

# **NIST and the Advanced Manufacturing Partnership National Program Office**

**Visiting Committee on Advanced Technology  
February 8-9, 2012**

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# Overview

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- Advanced Manufacturing Activities
- Advanced Manufacturing Partnership (AMP)
- AMP Steering Committee
- AMP Workstream Study Groups
- Office of Manufacturing Policy (OMP)
- NSTC Working Group on Advanced Manufacturing
- VCAT / AMTech
- AMP National Program Office

# Advanced Manufacturing Partnership (AMP) Timeline

## Industry/Academia Led Activities

PCAST Report  
and Launch of  
AMP  
June 2011

AMP Workstream  
Study Groups  
July - Feb

AMP Public  
Outreach  
Meetings  
Oct - Dec

AMP Steering  
Committee via  
PCAST report  
April 2012

AMP strategy,  
implementation,  
public-private  
initiatives  
and institutional  
structures

## Government Activities

NSTC Interagency Working Group  
Advanced Manufacturing Report to Congress  
April - February

White House  
Office of Mfg.  
Policy  
December

Stand up AMP  
National Program  
Office  
Jan-Mar

2011

2012

# Advanced Manufacturing Recommendations: PCAST

## 1) Launch a Federal Advanced Manufacturing Initiative

- Concerted, whole-of-government effort, led by DOC, DOD, DOE and NSF
- Report to President on priority needs for Federal investments, including:
  - Coordinated Federal support to academia and industry for applied research on new technologies and design methodologies
  - Development and dissemination of design methodologies
  - Shared facilities and infrastructure to help small and medium-sized firms compete globally
  - Public/Private Partnerships (PPPs) to advance such technologies through pre-competitive consortia

## 2) Improve Tax Policy

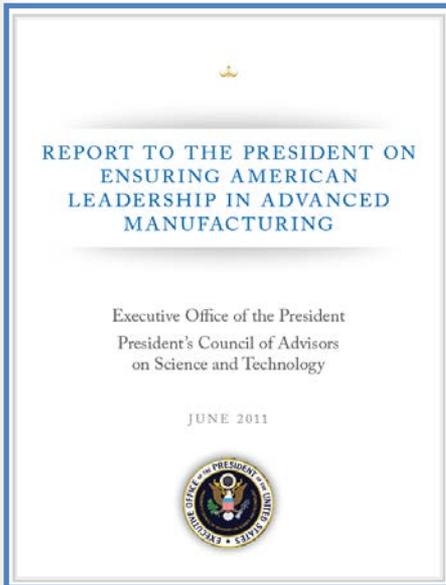
- Reform corporate income taxes, extend the R&D tax credit permanently and increase the rate to 17%, as advocated in the President's Innovation Strategy.

## 3) Support Research

- Strengthen research of three key science agencies: NSF, DOE O/S, NIST

## 4) Strengthen the Workforce

- Strengthen science, technology, engineering and mathematics (STEM) education



# Partnership for a US Manufacturing Renaissance

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*"Today, I'm calling for all of us to come together- private sector industry, universities, and the government- to spark a renaissance in American manufacturing and help our manufacturers develop the cutting-edge tools they need to compete with anyone in the world..."*

*With these key investments, we can ensure that the United States remains a nation that 'invents it here and manufactures it here' and creates high-quality, good paying jobs for American workers."*



**President Obama,  
on establishing Advanced  
Manufacturing Partnership  
June 24, 2011.**

# Advanced Manufacturing Partnership (AMP)

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## President Obama Launches AMP

June 24, 2011

Carnegie Mellon University



Official White House Photo by Pete Souza

## AMP Mission

Identify opportunities for investments in R&D, pre-competitive collaboration, and shared facilities and infrastructure that have the potential to transform advanced manufacturing in the United States, and recommend collaborative approaches that will realize these opportunities

## AMP Goals

- Sustain US advanced manufacturing capability
- Increase private sector investment in manufacturing
- Create new or enhance existing public private partnerships
- Leverage advanced infrastructure (e.g., facilities access)

# AMP Steering Committee

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Andrew Liveris  
CEO, Dow Chemical

## AMP Steering Committee Leadership

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 Outreach workshops held October 14, November 28, December 5, and December 12. AMP Webcast scheduled for February 14, 2012.

# AMP Workstreams

## **Manufacturing Policy**

**Workstream chairs:** Stryker, Carnegie Mellon University

**Study focus:**

- Produce recommendations to improve the overall climate for advanced manufacturing with a unique AMP focus on industry/university interactions
- Recognize and encourage tax, regulatory and trade policy enhancements similar to earlier reports (Jobs Council, PCAST, Manufacturing Council etc.)

## **Technology Development**

**Workstream chairs:** Honeywell International, University of California-Berkeley

**Study focus:**

- Identify top technologies with greatest impact on the retention and future growth of manufacturing in the USA, enabling differentiation & competitiveness for USA manufacturing from an end to end supply chain perspective
- Define Technology Roadmaps with actions, milestones, timelines for improving technology maturity and commercial usage

# AMP Workstreams

## Shared Infrastructure and Facilities

**Workstream chairs:** Caterpillar, University of Michigan

**Study focus:**

- Establish a network of *Manufacturing Innovation “Hubs”* to bridge this gap,
- Improve the competitiveness of small and medium size manufacturers by establishing a series of *Digital Manufacturing Innovation Hubs* to support design, simulation and modeling for manufacturing, and
- Establish a searchable national database of shared facilities.

## Education and Workforce Development

**Workstream chairs:** Allegheny Technologies, Stanford University

**Study focus:**

- Repair the image of Manufacturing
- Enhance manufacturing education at Community Colleges (CC).
- Leverage Federal funding to CCs to encourage manufacturing curriculum
- Establish a nationwide network of CC’s to coordinate AM curriculum
- Establish nationwide certificate programs for AM skills

# Office of Manufacturing Policy (OMP)

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Secretary Bryson  
Department of Commerce

## White House Office of Manufacturing Policy Co-chairs



Director Spering  
National Economic Council

**Office of Manufacturing Policy**: Operates within the White House NEC  
First cabinet level meeting held January 20, 2012

**Goal**: Ensure effective coordination of manufacturing policy implementation and to serve as a resource for agencies to highlight and coordinate their manufacturing activities

# NSTC Interagency Working Group on Advanced Manufacturing

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## NSTC Committee on Technology:

Interagency Advanced Manufacturing working group

- chartered March 30, 2011
- Co-chaired by DOE, DOD, and NIST



# NIST

**IAM Charter:** to develop a strategic plan to guide Federal programs and activities in support of advanced manufacturing research and development

**COMPETES REAUTHORIZATION 2010:** Congress calls for strategic plan to address

- Foster transfer of R&D results into U.S. based manufacturing
- Strengthen education and training to ensure a well-trained workforce
- Assist SMEs in developing and implementing advanced manufacturing
- Specify objectives, metrics, and roles

*Release of report to Congress targeted for late February 2012*

# VCAT Reports:

## Advanced Manufacturing Technology Consortia (AMTech)

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- Supports and provides federal resources to early-stage technology development in advanced manufacturing by promoting collaborative efforts between industry, government, and universities.
- Consortia will be tasked with:
  - Developing roadmaps of critical long-term manufacturing research needs.
  - Designing a manufacturing R&D infrastructure that spans the innovation life cycle.
  - Eliminating critical barriers to innovation and collapsing the time scale for new product and service delivery.



Credit: JupiterImages

# AMP National Program Office (NPO)

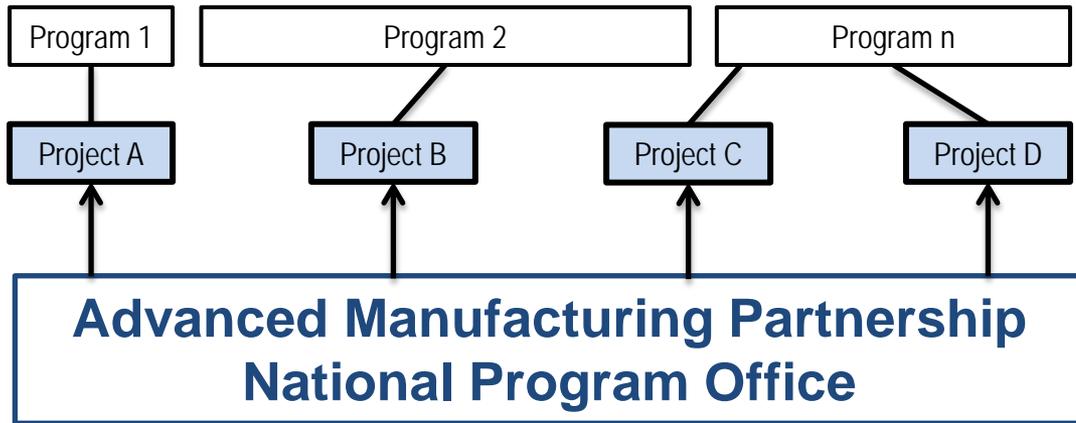
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- National Program Office for the Advanced Manufacturing Partnership to be established at NIST
  - Announced by Secretary Bryson, December 19, 2011
  - True interagency staff, with IPA/fellows from industry and academia
- The NPO for AMP will:
  - Lead other federal agencies involved in U.S. manufacturing and support interagency coordination of advanced manufacturing programs
  - Provide a linkage to the private-sector partnerships between manufacturers, government, and universities.
  - Satisfy the PCAST report recommendation to create an integrated private/public advanced manufacturing initiative.

# AMP-NPO: Core Federal Partners



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**AMP Programs**

Agency Projects

**NIST**

## AMP NPO Planned Activities

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- Respond to AMP, PCAST, IAM recommendations
- Coordinate federal advanced manufacturing strategic planning
- Coordinate AMP planning and budget activities with EOP
- Produce annual AMP supplements to the President's Budget
- Support advanced manufacturing public-private partnerships
- Establish broad engagement mechanisms among stakeholders in government, industry, and academia

# Preliminary NPO workplan

Establish core team of Commerce, Agency, Industry, and Academic staff

- Main offices at NIST in Gaithersburg
- DC offices for meetings and DC area detailees

Examples of coordinated initiatives with other agencies in Departments of Commerce, Defense, Energy and NSF

- Materials Genome Initiative, National Robotics Initiative
- AMTech Technology Roadmaps and Planning Grants
- Manufacturing Jobs Accelerator Grants
- Manufacturing Demonstration Facilities
- Advanced Manufacturing Pilot Projects
  - *Smart Manufacturing, Advanced Materials Processing, Product Technology Platforms, Data and Design Infrastructure*



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