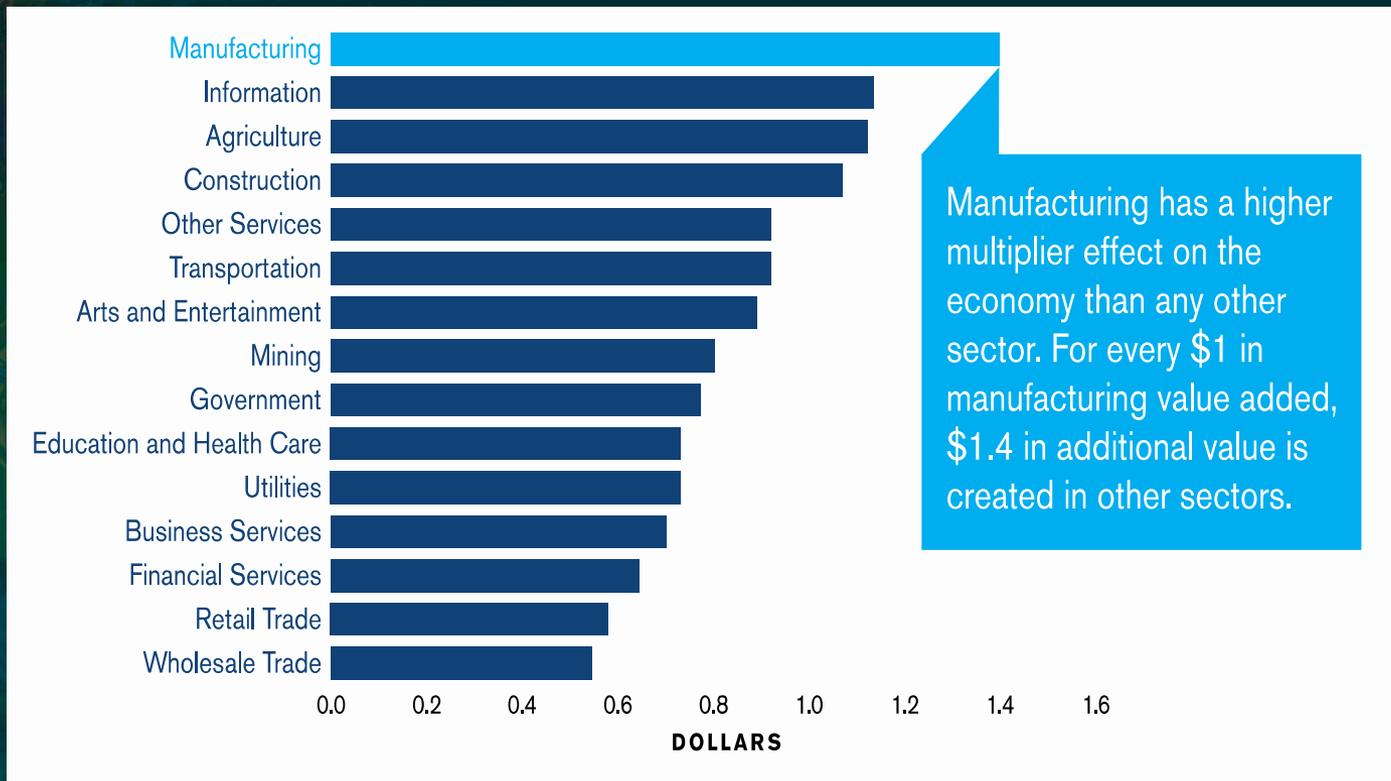
# So what IS the problem?

## U.S. Trade Balance for Advanced Technology Products



# Manufacturing and Jobs

- Manufacturing drives jobs throughout the economy, including in services



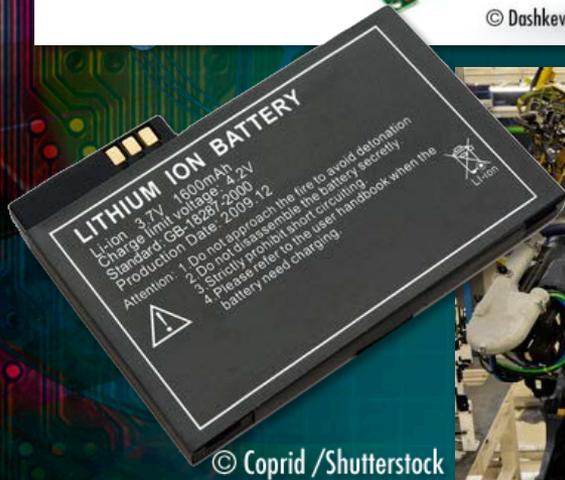
Source: U.S. Department of Commerce, Bureau of Economic Analysis

# Manufacturing and Jobs

- Manufacturing also has an important jobs impact in the local economy



# Manufacturing and innovation

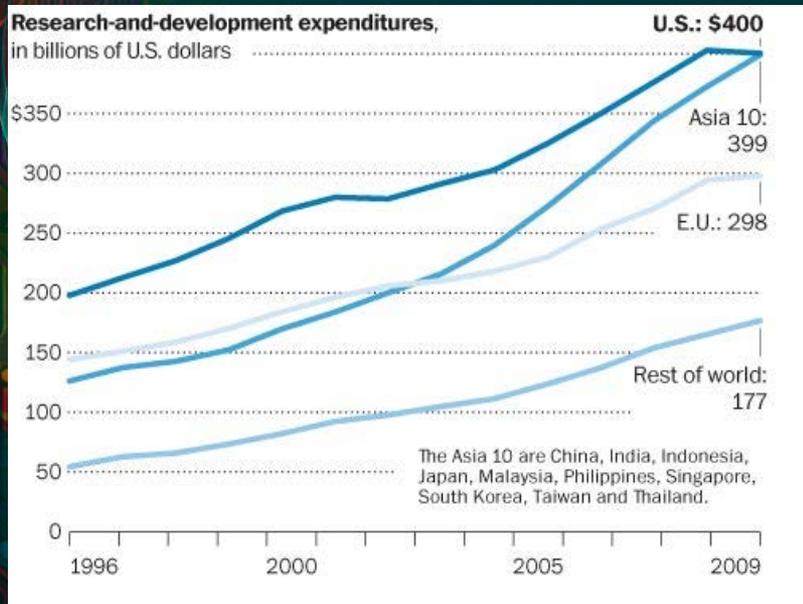


# National investment in R&D

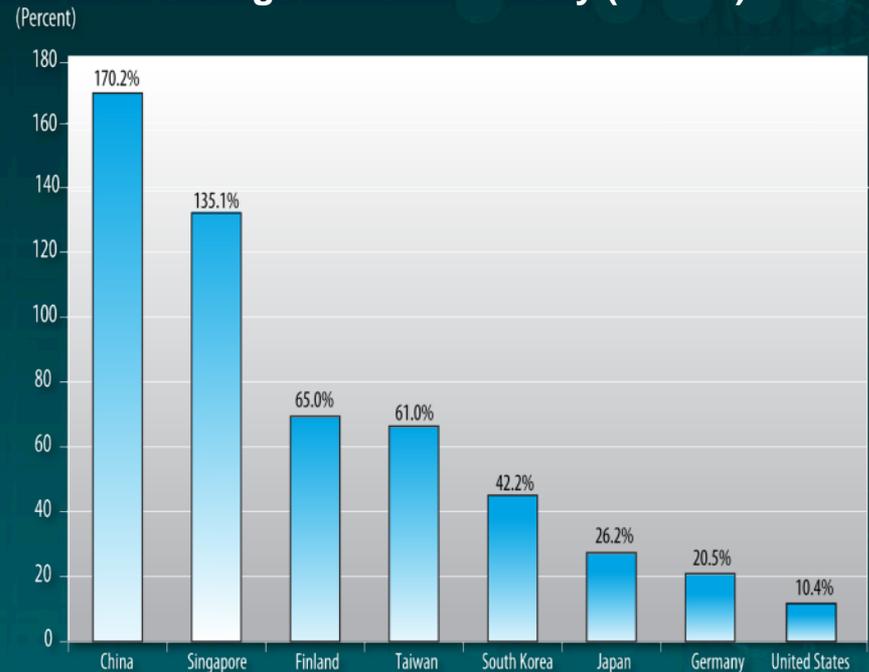
U.S. still outspends the world...

... but others are catching up

### Global R&D investments



### Change in R&D Intensity ('95-'08)



Source: OECD Main Science and Technology Indicators, 2010/1

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# Advanced Manufacturing Partnership Progress

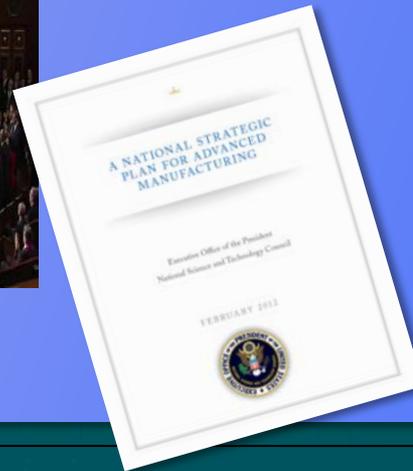
June  
2011



Jan  
2012



Feb  
2012



March  
2012



# Interagency Advance Manufacturing National Program Office (AMNPO)

Executive Office of the President



stakeholders

Advanced  
Manufacturing  
Partnership (AMP)

Advanced Manufacturing  
National Program Office  
(housed at DOC - **NIST** )

Advanced  
Manufacturing Agency  
Leaders (NSTC)

- NPO composed of members from key federal agencies, industry and academia
  - All staff are federal employees via IPA, Federal Fellow or NIST direct hire/short term authority
- 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

# A Renaissance in US Manufacturing AMP and NNMI



- 72 second video clip of President
- Renaissance in US manufacturing, Advanced Manufacturing Partnership

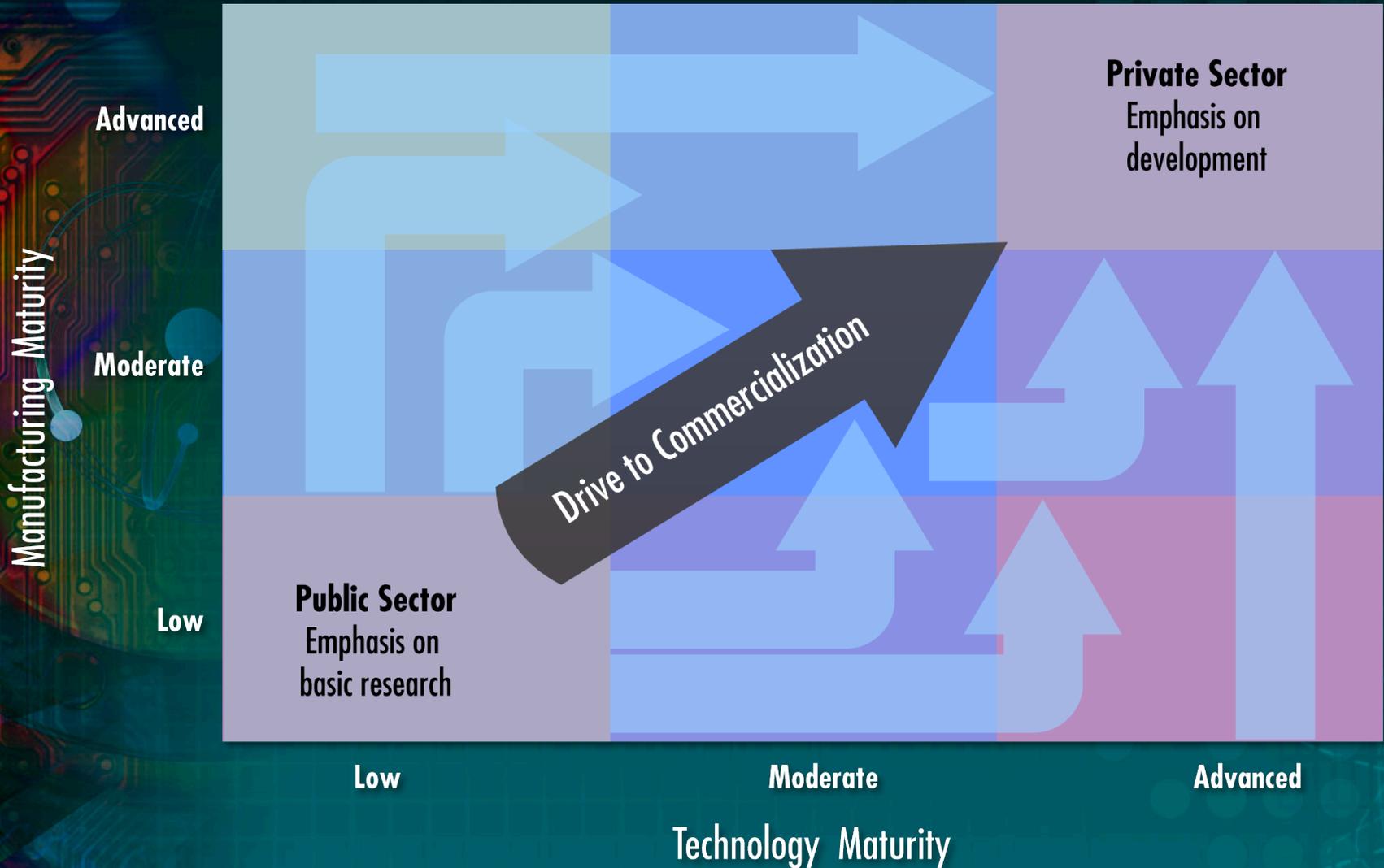
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# President Announces NNMI



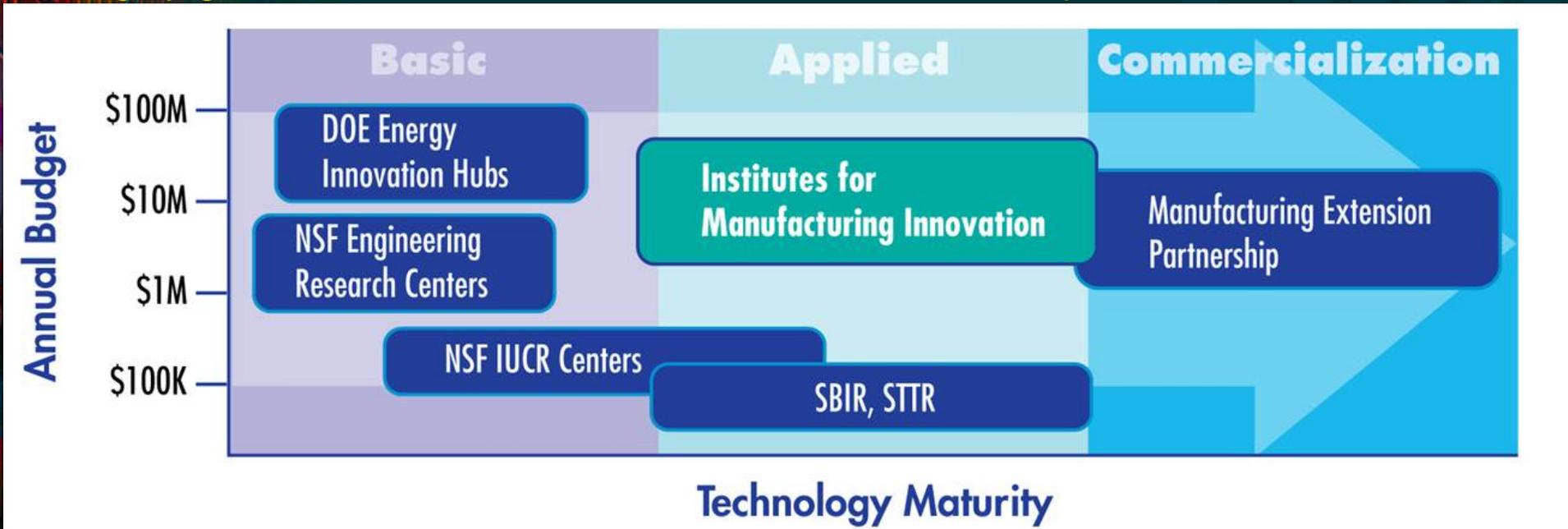
# Scale up involves innovation



# Focus on Scale Up – The Missing Middle

Basic science  
Largely government funded

Commercialization  
private sector owned/funded





# Major Activities



Institute



# Partnerships



- Grantee is self-assembled team of organizations
  - Industry – large + SME's
  - Research organization
- Partners may include
  - Career and technical education institutions (e.g. Comm. Coll)
  - State, regional, or local economic development organizations
  - Professional associations; industry associations; or other not-for-profit organizations.







# All proposals welcome

## – IMI topic category examples

### **A Manufacturing Process**

e.g. Additive Manufacturing  
(IMI FY12 pilot)

### **An Advanced Material**

e.g. lightweight, low cost  
carbon fiber composites

### **An Enabling Technology**

e.g. smart, sensor enabled  
manufacturing for  
productivity and  
sustainability

### **An Industry Sector**

e.g. bio-manufacturing to  
enhance safety, quality, cost  
and consistency of bio  
products

# Seeking Broad Public Input

- Formal RFI issued
- Public workshops held
- Inputs on [manufacturing.gov](http://manufacturing.gov)
- Online NNMI wiki
- All proposals welcome

**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](#)



## ADVANCED MANUFACTURING

### 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.

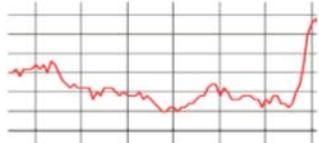
### WHO IS PART OF THE ADVANCED MANUFACTURING NPO?

### 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

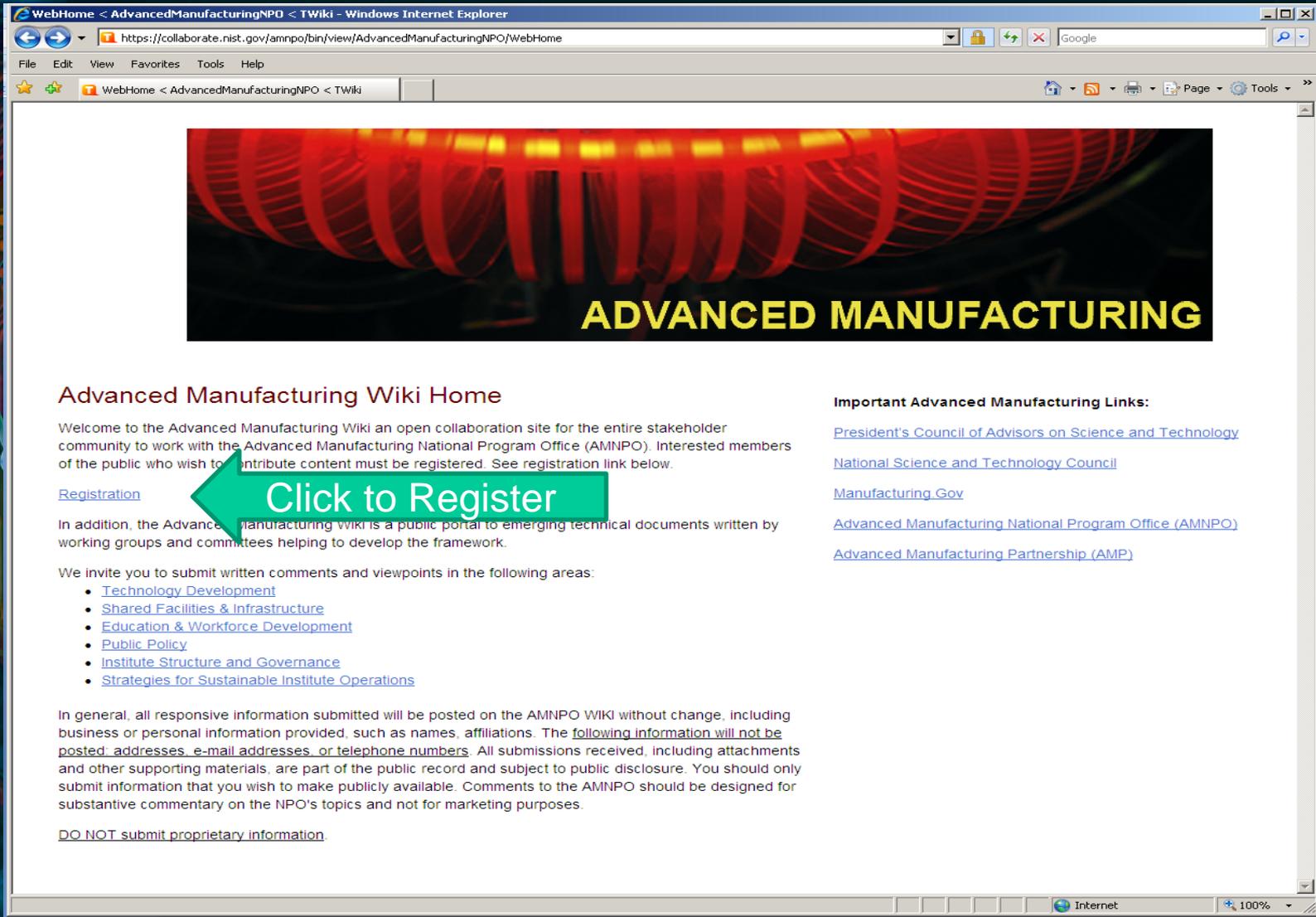
### UPCOMING EVENTS FOR MANUFACTURERS

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

The Innovation Engineering Leadership Institute (IEI) 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 Mfg Wiki for NNMI



WebHome < AdvancedManufacturingNPO < TWiki - Windows Internet Explorer

https://collaborate.nist.gov/amnp/bin/view/AdvancedManufacturingNPO/WebHome

File Edit View Favorites Tools Help

WebHome < AdvancedManufacturingNPO < TWiki



## Advanced Manufacturing Wiki Home

Welcome to the Advanced Manufacturing Wiki an open collaboration site for the entire stakeholder community to work with the Advanced Manufacturing National Program Office (AMNPO). Interested members of the public who wish to contribute content must be registered. See registration link below.

[Registration](#)

In addition, the Advanced Manufacturing Wiki is a public portal to emerging technical documents written by working groups and committees helping to develop the framework.

We invite you to submit written comments and viewpoints in the following areas:

- [Technology Development](#)
- [Shared Facilities & Infrastructure](#)
- [Education & Workforce Development](#)
- [Public Policy](#)
- [Institute Structure and Governance](#)
- [Strategies for Sustainable Institute Operations](#)

In general, all responsive information submitted will be posted on the AMNPO WIKI without change, including business or personal information provided, such as names, affiliations. The following information will not be posted: addresses, e-mail addresses, or telephone numbers. All submissions received, including attachments and other supporting materials, are part of the public record and subject to public disclosure. You should only submit information that you wish to make publicly available. Comments to the AMNPO should be designed for substantive commentary on the NPO's topics and not for marketing purposes.

DO NOT submit proprietary information.

### Important Advanced Manufacturing Links:

- [President's Council of Advisors on Science and Technology](#)
- [National Science and Technology Council](#)
- [Manufacturing.Gov](#)
- [Advanced Manufacturing National Program Office \(AMNPO\)](#)
- [Advanced Manufacturing Partnership \(AMP\)](#)

Click to Register

Internet 100%

# Selection Criteria

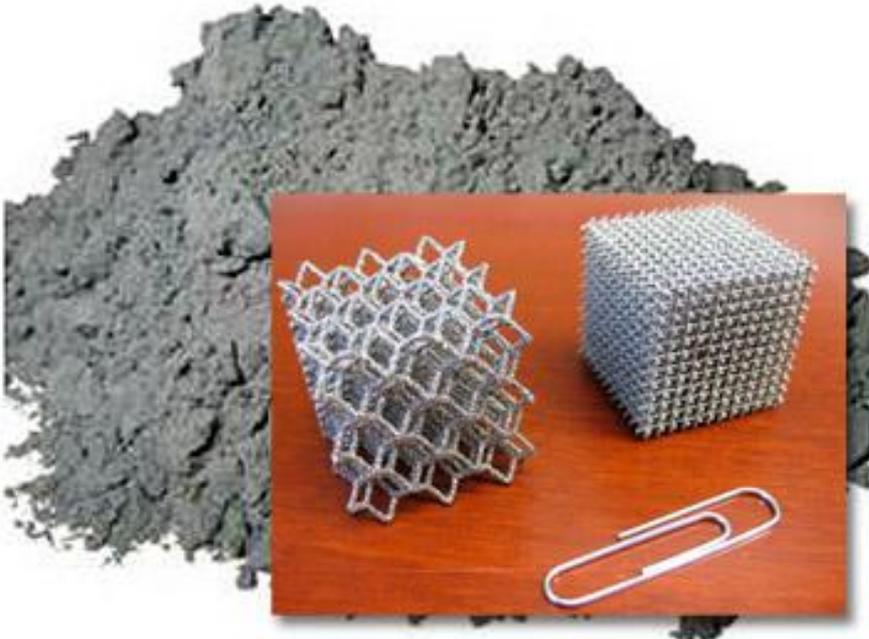
- Technology focus
- RD&D plan
- Broad Impacts
- Partner resources
- Partner investments
- Self sustainability



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# 2012 Pilot Manufacturing Institute on Additive Manufacturing



April

May

May

Summer

SN

BAA

Industry  
Day

\$45M



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

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# Public Dialogs Engagement Team

## Dialogue 1: Technologies with Broad Impact

*Agency Leaders: Rob Ivester, **NIST**; John Vickers, **NASA***

*Facilitator: Chris Clark*

## Dialogue 2: Institute Structure and Governance

*Agency Leader: John Christensen, **DOD**; Facilitator: Joan Pellegrino*

## Dialogue 3: Strategies for Sustainable Institute Operations

*Agency Leader: Leo Christodoulou, **DOE**; Facilitator: Fred Hansen*

## Dialogue 4: Education and Workforce Development

*Agency Leader: Russell Barton, **NSF**; Facilitator: Mauricio Justiniano*



*Thank you*

*Now let's go design a network of  
Institutes for Manufacturing Innovation!*