

**NATIONAL SCIENCE FOUNDATION
ARLINGTON, VA 22230**

**Engineering Directorate
Division of Industrial Innovation and Partnerships**

Report of the
Advisory Committee for
Small Business Innovation Research (SBIR) and
Small Business Technology Transfer (STTR)
Programs

12 May 2011

1.0 INTRODUCTION

The National Science Foundation (NSF) Advisory Committee (AdCom) for the Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Programs met May 12-13, 2011 in Baltimore, at the Phase II Grantees Conference.

Advisory Committee members in attendance included:

Patrick Brown
Mark Clevey
Arlene Garrison
Albert Johnson
Tom Knight (Chairman)
Angus Livingstone
Richard Paul
Karthik Ramani
Ann Savoca
David B. Spencer
E. Jennings Taylor

Advisory Committee members absent:

Susan Butts
Trish Costello
John Tao
Carol Wideman
Karen Kerr

NSF representatives attending all or part of the meeting included:

Kesh Narayanan, Division Director, Industrial Innovation and Partnerships (IIP)
Joseph Hennessey, Senior Advisor, IIP
Errol Arkilic, SBIR/STTR Program Director, IIP
Pakrash Balan, SBIR/STTR Program Director, IIP
Greg Baxter, SBIR/STTR Program Director, IIP
Glenn Larsen, SBIR/STTR Program Director, IIP
Murali Nair, SBIR/STTR Program Director, IIP
Ben Schrag, SBIR/STTR Program Director, IIP
Ruth Shuman, SBIR/STTR Program Director, IIP
Tony Walters, SBIR/STTR Program Director, IIP
Grace Wang, SBIR/STTR Program Director, IIP
Amanda May, Program Support Manager, IIP
Bernadine Okoro, IIP
George Vermont, SBIR/STTR Expert, IIP
Tiffany Sargent, AAAS Fellow, IIP
Malathi Srivatsan, AAAS Fellow, IIP

Other representatives attended all or part of the meeting included:

Winslow Sargeant, Chief Counsel for Advocacy, Small Business Administration

2.0 AGENDA

The agenda for the meeting is included below.

Thursday, May 12, 2011			
8:30 am to 8:45 am	Welcome & Introductions (Tom Knight & Kesh Narayanan)		
8:45 am to 2:30 pm	Highlight Presentations: SBIR Assessment Report (George Vermont) Assessment Tool (Tiffany Sargent) Diversity/Broadening Participating (Malathi Srivatsan) Entrepreneurial Education (Kesh Narayanan) IIP Strategy Plan (Kesh Narayanan)		
2:00 0m to 2:30 pm	Presentation: SBIR/STTR Program Updates (Joe Hennessey)		
2:30 pm to 3:30 pm	Break-out Working Group Sessions		
	<table border="1"> <tr> <td>Working Group Session: Budget Implications <u>Group Members</u> E.J. Taylor Mark Clevey Arlene Garrison Dick Paul</td> <td>Working Group Session: Reauthorization – use of Administrative Funds <u>Group Members</u> Tom Knight Pat Brown Angus Livingstone Karthik Ramani</td> <td>Working Group Session: Strategy Implementation <u>Group Members</u> Trish Costello Al Johnson Ann Savoca Dave Spencer</td> </tr> </table>	Working Group Session: Budget Implications <u>Group Members</u> E.J. Taylor Mark Clevey Arlene Garrison Dick Paul	Working Group Session: Reauthorization – use of Administrative Funds <u>Group Members</u> Tom Knight Pat Brown Angus Livingstone Karthik Ramani
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3:15 pm to 4:30 pm	Report out from Working Groups		
4:30 pm to 5:00 pm	Feedback on Phase II Grantees Conference		
Friday, May 13, 2011			
8:30 am to 9:30 am	AdCom Deliberations		
9:30 am to 10:30 am	Presentation: Winslow Sargeant, Chief Counsel for Advocacy SBA Office of Advocacy		
10:30 am to 11:15 am	AdCom Feedback to NSF		
11:15 am	Adjourn		

3.0 COMMENTS and FEEDBACK

The AdComm considered and provided feedback on the following discussion items from the meeting agenda.

Discussion and Approval of Minutes from Prior Meeting

After a brief discussion, the AdComm approved the minutes from the previous meeting held in October 2010.

SBIR Assessment Report

The AdComm members thank George Vermont for his continuing success collecting assessment data from Phase II grantees, and appreciate his responsiveness to our prior recommendations.

To further strengthen this effort, the AdComm recommends:

- Long Term (>8 year) Tracking of Highly Successful Grantees. George should identify a few potentially successful grantees, and should continue to interview them every 3-5 years for as long as possible, as this small percentage of grantees will contribute a large share of the broader impact within the SBIR portfolio. This will allow IIP and NSF to better articulate its contributions to the nation's wealth creation. This is also helpful for seeing the success of businesses with
 - a longer time-to-commercialization, e.g. information technology companies that mature faster vs. operating companies that mature slower
 - various commercialization types, e.g., operating companies, licensing, acquisitions, or outside investors.
- Asking Program Managers for Innovation Inhibitors. George should continue to ask grantees to name their innovation inhibitors. In addition, George should ask Program Managers to provide their assessment of the grantees, as this will likely provide additional insight, particularly for grantees that might not have significant commercialization experience.

Assessment Tool

The AdComm applauds Tiffany Sargent for her progress developing the Division Information Management System (DIMS). This tool provides great assessment opportunities within IIP and within NSF, and we look forward to continued progress.

The AdComm continues to volunteer to assist with these efforts. Members of the Subcommittee on Assessment include:

- Karthik Ramani
- E. Jennings Taylor
- Al Johnson
- Tom Knight
- Dick Paul
- David Spencer

In response to Tiffany's request, asking for AdComm input on which company attributes to include in DIMS to best enable future assessment and analysis, we request Tiffany schedule a phone call and web meeting in the coming weeks, to include the members of the Subcommittee on Assessment, with the following agenda:

- Demonstration of DIMS
- Overview of current DIMS attributes
- Group discussion on additional DIMS attributes to add in the future.

To ensure long-term sustainability, the AdComm endorses plans to add a full-time resource within the Engineering Directorate focused on assessment and on further development of DIMS.

In particular, the next 3-6 months will be critical to ensuring continued progress. We have significant concern that momentum might be lost after Tiffany's departure in August. To prevent mis-steps, the AdComm strongly recommends assigning two people, each with specific skill-sets, to the next phase of implementation:

- Assigning one full time resource for broadening the scope of DIMS This person will have a broad set of skills to manage the project, remove roadblocks, and seek partnerships with other groups (both inside and outside of NSF) to broaden the scope of DIMS beyond IIP. Of particular importance is acting as a liaison with the Division of Information Systems (DIS) to ensure long-term success and that DIMS is fully supported by DIS. This person will need broad change-management skills, preferably with a background in IT project management.
- Assigning a second full time resource to deepen the capabilities of DIMS. This person will begin to analyze the assessment data already collected, focusing on using DIMS to strengthen the success of IIP programs. This person will need deep operations management skills, preferably with a background in assessing the economic and societal outcomes of research.

The AdComm looks forward to future progress in this area and endorses the Engineering Directorate's plans to hire an Outcomes person, and IIP's plans to hire an AAAS Fellow to continue work on this topic, as these two resources can provide these two skill sets.

Diversity/Broadening Participating

The AdComm thanks Malathi Srivatsan for her progress to broaden participation of underrepresented groups.

In particular, the AdComm:

- Applauds Malathi and IIP for collecting and presenting data tracking participation of underrepresented groups.
- Agrees with Malathi's conclusion that award rates for underrepresented groups are comparable with other groups.
- Endorses her recommendation that IIP focus on increasing the number of Phase I proposals submitted from underrepresented groups.
- Recommends that Malathi continue her study of the best interventions IIP should pursue in the future to increase the number of Phase I proposals submitted from underrepresented groups.

The AdComm looks forward to future progress in this area and endorses IIP's plans to

- hire an AAAS Fellow to continue Malathi's progress on this topic, and
- continue to build partnerships for outreach to underrepresented groups
- continue and expand recent activities to form informal groups within the grantee communities, e.g., the group of women organized at this week's Phase II grantee's conference, or the suggestion of creating LinkedIn groups for outreach to underrepresented groups.

We continue to volunteer as needed to support these activities and will continue our Subcommittee on Outreach Activities to Broaden Participation. The Subcommittee includes:

Patrick Brown
Karen Kerr
Tom Knight

IIP Strategy Plan and Entrepreneurial Education

The AdComm endorses the draft IIP Divisional Plan for 2011-2016 presented by Kesh Narayanan.

- The AdComm maintains its commitment to IIP's vision and mission.
- The AdComm endorses the five IIP divisional goals:
 - Industrial Innovation Leadership and Partnerships
 - Globally Competitive Pre-eminent Workforce
 - Increase Commercialization
 - Operational Excellence
 - Impacts Assessment
- The AdComm supports the first three stated divisional priorities:
 1. Assessment.
 2. Diversity.
 3. In-Reach.
- Regarding the potential fourth divisional priority, Entrepreneurial Education, the AdComm supports this potential priority, but recognizes this is a large topic and therefore recommends the following initial activities to further define IIP's role in this area:
 - Limit its activities to innovation of STEM, vs. broader entrepreneurial topics
 - Consider inter-directorate and intra-directorate partnerships in this area
 - Identify existing Entrepreneurial Education offerings that can be repurposed to support the IIP mission, e.g. existing compilations from the Kaufman foundation.
 - Seek to leverage existing efforts IIP is already providing its grantees, e.g., adding commercialization assistance materials and/or educational presentations from grantee conferences to the IIP website.
 - The AdComm has formed a subcommittee of volunteers willing to support IIP as it pursues STEM Entrepreneurial Education, including:
 - Patrick Brown
 - Mark Clevey
 - Arlene Garrison
 - Karthik Ramani
 - Plus other AdComm members who wish to join who may not have been in attendance at this meeting.
 - In response to Amanda May's request, asking for AdComm input on adding information on this topic to the IIP website, we request Amanda schedule a phone call and web meeting in the coming weeks to discuss this with members of the Subcommittee on STEM Entrepreneurial Education

Budget Implications

Given the current uncertainty regarding the federal budget and the SBIR reauthorization, the AdComm recognizes the difficulty in managing award rates and funding levels. The AdComm recommends:

- IIP should not reduce award size.
- IIP should not reduce supplements.
- IIP should let award rate adjust to the budget. If budget cuts occur, award rates will fall. In this event:
 - The AdComm recommends IIP consider allowing Phase II awards that go unfunded due to budget constraints a case-by-case opportunity to resubmit in the future.
 - That the AdComm, and the small business community, can voice its concerns to their elected representatives.

Reauthorization – Use of Administrative Funds

Current SBIR Reauthorization bills before Congress include a proposed provision that would allow IIP and other SBIR-granting agencies to add 3% of the award budget to cover administrative expenses. This would represent an additional \$3-4 million annually for administrative expenses. In the event the SBIR Reauthorization bill is passed and it adds 3% for additional administrative expenses, the AdComm recommends:

- A portion of these funds should be allocated for travel by Program Directors. The AdComm has made this strong recommendation for many years, yet travel expenses are still extremely limited. (To illustrate the importance of travel to IIP’s mission, the AdComm notes that several Program Directors have paid for IIP travel using their own personal money.) Assuming four trips per year by 10 Program Directors, this expense should be roughly \$100,000. Specifically, the AdComm recommends:
 - IIP allocate funds for Program Directors to take 1 or more trips per year to targeted regions and events.
 - IIP develop a repeatable process in which these trips (perhaps called “NSF SBIR Roadshows”) would include three elements:
 1. A speaking event, at which the Program Directors speaks to a targeted partner’s members, promoting the NSF SBIR program, encouraging proposal submission (particularly submissions from underrepresented groups), and sharing materials on STEM entrepreneurial education. The AdComm recommends Program Directors be empowered to select partners that promote IIPs mission and strategic priorities, and to rely on those partners to promote the event to their members. Examples might include:
 - State economic development agencies from underrepresented and/or EPSCoR states, e.g., EPSCoR Program Managers
 - Associations serving unrepresented groups
 - Professional societies and industry associations from STEM fields
 - Universities promoting entrepreneurial education within their regions,
 - Other partners aligned with IIP’s mission such as the Kaufman foundation.

2. A review panel, in which Program Directors broaden participation of underrepresented groups and regions in the NSF peer-review process. Likely new review panelists could be invited from the partner who organized the trip's speaking event.
3. Visits to SBIR grantees, in which Program Directors mentor our grantee community, focusing on STEM entrepreneurial education.

In addition to these outreach activities, the AdComm recommends IIP allocate a portion of the additional funds to:

- Add 1-2 Program Directors, as this allows Program Directors to spend more time mentoring grantees and providing STEM entrepreneurial education
- Add 1-2 contractors (in addition to the two currently budgeted AAAS Fellows) to bring to completion existing efforts to broaden participation and assess outcomes.
- Travel grants that would allow participation of underrepresented groups at NSF SBIR events.
- Allocate remaining funds to the IIP Director to invest in innovative ideas that support the IIP mission, as this will enable further innovation in IIP processes.

Feedback on Grantees Conference

The AdComm complements the excellent Phase II Grantees conferences, noting the following strengths:

- Poster sessions. This was a huge improvement over prior formats.
- Speaker presentations. The presentations from Phase IIB super-sized grantees were especially valuable.
- Elimination of sector presentations. Eliminating sector presentations was an improvement, as it allowed more time to be spent on networking and education.
- Program Director accessibility. We applaud the Program Directors for providing mentoring and access.
- Moderated round tables. As discussed above, we encourage future meetings include time to form informal groups within the grantee communities, e.g., the group of women organized at this week's Phase II grantee's conference.

Feedback on Comments from Small Business Administration

The AdComm appreciates the attendance and comments of Winslow Sargeant, Chief Counsel for Advocacy, Small Business Administration. The AdComm encourages IIP to continue to partner with SBA.

The AdComm notes Dr Sargeant's request for assistance with upcoming SBA research, and volunteers to participate in the call he suggested next week. We ask IIP to coordinate this interaction.

Other Feedback and Recommendations

The AdComm commends and endorses the innovative methods Kesh Narayanan has employed to recruit and deploy AAAS Fellows and other IIP resources to make great progress on IIP priorities.

FUTURE MEETING

The next AdComm meeting will occur in Arlington at NSF starting Tuesday, October 25, 2011 at 8AM and ending Wednesday, October 26, at noon.

Proposed Agenda:

- Outreach Activities to Broaden Participation. Please present updated statistics and future plans.
- Impacts Assessment: Please present a demonstration of DIMS and an update on progress and plans.
- Update on IIP Plan for 2011-2016, and its Five Goals:
 - o Industrial Innovation Leadership & Partnership
 - o Globally Competitive Preeminent Workforce
 - o Increased Commercialization
 - o Operational Excellence
 - o Impacts Assessment.
- Deliberations and Report Out