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To: amtech

Subject:

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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?

ATI has experience with single industry and single challenge consortia. We have found that single challenge consortia are supported by members of multiple industries when a standard that is valuable to multiple industries is the goal. Single industry consortia are very effective when the industry is stressed due to declining business, disruptive technologies, regulation, etc.

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?

The NIST intent appears to be a “public – private partnership” to advance the economic, environmental, or social value to the nation. Existing anti-trust legislation makes participation by a non-profit organization essential. ATI manages several industry consortia which include university participants, federal agencies, small and large corporations. Tribal governments may be appropriate in cases where tribal lands or people are stakeholders in the industry.

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

No.

4. Who should be eligible to receive research funding from 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

Funding should not be awarded directly to individual companies, universities or tribal governments. The level of cooperation and coordination requires a consortia governance structure that provides for efficient and effective management of schedule, budget and coordination. The participants will be

individuals who are employees of the various members of the consortia. Their activities will need direction and coordination from an overall manager.

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

ATI experience has been that the large corporations must lead the way. They need to have a passion for the goals and be committed to resourcing them. From the NIST perspective, there must be a national need and national benefit from achievement of the goals of the consortia. The governance structure should be a criteria. Technical approach should not be a big evaluation factor. The consortia should be allowed leeway to develop the technical approach that they believe will achieve the goal.

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

NIST should not limit the goals to manufacturing technology. Environmental, sustainability, energy consumption, and quality may be just as important to the industries. Funding of capital equipment should be avoided. NIST will not want to own such equipment, and industry consortia members will probably not share it. The types of activities may include conducting studies, surveys, and roadmap development; collaborative technology development, implementation and testing, and pilot projects; hosting workshops, conferences, and other forum for communication and collaboration. Consortia funding should support infrastructure costs, including program, administrative, and financial management, IT infrastructure, and other direct costs for consortia operation.

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

Yes.

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

The small businesses who are suppliers to the large corporations will join because they want to know what their customers are trying to do and how it could affect their business with those customers. They can also benefit if the consortia provides a way for them to market their products or capabilities to potential customers, including government agencies. Engaging these small businesses who are not suppliers to the large corporations is difficult. Some can't afford the time or the money. Many don't see the value from engaging. Most, of necessity, are short sighted when it comes to the long term health of their industry. An extension of the "Mentor/Protege" concept that the environmental restoration industry employs might be effective.

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

The National Shipbuilding Research Program and the American Metalcasting Consortium use on line project books and project reports/results to share knowledge among the members. ATI-led consortia have a “first adopter” approach where one or two members become the host of a pilot project and help prepare a report of the outcomes to the rest of the members. These results are often presented through demonstrations at conferences or other meetings. Online videos have also proven effective.

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 the funding of university-based research and ensure that consortia efforts are realized by U.S. manufacturers?

ATI has found that the participants do often develop processes that they consider proprietary. The approaches we use vary with the project, and ATI has experience with industries, universities, and government in arrangements that have been successful in each. Usually, protection of a process is left to that organization to assert and protect, especially in the case of background technology. ATI requires the deliverables in the contract are met. These include demonstrations, outcomes, reports and performance data.

11. Would planning grants provide sufficient incentive for industry to develop roadmaps and initiate the formation of consortia? If not, what other incentives should be considered?

Planning grants will incentivize an organization to undertake the effort to recruit the industry and academic participants. There must be a convincing business case throughout the whole industry to achieve the momentum needed to make the consortia effective.

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

The big corporations should provide in kind technical and business support. They'll do so because they often have already recognized the new challenges and assigned resources to start working on them. Cost sharing is becoming more difficult to obtain. Need to be careful on what is allowed as cost share – may want to call it matching funds and not use the FAR / DODGARS definitions of cost share. In many cases, Universities do not easily provide cost share. A realistic goal needs to be set – maybe 25% as an initial discussion point for consortia members to agree is realistic. Our ManTech contracts do not require share, but encourage it. The university faculty also recognize the new challenges and want to work on them. They just need a little funding and they'll join the effort with in kind sharing. The small businesses are more problematic. Some will see the consortia as an opportunity to be seized. Some will see the consortia as an unplanned expense. Most can't afford much cost share.

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

Evaluations should include technical, potential impact, applicability, cost reasonableness, and evidence of commitment and market. In the National Shipbuilding Research Program research domains are specified in an annual call for papers. A technical review is conducted by a panel of industry engineers and computer scientists. The research domains and final project selections are made by executives from the industry.

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

In the National Shipbuilding Research Program and the Product Data Exchange using STEP, the leadership is provided by a board of industry executives who approve the budgets and research initiatives of the consortium. A non-profit organization (i.e., ATI) along with a general manager / Executive Director is engaged by the board to carry out the day-to-day management, supported by technical advisory panels.

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

Yes, but it is not easy to make such an assessment. For evaluating the consortia, the proposed leadership structure and operation is important. Leadership is shared among the industry board members, general manager, and a government funding sponsor. . Consortia management expertise should be an evaluation criteria.

16. Should limitations be placed on the duration of consortia?

The federal budget process will necessitate limits on funding. Several of the consortia that ATI is providing management services to are continuing to function in to their second decade. If a limit is placed on the duration, it must be of sufficient length to allow the members to make progress and see the benefits of their investments.

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

The consortia performance may be measured by the number of advanced manufacturing products and services are accelerated across the phases of the innovation life cycle. The consortia management organization should have in place mechanisms for tracking investments and their impact. Some typical measures of success include: (1) participation by the various stakeholders; (2) number of implementations of the results; and (3) cost reductions realized from the consortium's projects.

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

Measuring real-time performance of a research award is little different with an industry-led consortium. The reporting mechanisms and processes may vary somewhat from what an individual researcher may typically use, but this is usually only a minor inconvenience. As an example, our shipbuilding research collaboration assigns project technical representatives from member organizations that are not on the specific project. These representatives monitor project performance against schedule and objectives, and review/approve all project deliverables. Each project is required to provide quarterly technical and business status which is reviewed/monitored by ATI and the consortia members. Each project is also required to establish metrics that define project success when the project is initiated. Risk factors and mitigating actions are also required from each project.

19. How should the NIST AMTech program be evaluated?

Ultimately, this consortium should provide clear evidence of contributing to the creation of innovation, leading to economic growth (including jobs creation) and enhanced competitiveness.

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

Initiating this consortia from an existing collaboration model will significantly speed up the effort. A clear set of common objectives will help gain buy-in and participation. The work plan should be developed by the industrial membership. The stakeholders providing direction are those showing an investment, in resources, time and energy. Show value and success regularly in the life of the consortium.

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

Invest in existing consortia.

Require projects to include decision points (“Go / No Go” criteria) at several points in the project life cycle to allow the consortium to terminate projects that are not delivering results. This will provide the potential re-direction of funding to more productive efforts.

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

Participation in government/industry conferences is a good way to keep up to speed on related efforts and transfer the technology the consortium is developing.

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