The Advanced Manufacturing Technology Consortia (AMTech) Program and 2014 Federal Funding Opportunity

AMTech Informational Webinars

August 7 & 14, 2014

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Overview

Both Dates

- An Overview of AMTech and the 2014 Funding Opportunity

August 7th

- AMTech in the Context of Advanced Manufacturing and NIST
- Expectations and Outcomes
- AMTech Evaluation Criteria and Performance Reporting
- Evaluation, Selection and Award Announcements

August 14th

- Responding to the FY 2014 Solicitation
- Preparing a Complete Application (Proposal)
- Budget and Administrative Documentation
- Grants.gov

Both Dates

- Competition Resources and Next Steps

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What is AMTech?

The Advanced Manufacturing Technology Consortia (AMTech) Program

Launched by NIST in FY 2013

- To incentivize the formation of and provide resources to industry-driven consortia
  - To support basic and applied research
  - On long-term, pre-competitive and enabling technology development
- For the U.S. manufacturing industry
- $15M annual program

AMTech-supported consortia will strengthen the capacity of U.S. industry and the nation to compete in global markets

How Will AMTech Work?

- FY 2014 AMTech *Planning Awards* will fund eligible applicants to create new or strengthen existing driven technology consortia
- AMTech supported consortia will:
  - Identify and prioritize long-term, pre-competitive industrial research needs;
  - Enable technology development;
  - Create the infrastructure necessary for more efficient transfer of technology;
  - Represent a broad range of involved firms across stages of the value chain.
- When fully implemented, NIST envisions AMTech to offer funding in two broad areas: *Planning Awards* and *Project Awards*

2013 AMTech Competition Results

(www.nist.gov/amo/fundedawards.cfm)

- **Nineteen (19) Planning Awards, totaling $9 million**
  - 82 unique applications received
  - Applicants: 37 Academia / 42 Not-for-Profit /1 State Gov't / 2 For-Profit

- **Consortia Characteristics**

11 New	10 Academia
8 Existing	9 Not-for-Profit

- **Crosscutting Technologies* (# of efforts):**

Additive Manufacturing (1)	Advanced Forming & Joining Technologies (2)
Advanced Manufacturing & Testing Equipment (7)	Advanced Materials Design, Synthesis & Processing (2)
Advancing Sensing, Measurement & Process Control (1)	Biomanufacturing & Bioinformatics (1)
Flexible Electronics Manufacturing (1)	Sustainable Manufacturing (2)
Visualization, Informatics & Digital Manufacturing Technologies (2)	

* Taken from Advanced Manufacturing Partnership (AMP)

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The 2014 AMTech Funding Opportunity

Grants.gov Funding Opportunity No. 2014-NIST-AMTECH-01

For FY 2014

- Applications (proposals) for *Planning Awards* only

Funding Level & Instrument

- Total funding available: approx. $5.6 M
- Award size: approx. $250 k - $500 k
- Grant or Cooperative Agreement

Key Dates

- Solicitation released: July 30, 2014
- Complementary webinars: August 7 & 14, 2014
- Required Pre-Application due: September 5, 2014
- Pre-Applicants notified: September 24, 2014 (on or about)
- Full Application due: October 31, 2014
- Award Announcement: Q2, CY2015

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Partnerships and Eligibility

- Collaborative partnerships that include broad participation by companies of all sizes, universities and government agencies to form an industry-driven consortium are sought
- Eligible applicants may be any U.S. organization, located within the United States, excluding commercial organizations and federal entities
- An eligible applicant may work individually or include others effectively forming a team or consortium. Eligible subrecipients are the same types of organizations eligible to be applicants plus commercial organizations
- Commercial organizations may participate in teams as subrecipients, contractors or unfunded roles

Competition Resources

- Visit the AMTech Website at http://www.nist.gov/amo/
- Direct Questions to amtech@nist.gov

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What is Advanced Manufacturing?

A family of activities that:

- Depend on the use and coordination of information, automation, computation, software, sensing, and networking, and/or
- Make use of cutting edge materials and emerging capabilities enabled by the physical and biological sciences (e.g. nanotechnology, chemistry, and biology)

AM involves both new ways to manufacture existing products, and the manufacture of new products emerging from new advanced technologies.

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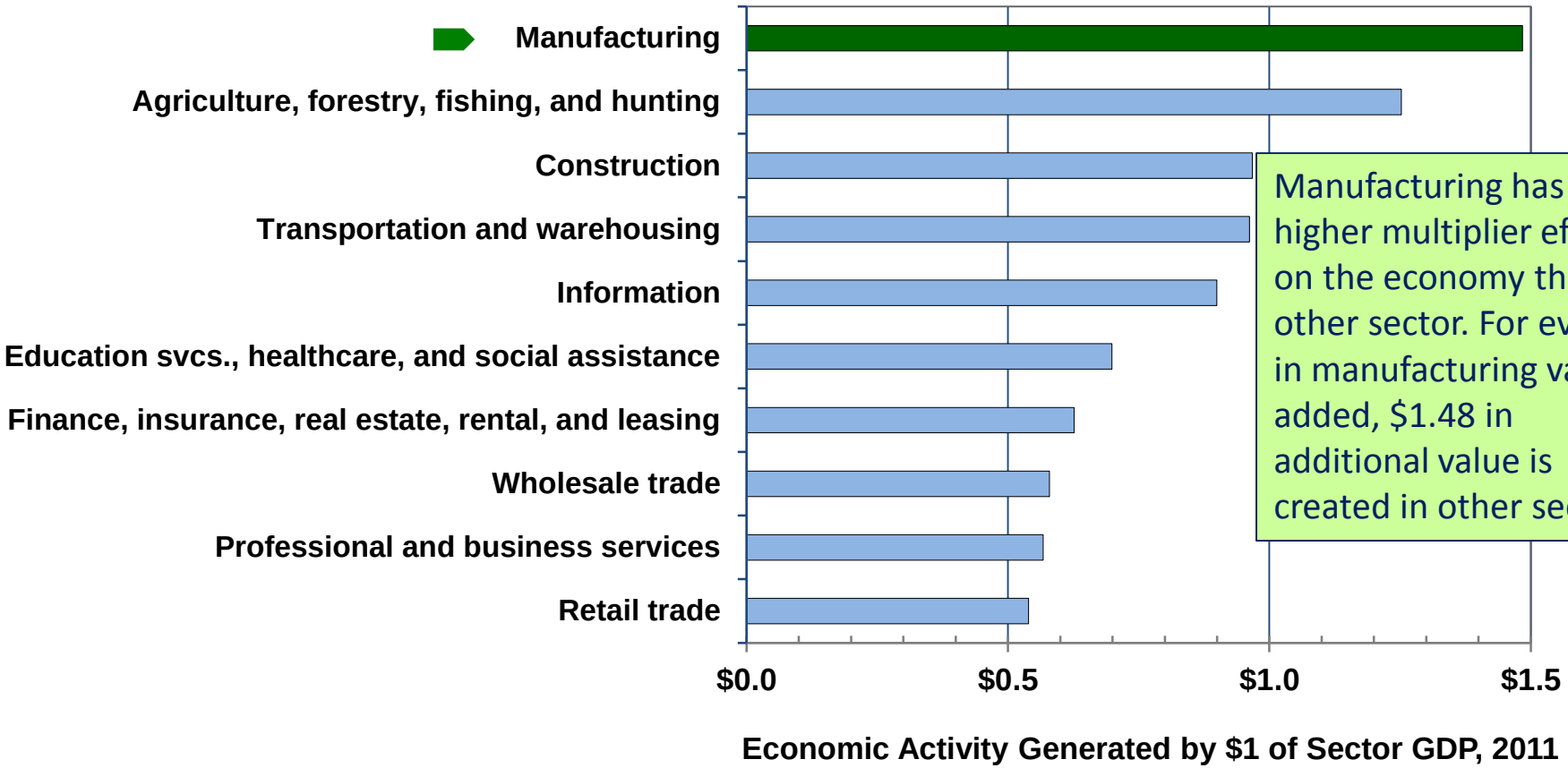
Manufacturing Economic Impact

Manufacturing drives jobs throughout the economy, including in services



Manufacturing has a higher multiplier effect on the economy than any other sector. For every $1 in manufacturing value added, $1.48 in additional value is created in other sectors.

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

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Manufacturing Innovation Impact

U.S. Manufacturers

- Employ 64% of all scientists & engineers
- Account for 70% of all U.S. patents issued annually
- More than a sector, an outsized contributor to the U.S. economy

10% of employment

12% of gross domestic product

47% of exports

66% of private R&D spent

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NIST: 110 Years of Service to Industry

The Congress finds and declares …

- The future well-being of the United States economy depends on a ***strong manufacturing base*** and requires continual improvements in ***manufacturing technology***, quality control, and techniques for ensuring product reliability and cost-effectiveness.
- Improvements in ***manufacturing and product technology*** depend on fundamental scientific and engineering research to develop
  a) the precise and accurate measurement methods and measurement standards needed to improve quality and reliability, and
  b) new technological processes by which such improved methods may be used in practice to ***improve manufacturing and to assist industry*** to transfer important laboratory discoveries into commercial products.

NIST Organic Act - 15 U.S.C 271, Section 1, 1988

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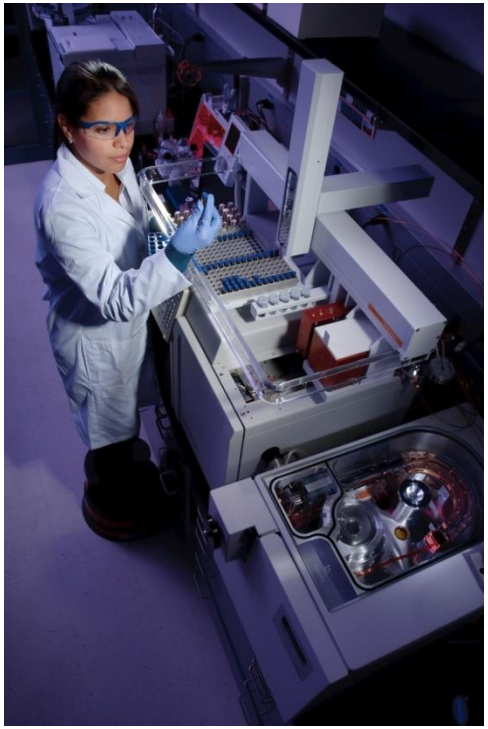

Manufacturing is in the NIST DNA

NIST and Advanced Manufacturing

AMTech – one among others within NIST

- NIST Laboratory Program – **measurement science and standards** serving manufacturing innovation in a range of business and technology areas
- Hollings Manufacturing Extension Partnership (MEP) – **a nationwide network of centers** providing a variety of services with special attention to the needs of small and medium-sized U.S. manufacturers
- Advanced Manufacturing Technology Consortium (AMTech) Program - **support industry-driven consortia** to develop research plans and collaborative actions to solve high-priority technology challenges in advanced manufacturing

NIST – host for the *Advanced Manufacturing National Program Office* and the proposed *National Network for Manufacturing Innovation (NNMI)*

AMTech - Strengthening the U. S. R&D Ecosystem in Manufacturing

Timeline

- June 2011 - *PCAST Advanced Manufacturing Report issued*
- July 22, 2011 - *NIST published a Request for Information (RFI) seeking public opinion on AMTech - a possible new program*
- February 7, 2012 - *NIST Visiting Committee on Advanced Technology (VCAT) and Advanced Manufacturing subcommittee endorse AMTech as a model public-private partnership for supporting technological innovation*
- FY 2012 budget - *NIST requests initial AMTech funding*
- FY 2013 - *AMTech first funded, $15 million annual; First Funding Opportunity published (7/2013), 19 Awards issued (5/2014), $9 million for planning activities*
- FY 2014 - *2nd AMTech Funding Opportunity for Planning Awards, '… establish new and strengthen existing industry-driven consortia …" to "… increase the number of industry sectors and organizations that participate in AMTech…"*

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Expectations and Outcomes

- Increase the number of industry sectors and organizations that participate in technology partnerships.
- Identify critical pre-competitive, enabling manufacturing processes and platform technologies.
- Unlock capital and spur industry-led research that arises from the partnerships and roadmaps.
- Spur technology diffusion and knowledge dissemination among the partnerships.
- Strengthen the capacity of new small and medium companies to become successful enterprises.

What's New in 2014?

- Required Pre-Application and down-select process
- Minor changes to evaluation criteria and weighting
- Minor changes to subrecipient eligibility
- Table of Funded and Unfunded Participants

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The 2014 AMTech Funding Opportunity Evaluation Criteria

A. Identifying and Addressing Significant Technical Challenges with Substantive National Impacts

0-40 points

B. Consortium and/or Road-mapping Development Plan

0-40 points

C. Resource Availability and Qualifications

0-20 points

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Criterion A: Identifying and Addressing Significant Challenges with Substantive National Impacts

The quality and technical merit of the proposed consortium development and/or roadmapping project in relation to the significant challenges, vision, scope, goals, objectives and outcomes

- **Impact on Early Stage, Advanced Manufacturing Technology Development**
  - The extent to which consortium activities will address major scientific and technological barriers that inhibit the growth of advanced manufacturing in the U.S.
  - The importance and significance of the challenges to be addressed by the proposed consortium development activity and/or technology roadmapping activity(ies) within the context of national needs, existing industry capabilities, and ongoing and existing efforts.
  - The degree to which the proposed activity(ies) will significantly advance pre-competitive, enabling manufacturing processes and platform technology research, advance the state of the art, and contribute to the U.S. knowledge base in critical advanced manufacturing sectors.

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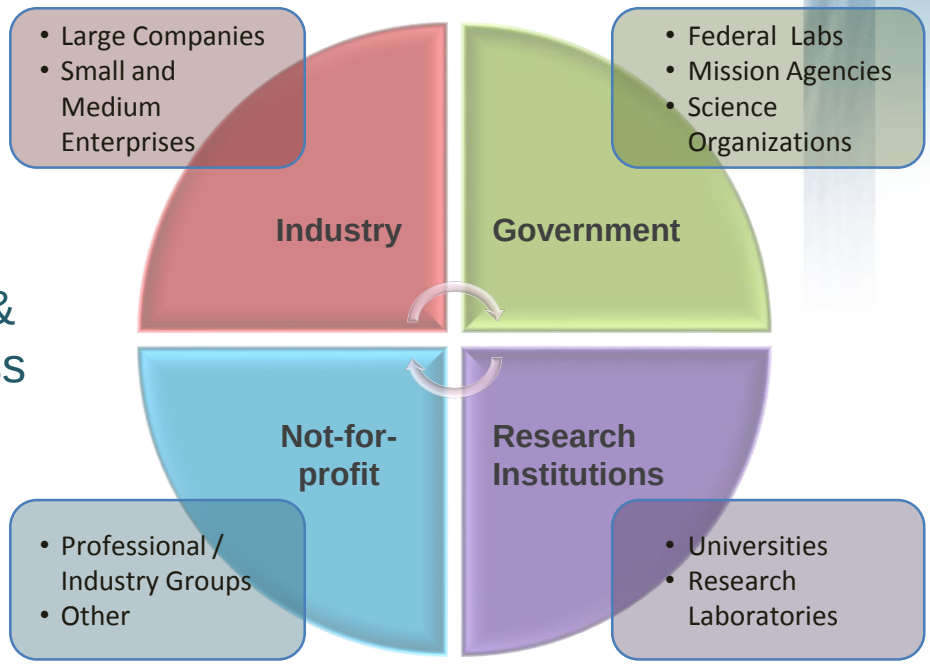
Criterion A: Identifying and Addressing Significant Challenges with Substantive National Impacts *(cont'd)*

- **Substantive National Impacts**
  - The extent to which the proposed consortium development and planning activities address critical national advanced manufacturing needs and are likely to produce substantive national economic impacts.
  - The degree to which the proposed activity(ies) has a strong potential to enhance U.S. manufacturing competitiveness in advanced manufacturing, significantly advance pre-competitive, enabling manufacturing technology research and the state of the art, and contribute to the U.S. knowledge base.
  - The degree to which the proposed activity(ies) has a strong potential to revitalize the U.S. leadership role in manufacturing, yielding high payoffs for the nation in terms of increased employment and output, and lead to the development of solutions that can provide a sustainable global competitive advantage for U.S. manufacturers.

Criterion B: Consortium and/or Road-mapping Development Plan

- The overall quality of the plan to perform the proposed work - "what, how, where, when, why, and by whom"
- The degree to which the entire value chain and relevant stakeholders, companies of all sizes, and universities & government agencies are involved across the consortium's activities
  - Particularly, where appropriate, small- and medium-sized manufacturers, or the consideration of their specific needs

Partnerships are Essential



- The proficiency to which the consortium development plan will identify & build a consensus regarding long term industry research & technology needs in the advanced manufacturing sector
  - The degree to which industry leadership is reflected within the funded consortium and/or roadmapping development plan

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Criterion B: Consortium and/or Road-mapping Development Plan *(cont'd)*

- The quality of the technology transfer plan & approach by the consortium, including:
  - Realization of U.S. benefits, technology diffusion, & the plan to accelerate the project results and/or move them into routine or commercial use
- The sustainability planning during & after the award period, including:
  - Consortium's models for funding, membership / collaborations, & how it will pursue projects resulting from the technology roadmapping needs
  - Plan to obtain and/or leverage complementary additional or external resources / support for consortium actions post award
- The quality and appropriateness of the project's progress monitoring systems, the project's measurable success criteria, & the means by which progress will be monitored & documented, including:
  - Appropriate interim and final key milestones for each year of the plan
  - Quality of the timeline provided, such as a Gantt chart, and ensuring that it logically illustrates the timing and interrelationships of major tasks
  - Key subtasks, and identifies the responsible parties for their completion

Criterion C: Resource Availability and Qualifications

- The resources & budget against the proposed project scope & activities, and the appropriateness & cost-effectiveness of the proposed resources & budget with respect to carrying out the work & meeting the objectives of the application

- The proposed consortium management model, including:
  - The operational or management structure, distribution of key management activities among consortium members
  - The methods by which industry leadership & the value-chain will drive the consortium's programs and efforts

- The qualifications of each funded team member – both organizations & individuals - and the team as a whole, including:
  - The qualifications of key personnel & participating organizations who will be assigned to work on the proposed project
  - Based upon the quality of the plan provided & the quality of the qualifications, experience & track record

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Performance Reporting

- Semi-annual Reporting
  - Financial Reports
  - Performance (Technical) Reports
  - Patent and Property Reports
    - Third Party Evaluation
      - ✓ To interface with NIST and award recipients
      - ✓ Ongoing evaluation and best practice identification
      - ✓ Recipients will be required to participate

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Evaluation, Selection and Award Announcement

Pre-Application Evaluation to consist of:

- **Initial Screening** for eligibility, completeness, and responsiveness to the FFO
- **Review** of applications that pass the above
  - How well the abbreviated technical narrative addresses the Evaluation Criteria
  - Reflective of broad-based industry need
  - Complementary to NIST's advanced manufacturing programs
  - Complements and does not duplicate current AMTech awards or other Federal projects
- **Pass/Fail** majority rule decision of the Evaluation Team
- **Applicants with merit** will be selected to submit a Full Application

Evaluation, Selection and Award Announcement *(cont'd)*

Full Application Evaluation to consist of:

- **Initial Screening** of all Full Applications for eligibility, completeness, and responsiveness to the FFO

  (See *Section IV.3.a* of the FFO for a complete list of required forms and documents)
- **Merit & Program Review** of Full Applications that meet the above
  - **Technical and Administrative Review**
  - **Evaluation Panel Deliberations and Merit Assessment**
  - **Adjectival Ranking and Recommendation**
- **Final Selection** by the Selecting Official
- **Award Negotiation and Issuance** by NIST Grants Officer (See *Section V.2* of the FFO for a complete description). Award decisions are final.
- **Awards anticipated** Q2, Calendar Year 2015

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Selection Factors

Selection and Final Award Recommendation by the Selecting Official includes:

- **Results** of the reviewers' evaluations
- **Evaluation Panel** evaluations
- **Availability** of funds
- **Relevance** of an application to the program as described in Section I of the FFO
- **Reflective** of broad-based industry need
- **Complementary** to NIST's advanced manufacturing programs
- **Complements and does not duplicate** current AMTech awards or other Federal projects

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Competition Resources and Next Steps

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  - ✓ ***View FAQs and webinar recordings and slides***
  - ✓ ***Join AMTech's LinkedIn Group***
- ***Grants.gov and [2014-NIST-AMTECH-01 FFO]***
- ***Email questions to: amtech@nist.gov***
- ***Key dates to remember:***
  - ✓ ***August 14, 2014 – Second AMTech webinar***
  - ✓ ***September 5, 2014 – Required Pre-Application due through grants.gov (only)***
  - ✓ ***September 24, 2014 (on or about) – Pre-Applicants selection notification***
  - ✓ ***October 21, 2013 - Full Application (invited applicants only) due through Grants.gov (only)***

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Questions

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Next AMTech Webinar – August 14, 2014

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Wrap up and Thank you

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- ***Complete a brief AMTech webinar survey at the conclusion of today's event. Thank you!***

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