From: jon.tirpak@ati.org [mailto:jon.tirpak@ati.org]
Sent: Tuesday, September 20, 2011 1:59 PM
To: amtech
Subject: AMTech Comments

Barbara, Michael,

Attached is the teamed response representing the Nation's forging industry response to NIST's Request for Comment on AMTech.

We look forward to further discussions regarding this important national issue. Should your team need to meet industry leaders at the Forging Industry Association or Forging Industry Education Research Foundation in Cleveland, Ohio or meet with the Forging Defense Manufacturing Consortium in Charleston, South Carolina, we could make the appropriate arrangements.

Please include us on all future correspondence regarding AMTech. We will do our best to respond.

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September 20, 2011

Subject: Response to NIST Docket Number 110620345-1331-02

National Institute of Standards
Department of Commerce
100 Bureau Drive
Gaithersburg MD 20899

Ms. Lambis,

The Forging Industry Association – Department of Defense Manufacturing Consortium (FDMC) offers the attached comments to the National Institute of Standards in assessing the optimal design and deployment of the Advanced Manufacturing Technology Consortia (AMTech) Program. Our input reflects years of consortium management and implementation of the Forging Industry Technology Roadmap. Critical to this response were comments provided by the Forging Industry Association (FIA) and Forging Industry Education Research Foundation (FIERF) and coordinated by FDMC.

FIA is the nation's leading forging trade association with nearly 100 years experience of representing forging producers. The association leads the industry Advocacy, Benchmarking, Driving Demand for Forgings, Global Networking, Technology and Training and Education activities to increase members' global competitiveness.

FIERF is the education and research arm of the forging industry which reaches into 19 magnet schools sponsoring research and scholarships and forming collaborative work groups based upon industry needs as outlined in the Forging Industry Technology Roadmap (initiated 1997 and last updated in 2008).

For the past 10 years the FDMC has supported both the industry and Department of Defense through its ManTech Programs. The consortium had investigated, developed and deployed a portfolio of technical and enterprise solutions. It is noted the FDMC is not focused solely on defense; the consortium can address additional national forging needs via other agencies such as the Department of Commerce.

Together, FDMC, FIA and FIERF cover all aspects of the US forging industry. As AMTech unfolds, this teamed relationship can simultaneously address the needs of the industry and the nation.

We hope the attached information assists NIST in designing the AMTech Program. We look forward to being an integral member of the program serving the industry and the nation through the development and deployment of technology while ensuring the competitiveness of the nation's forging industry.

Jon D. Tirpak, PE, FASM
FDMC Executive Director

Karen S. Lewis
FIERF Executive Director

Roy W. Hardy
FIA Executive Vice President

1. Should AMTech consortia focus on developments within a single existing or prospective industry, or should its focus be on broader system developments that must be supplied by multiple industries?

Answer: Both! Sweeping developments that cross cut industries should be pursued such as improved quality systems, product data models, sensors, etc. Industry specific developments should be pursued to account for industry specific needs such as thermophysical property data generation and data format standards specific to forging modeling.

2. Who should be eligible to participate as a member of an AMTech consortium? For example, U.S. companies, *i.e.,* large, medium and/or small; institutions of higher education; Federal agencies; state, local, and tribal governments, and non-profit organizations?

Answer: Permit membership for American based entities to include small, medium and large enterprises. Within the FDMC and the FIA we count many small to medium businesses within the realm of manufacturing and small business innovative research. Institutions of higher education should be involved. Within North America we reach out to 19 FIERF Magnet Schools which promote forging research, metallurgical engineering, manufacturing research, industrial engineering, operations research, and the like. (http://www.forging.org/FIERF/About_FIERFMagnet.cfm) Federal agencies, state agencies, local and tribal governments and nonprofits could all be eligible. The respective vision, missions, objectives, core competencies, business and strategic plans will determine consortium participation by these potential members.

3. Should AMTech place restrictions on or limit consortium membership?

Answer: Yes, focus membership on US based entities.

4. Who should be eligible to receive research funding as a member of an AMTech consortium? For example, U.S. companies, *i.e.* large, medium and/or small; institutions of higher education; Federal agencies; state, local, and tribal governments, and non-profit organizations?

Answer: Suggest using a prime integrator to manage and integrate funding to consortium participants. Between the combined, strategic oversight split between industry executives and government leaders, a fair and equitable approach can be tailored to meet the needs of the consortium, its customers and its members. Typically, consortia will establish the competitive process and objective criteria for distributing resources.

5. What criteria should be used in evaluating proposals for AMTech funding?

Answer: It depends on what the customers or stakeholders deem important; they will set the criteria for evaluating proposals. Criteria we invoke within the FDMC include but are not limited to: technical viability, technical competence, past performance, competitive rates.

6. What types of activities are suitable for consortia funding?

Answer: Research and development from Basic Research to Manufacturing Technology Research; Technology Transfer and Implementation; Program Management; Work Force Development; Energy Reduction Initiatives; Cost Reduction Initiatives; Quality Improvement Initiatives; Advanced Computing Technology related to the research.

7. Should conditions be placed on research awards to ensure funding activities are directed toward assisting manufacturing in the U.S.?

Answer: Yes, the research should relate to some link of the supply chain. For instance, sample FDMC research projects have related to forging tooling or forging process modeling. These activities are relevant, measurable and significant to the forgers ultimately invoking these technologies.

8. What are ways to facilitate the involvement of small businesses in AMTech consortia?

Answer: Apportioning some resources towards small business is a viable way of encouraging small business to participate. Financing college interns (undergraduate and graduate) to work in small manufacturers is another way to support small business.

9. What best practices for facilitating widest dissemination and adoption of knowledge and technology through consortia?

Answer: FDMC, FIERF, FIA disseminate information through various mechanisms: websites, technical demonstrations, conferences, webinars, papers, and work force development. With respect to work force development FIERF sponsored undergraduate and graduate students infuse new ideas into the forging industry, ideas they acquired at the FIERF Magnet Schools or internships.

10. While it is expected that the research efforts of AMTech consortia (including participants from the Federal, academic, and private industry sectors) will take place largely at the pre-competitive stage in the development of technologies, the generation of intellectual property is possible, and even likely. What types of intellectual property arrangements would promote active engagement of industry in consortia that include funding of university-based research and ensure that consortia efforts are realized by U.S. manufacturers?

Answer: Intellectual property agreements that truly protect the cost shared portions of the investment are appreciated and valued. Penalizing a cost sharing partner by releasing data too early alienates partners. Suggest a future workshop to explore best practices of intellectual property protection in precompetitive environments.

11. Would planning grants provide sufficient incentive for industry to develop roadmaps and initiate formation of consortia? If so, what percentage of cost sharing should be provided?

Answer: Industry partners should create their own roadmaps. This demonstrates their commitment to their technology domain and supply chains. Government partners could participate in the roadmap processes to articulate the needs of the nation from a federal perspective. A set of guidelines for consistent roadmaps and formats would enable standardized and uniform documentation. However, refrain from becoming too bureaucratic or burdensome. The Forging Industry Roadmap is available for benchmarking (http://www.forging.org/pdf/2008-Forging-Roadmap-Update.pdf).

12. Should each member of an AMTech consortia be required provide cost sharing? If so, what percentage of cost sharing should be provided?

Answer: Cost share demonstrates commitment by the members. 20% should be ample. However, a consortium manager should not be required to submit cost share.

13. What criteria should be used in evaluating in evaluating research proposals submitted to an AMTech consortium?

Answer: Criteria are imperative, but should be driven by the customers' or stakeholders' research objectives. TRLs and MRLs are good tools.

14. What management models are best suited for industry-led consortia?

Answer: The FDMC is governed by a Collaboration Agreement signed by the principals. An Executive Advisory Board provides strategic guidance to ensure the consortium achieves the objectives of its strategic plan. A Technical Advisory Committee provides tactical input to the consortium. A professional consortium manager is required to integrate all of the functions and chartered to manage day to day operations. We have experienced various levels of government participation with respect to involvement in the FDMC model. Regardless, it appears to have worked very, very well for the past 10 years!

15. Should the evaluation criteria include assessment of leadership and managerial skills?

Answer: Sure, the consortium leaders, project leaders, etc. need to be held accountable for leadership, management and program execution! They should be rewarded, too, for their hard work.

16. Should limitations be placed on duration of consortia?

Answer: Limits are not necessary, for the marketplace will determine the duration of the consortium. As long as there is a customer pull and supplier support of a consortium it should last as long as both of those two forces exist.

17. How should an AMTech consortium's performance and impact be evaluated? What are the appropriate measures of success?

Answer: Focus on the critical few metrics which can readily be measured. Quarterly reporting should suffice with annual summaries. The customers of any given project will provide the appropriate measures of success. TRLs and MRLs are appropriate.

18. What are the problems of measuring real-time performance of individual research awards issued by an industry-led consortium? What are the appropriate measures of success?

Answer: Typically the expectation of real-time performance is over ridden by human and bureaucratic systems which fall short of being real-time. Focus on the critical few metrics which can readily be measured. Quarterly reporting should suffice with annual summaries. The customers of any given project will provide the appropriate measures of success. Should real-time performance be required, interactive, web-based tools and dashboards are probably available in the commercial marketplace.

19. How should the NIST AMTech program be evaluated?

Answer: From a Strategic Level – The success of AMTech would be measured by its attainment of its Strategic Plan. On an annual basis we have experienced success with annual reviews of the FDMC Programs and Projects using the Joint Defense Manufacturing Technology Program (JDMTP) Evaluation Criteria in parallel with Technology Readiness Levels (TRLs) and Manufacturing Readiness Levels (MRLs).

20. What are lessons learned from other successful and unsuccessful industry-led consortia?

Answer: Best practices for consortium management are well documented. Within the FDMC these best practices include: Building trust among partners early in the process and maintaining trust throughout the consortium's life; providing value for both the government and industry, respecting the needs of both; providing a strategic plan with mission, vision, goals; invoking a consensus based roadmap; allocating resources for administering the consortium; and invoking a professional consortium management firm.

21. How can AMTech do the most with available resources? Are there approaches that will best leverage the Federal investment?

Answer: "A vision without funding is a hallucination." Source – Unknown, but it is true. Start with a critical mass of funding and leveraging will follow.

22. How should AMTech interact with other Federal programs or agencies?

Answer: AMTech interact with other Federal programs and agencies through the National Science and Technology Council and the Office of Science and Technology Policy at the executive level of the federal government. Systematically AMTech could interact with other federal programs and agencies as driven by dual use needs of the agencies' programs and AMTech.

23. What role can AMTech play in developing, leading, or leveraging consortia involved in other Federal agencies?

Answer: The AMTech can leverage existing entities such as the Office of Science and Technology Policy, the Federal Laboratories Consortium, various agency technology transfer offices to create a network of consortia via a searchable web based tool. In other words, AMTech could facilitate linking and leveraging existing and new consortia.