



Education and Workforce Development in Advanced Manufacturing

David M. Hart
Office of Science and Technology Policy
Executive Office of the President

ANSI Joint Member Forum
March 20, 2012

Office of Science and Technology Policy: Background

Strategic Goals and Objectives

- **Ensure that Federal investments in science and technology are making the greatest possible contribution to economic prosperity, public health, environmental quality, and national security**
- Energize and nurture the processes by which government programs in science and technology are resourced, evaluated, and coordinated
- Sustain the core professional and scientific relationships with government officials, academics, and industry representatives that are required to understand the depth and breadth of the Nation's scientific and technical enterprise, evaluate scientific advances, and identify potential policy proposals
- Generate a core workforce of world-class expertise capable of providing policy-relevant advice, analysis, and judgment for the President and his senior staff regarding the scientific and technical aspects of the major policies, plans, and programs of the Federal government



OSTP Director: Dr. John P. Holdren

Advanced Manufacturing: A Top Administration S&T Priority

- Why?
 - Jobs, exports, national security, sustainability
 - Tight linkage to innovation
 - Bottom line: “An Economy Built To Last”
- Evidence:
 - Advanced Manufacturing Partnership
 - White House Office of Manufacturing Policy
 - FY13 Budget
 - National Network for Manufacturing Innovation
 - Etc.

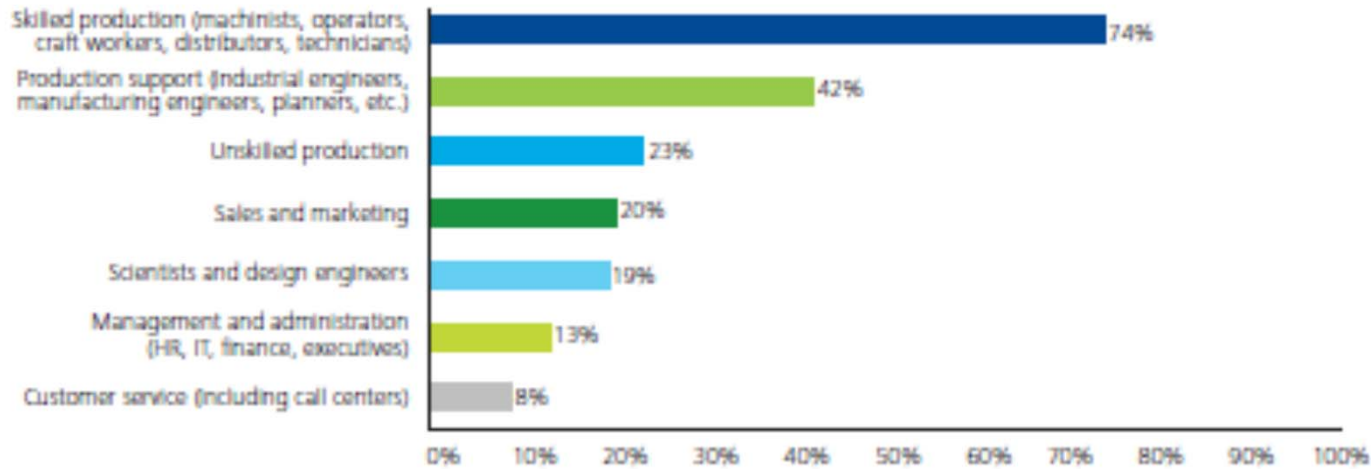
Education and Workforce Development: Essential for Manufacturing Innovation

- Innovation is about getting science and technology into *practice*
 - “Know how” as well as “know what”
- Nowhere more so than in manufacturing:
 - Complexity
 - Coordination
 - Teamwork

“According to our 1,000+ respondents, a skilled, educated workforce is the single most critical element of innovation success.”

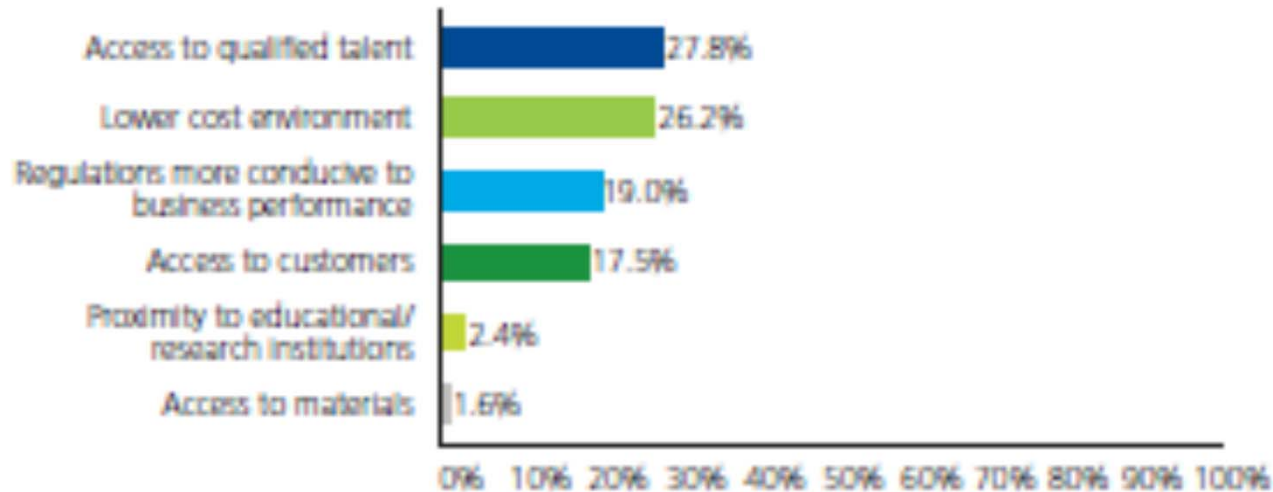
-- Boston Consulting Group, “The Innovation Imperative in Manufacturing” (2009)

Figure 3: For which employee segments have workforce shortages or skill deficiencies had a significant negative impact on your company's ability to expand operations or improve productivity?



Note: This is a multiple selection question, percentages may not add to 100%. Base used is 1123.

Figure 14: What is the most important consideration when selecting a geography?



Note: This is only applicable to respondents that stated they were considering moving which was 11% of total.

Perceived Skills Gap in Manfg.

Source:
Deloitte/
Manufacturing
Institute, 2011

The Administration Is Taking Action

- Educate to Innovate
- TAA Community College and Career Training Grants
- Skills for America's Future
- Advanced Manufacturing Partnership
- Strategic Plan for Advanced Manufacturing
- National Network for Manufacturing Innovation
- Community College to Career Fund

Educate to Innovate

Public-private campaign launched in 2009 to spur STEM education;
\$100M+ in commitments announced at 2012 White House Science Fair

Some Key Partnerships

- Change the Equation
- Digital Media/Learning Competition
- “100K in 10” teacher preparation
- White House Science Fair

“Through these efforts, we're going to expand the scope and scale of science and math education all across America.”



–President Barack Obama, November 3rd, 2009

TAA Community College and Career Training Grants

- A historic \$2 billion investment in community colleges, with focus on harnessing technology
 - \$500M a year for 4 years (giving opportunity to learn each year)
 - 1st round awarded; 2nd round in progress
- Community colleges encouraged to be in a consortium
- Key emphasis areas:
 - Industry-endorsed credentials
 - Partnership with industry
 - Leveraging technology
 - Evidence-based design
- Open licensing of materials

President and Dr. Biden at
Community College Summit, 2010



Skills for America's Future

- Private sector mobilization to ensure community colleges have strong business partners
- Partnership with the National Association of Manufacturers, with a goal of 500,000 community college students earning industry-recognized credentials
- Work with media partners to identify and socialize new skills



President Obama with teachers at Guilford Technical Community College in Jamestown, N.C., Oct. 18, 2011

Advanced Manufacturing Partnership

- Collaboration of industry, universities, and other stakeholders with the Federal government
- Mission: Identify opportunities for investment that have the potential to transform advanced manufacturing in the United States
- Steering Committee final report expected in late April 2012

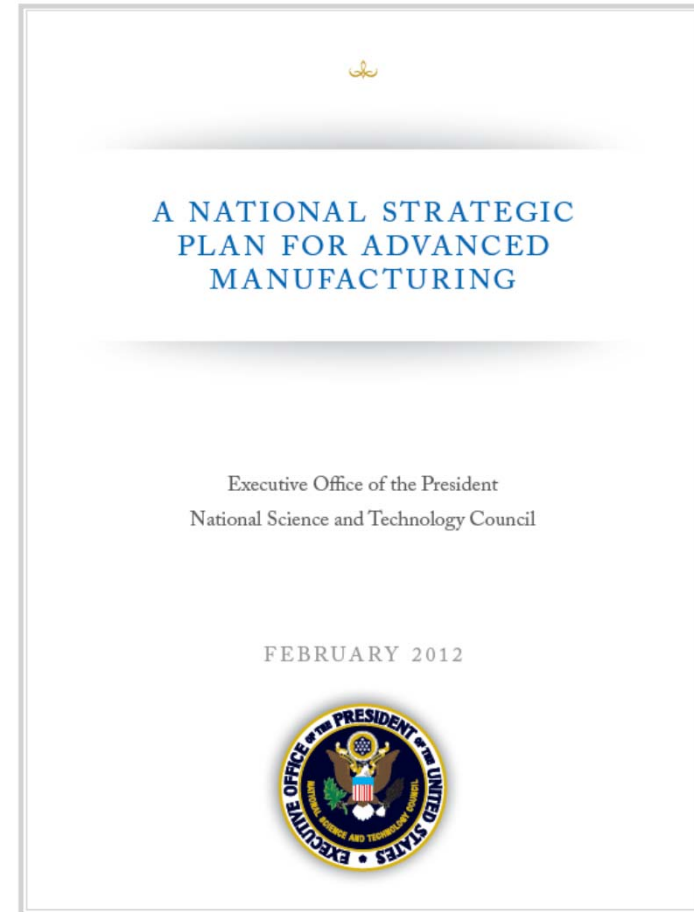


"I'm calling for all of us to come together- private sector industry, universities, and the government- to spark a renaissance in American manufacturing"

- President Obama at
Carnegie-Mellon University, June 2011

Strategic Plan for Advanced Manufacturing

- Released Feb 2012
 - Congressionally-mandated
 - NSTC interagency working group
 - Advanced Manufacturing NPO to coordinate implementation
- Objective 2: Make the education and training system more responsive
 - Coordination of education and training with advanced manufacturing skill-set requirements
 - Expanded support for advanced manufacturing career and technical education programs spanning secondary and postsecondary levels
 - Tapping into grassroots enthusiasm through hands-on education and apprenticeships



National Network for Manufacturing Innovation

\$1 billion FY13 proposal:

“institutes of manufacturing excellence where some of our most advanced engineering schools and our most innovative manufacturers collaborate on new ideas, new technology, new methods, new processes.”

\$45 million FY12 pilot:

“Later this year, we’re going to choose the winner of a competition for a pilot institute for manufacturing innovation -- help them get started.”



President Obama at Rolls-Royce Crosspointe, Petersburg, VA, March 9, 2012

Community to College Career Fund



Vice President and Dr. Biden with Secretary Solis at Davidson County Community College in Thomasville, NC, February 24, 2012

\$8 billion FY13 proposal:

- “train two million workers with skills that lead directly to good jobs”
- “helping community colleges redesign training programs, so students can learn the skills that are most in demand in industries like health care sciences and advanced manufacturing”

A President Who Believes in Investing in the Future

“An economy built to last is one where we encourage the talent and ingenuity of every person in this country.”

– President Barack Obama,
State of the Union message
Jan. 24, 2012



Astronomy night, 2009