

BUDGET ACTIVITY AND SUBACTIVITY: ADVANCED MANUFACTURING TECHNOLOGY CONSORTIA (AMTech)

BASE JUSTIFICATION FOR FY 2012:

AMTech is a new program proposed in FY 2012. This initiative provides grants to leverage existing consortia or establish critical new industry-led consortia. These consortia will develop road-maps of critical long-term industrial research needs, fund facilities, equipment and research at leading universities and government laboratories directed at meeting these needs.

PROGRAM CHANGES FOR FY 2012:

Advanced Manufacturing Technology Consortia (AMTech) (Base Funding: 0 FTE and \$0 million; Program Change: +1 FTE and +\$12.306 million)

This new initiative provides grants to leverage existing consortia or establish critical new industry-led consortia. These consortia will develop road-maps of critical long-term industrial research needs and fund research at leading universities, government laboratories and small business directed at meeting these needs. Since these consortia will be composed of private industry, government laboratories, and universities as well as regional governments and private sector financiers, the members will span the innovation lifecycle from idea to discovery, invention, and ultimately commercialization. The partnerships supported by this initiative will leverage the unique capabilities of each partner and depend critically on the open dissemination and sharing of methods and results. Through the advanced planning and road mapping, this initiative will increase the productivity of all research institutions that participate in this effort. By convening the key players across the innovation lifecycle, this initiative will eliminate critical barriers to innovation, increase the efficiency of domestic innovation efforts and collapse the timescale to deliver new products and services based on scientific and technological advance. This strategy has the potential to drive economic growth, enhance competitiveness and spur the creation of jobs in high value sectors.

Proposed actions:

U.S. R&D intensity is lagging other Nations and the composition of U.S. R&D has shifted toward short-term research. This leaves industry's long-term needs unmet and ultimately undermines our Nation's competitiveness. Currently, public institutions support curiosity driven academic research and private enterprise responds efficiently and effectively to current global competitive pressures. However, neither public institutions nor private enterprise are taking adequate actions to support transformational 21st century innovation.

- NIST will develop the AMTech program by building upon and leveraging critical synergies between:
 - NIST's successful partnership with the Nanoelectronics Research Initiative (NRI)
 - and draw on NIST's experience with awarding grants to industry-led consortia to perform the transformational research in areas of critical national need.

- This initiative provides grants to existing or critical new industry-led consortia. Grants will be competitively awarded to consortia composed of industry, Federal, university, regional, and other private sector partners. Criteria for award potentially include:
 - a demonstration of the innovative and high risk nature of the research to be supported;
 - a demonstration of the potential high impact of the research results and likelihood that these research results will transform industrial competitiveness;
 - a demonstrated need for NIST support of the consortia research agenda;
 - a demonstration that the consortium members span the innovation life cycle from idea to discovery, invention, and ultimately commercialization;
 - and a demonstration of how the proposed consortia builds upon existing regional assets and advantages.

- This initiative is built on the success of NIST's partnership with the industry-led Nanoelectronics Research Initiative (NRI). Modeled on the NIST/NRI partnership the AMTech program represents a new class of public-private partnerships that addresses certain weakness identified by evaluations of prior government/university/industry partnership efforts. A key Federal role in this new class of public private partnership will be to act as an honest broker to ensure the integrity of the research agenda and project selection. Additionally, these partnerships are built on open access to the pre-competitive intellectual property generated by university research performed through this collaboration. Finally, these partnerships leverage location economies and facilitate the transfer of knowledge by minimizing the cost associated with the transfer of academic research results to the industrial environment.

- The research progress of the AMTech partnership will be evaluated annually.

- NIST operates at the intersection of three assets critical to the Nation's innovative capacity and competitiveness: private industry, the university science base, and Federal research labs. To meet certain critical, cross-cutting and transformational challenges, this approach, which leverages the unique capabilities of each asset, was deemed more appropriate for achieving the program's objectives compared to alternative approaches that focused on individual assets (e.g., grants to private enterprise, grants to university researchers, or NIST intramural research).

- The AMTech program will complement other NIST programs and operating units. The programs in this initiative will strengthen the connections between NIST, industry and academia. To further enhance these benefits, NIST will coordinate these programs with NIST laboratories, user facilities, measurement services and standards. NIST extramural programs such as the Manufacturing Extension Partnership program can further aid technology development, dissemination and adoption.

Statement of Need and Economic Benefits:

- NIST has a long history of performing rigorous cost benefit studies of its programs and this program will be treated identically. NIST evaluations have demonstrated that programs have expedited the introduction of new technology, increased research efficiency, increased productivity, reduce transactions and adoption costs.

- Increase the Nation's return on its scientific investment.
 - Increase the efficiency of private and public research institutions.

- Stimulate investments in research targeted at long-run industry need.
- Collapse the timescale of technological innovation.
- Increase the efficiency of the U.S. innovation ecosystem
 - Increase productivity.
 - Lower transaction and adoption costs.
- Stimulate the economy and enhance competitiveness.

Base Resources Assessment:

- No base funding currently exists for this program.

Schedule & Milestones:

Note that in order to promote competition among regions and sectors, starting in FY2013 the number of planning grants exceed the potential partnership awards.

- FY 2012
 - Award up to two grants to establish or develop new consortia to identify critical long-term industry research needs (\$500,000/award).
 - Award 1-2 grants to established consortia with clearly identified long-term industry research needs identified in and explicit technology roadmap. Grant will be for up to \$5 - 10 million annually. All research will be directly traceable to the technology roadmap. Consortia grant will be renewable up to five years.

Deliverables:

Metrics

- Creation of Industry roadmaps
- Construction of facilities and provision of equipment
- Attraction of industry and state funding of directed basic research
- Attraction of state and venture funds to support commercialization
- Funding research activities and support graduate and post-doctoral researchers
- Production of new scientific knowledge and marketable inventions
- Creation of new companies and jobs in high value added sectors

PROGRAM CHANGE PERSONNEL DETAIL
(Dollar amount in thousands)

Activity: Advanced Manufacturing Technology Consortia
 Subactivity: Advanced Manufacturing Technology Consortia

Title:	Location	Grade	Number of Positions	Annual Salary	Total Salaries
Assesment Panel Member	Gaithersburg	ZP IV	1	\$105,211	\$105,211
Technical Project Manager	Gaithersburg	ZP IV	1	105,211	105,211
Total			<u>2</u>		<u>210,422</u>
Less Lapse		25%	<u>(1)</u>		<u>(52,606)</u>
Total full-time permanent (FTE)			1		157,817
2011 Pay Adjustment (0%)					0
2012 Pay Adjustment (0%)					0
TOTAL					<u>157,817</u>

Personnel Data

	Number
Full-Time Equivalent Employment	
Full-time permanent	1
Other than full-time permanent	0
Total	<u>1</u>

Authorized Positions:

Full-time permanent	2
Other than full-time permanent	0
Total	<u>2</u>

PROGRAM CHANGE DETAIL BY OBJECT CLASS
(Dollar amounts in thousands)

Activity: Advanced Manufacturing Technology Consortia
Subactivity: Advanced Manufacturing Technology Consortia

Object Class	2012 Increase
11 Personnel compensation	
11.1 Full-time permanent	\$158
11.3 Other than full-time permanent	0
11.5 Other personnel compensation	0
11.8 Special personnel services payments	0
11.9 Total personnel compensation	<u>158</u>
12 Civilian personnel benefits	42
13 Benefits for former personnel	0
21 Travel and transportation of persons	2
22 Transportation of things	0
23.1 Rental payments to GSA	0
23.2 Rental Payments to others	0
23.3 Communications, utilities and miscellaneous charges	48
24 Printing and reproduction	0
25.1 Advisory and assistance services	0
25.2 Other services	25
25.3 Purchases of goods & services from Gov't accounts	9
25.4 Operation and maintenance of facilities	0
25.5 Research and development contracts	293
25.6 Medical care	0
25.7 Operation and maintenance of equipment	6
25.8 Subsistence and support of persons	0
26 Supplies and materials	5
31 Equipment	11
32 Lands and structures	0
33 Investments and loans	0
41 Grants, subsidies and contributions	11,707
42 Insurance claims and indemnities	0
43 Interest and dividends	0
44 Refunds	0
99 Total obligations	<u>12,306</u>