

Minutes (Fall '15)

NATIONAL SCIENCE FOUNDATION

National Science Foundation, Arlington, VA

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

Dec 1-2, 2015

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 December 1-2, 2015, at NSF Headquarters.

Advisory Committee members in attendance included:

William Lockwood Benet

Susan Butts

Annette Finsterbusch (by phone)

Arlene Garrison

Karen Kerr

Tom Knight (Chair)

Eugene Krentsel

Richard Paul

Susan Preston (by phone)

Karthik Ramani

Skip Rung

Ann Savoca

David Spencer

Advisory Committee members absent:

Trish Costello

NSF IIP representatives attending all or part of the meeting included:

Grace Wang, Deputy Assistant Director, Engineering Directorate

Barry Johnson, Division Director, IIP

Graciela Narcho, Deputy Division Director, IIP

Joseph Hennessey, Senior Advisor, IIP

~~Prakash Balan, SBIR/STTR Program Director, IIP~~
Steven Konsek, SBIR/STTR Program Director, IIP
~~Glenn Larsen, SBIR/STTR Program Director, IIP~~
~~Rajesh Mehta, SBIR/STTR Program Director, IIP~~
Ben Schrag, SBIR/STTR Program Director, IIP
Jesus Soriano, SBIR/STTR Program Director, IIP
~~Murali Nair, SBIR/STTR Program Director, IIP~~
Eric Keys, AAAS Fellow

2.0 AGENDA

Tuesday, December 1, 2015 National Science Foundation, Stafford I, Room 1235, Arlington, Virginia	
2:00 p.m.	Welcome and Introductions – Barry Johnson, Division Director, IIP
	Review Agenda and Confirm Prior Email Approval of Minutes – Tom Knight, Chair
2:30 p.m.	Recent/Potential Future Changes to SBIR/STTR Solicitations – Barry Johnson and Joe Hennessey
3:00 p.m.	Discussion of IIP Retreat – Items Relevant to SBIR/STTR – Barry Johnson and Gracie Narcho
3:30 p.m.	Discussion Sessions with SBIR/STTR Program Directors – All
4:30 p.m.	Break
5:00 p.m.	Discussion of Title III Equity Crowdfunding Rules and Impact on Phase IIB – Barry Johnson
5:30 p.m.	Discussion of Multi-Agency “Phase 0” SBIR/STTR Proposal – Barry Johnson and Joe Hennessey
6:00 p.m.	Adjourn for Dinner
6:30 p.m.	Dinner

Wednesday, December 2, 2015 National Science Foundation, Stafford I, Room xxx, Arlington, Virginia	
7:30 a.m.	Continental Breakfast
8:30 a.m.	Introduction and Overview of the Day – Tom Knight, Chair

8:45 a.m.	Working Group on Entrepreneurial Education – Susan Preston, Barry Johnson
9:00 a.m.	Working Groups on Deal Flow/Broadening Participation – Ann Savoca, Annette Finsterbusch, Gracie Narcho
9:15 a.m.	Working Group on Assessment – Skip Rung, Barry Johnson, and Eric Keys
9:30 a.m.	IIP Question and Answer Session – All
10:00 a.m.	Break
10:30 a.m.	SBIR/STTR Subcommittee Deliberations
11:30 a.m.	SBIR/STTR Subcommittee Recommendations to NSF
12:30 p.m.	Adjourn

3.0 Approval of Minutes from Last Meeting

The AdCom confirmed that the the minutes from the prior meeting held in Spring 2015 were approved via email prior to this meeting.

4.0 COMMENTS and FEEDBACK

Organizational Changes & Comments

The AdCom is very pleased to hear staff is being added for Outreach in April 2016. This full-time, permanent staff are required not only to improve Outreach (which will improve Deal Flow and Broaden Participation), but also for Entrepreneurial Education and Assessment.

The AdCom welcomes Eric Keys as an AAAS Fellow focused on Assessment. Our Working Group on Assessment looks forward to supporting Eric as he improves our Assessment methods.

Recent/Potential Future Changes to SBIR/STTR Solicitations

AdCom endorses the recent/potential future changes presented by Barry Johnson and Joe Hennessey.

Discussion of IIP Retreat – Items Relevant to SBIR/STTR

AdCom appreciates seeing the results from the recent IIP staff retreat, and looks forward to hearing further progress at coming meetings.

Discussion Sessions with SBIR/STTR Program Directors

AdCom thanks the SBIR Program Directors for meeting with us to share their perspective. We also appreciate that Barry Johnson took the time to match AdCom members with the Program Directors based on our biographical profiles and technical expertise, as it allowed us to discuss their topic areas in more detail.

Discussion of Title III Equity Crowdfunding Rules and Impact on Phase IIB

AdCom recommends that Program Directors provide coaching to SBIR/STTR grantees on the relative merits of equity crowdfunding, because equity crowdfunding could be appropriate for some SBIR/STTR grantees, but is in general not the best source of equity funding in most cases.

Rather than having equity crowdfunding always be matched with Phase IB/IIB funds, AdCom recommends that Program Directors have the discretion, on a case-by-case basis, to match equity crowdfunding with Phase IB/IIB funds.

Discussion of Multi-Agency “Phase 0” SBIR/STTR Proposal

AdCom strongly endorses the Multi-Agency “Phase 0” proposal presented by Barry Johnson.

This Phase 0 approach will have significant benefits for IIP, including improved outreach and deal-flow, particularly from the following two groups:

- Companies and Principle Investigators (PIs) who are not currently eligible for iCorps (typically non-academic groups, or groups who do not have prior NSF funding)
- Companies and PIs who are women and underrepresented groups

Phase 0 is also discussed below in our section on Deal Flow and Broadening Participation.

Feedback NSF “Inreach” Activities within NSF

The AdCom was pleased to hear of increased attention to creation of connection points within the Foundation. Cross-linkage within ENG is particularly laudable. This “inreach” is valuable for many reasons, and has high potential to enhance proposal quality as well as increase first time proposals. The Program Directors should be encouraged to participate in NSF task forces, and also to reach out to appropriate technical experts for added input on future technological areas to add to the portfolio.

Assessment Working Group

It is gratifying that AAAS Fellow Dr. Eric Keys is now on board (since 9/21/15) to work full-time on IIP assessment activities. Dr. Keys will be available at least until 8/31/16, after which an additional year may be possible. Either way, it remains important to provide for long-term continuity and sustainability of assessment efforts.

It is appropriate that Dr. Keys’ SBIR/STTR assessment activities and draft metrics are taking as their starting point the congressionally mandated goals (i.e. from the authorizing legislation) for SBIR and STTR programs.

Still to be determined is what kind (if any) of “logic model” should guide SBIR/STTR assessment efforts, and the AdCom supports questioning time-honored methodologies as long as there is progress toward connecting senior purpose with both measurable (quantitative metrics) and qualitative/anecdotal (powerful impact stories, sociological learning) outcomes.

It is important that assessment work by Dr. Keys achieve short term progress and set the stage so that assessment can be carried out on an ongoing basis by permanent staff.

The Phase II grantee follow-up telephone survey process and accumulated data developed by George Vermont remain a unique, valuable and irreplaceable resource. The AdCom is pleased that Joe Hennessey will be continuing this follow-up and data collection work as an NSF Expert after his retirement in 2016 as Senior Advisor to IIP.

The use of such a top-quality resource for this critical work speaks loudly about the value IIP assigns to it.

AdCom continues to recommend, in agreement with Barry's and Joe's comments at this meeting, that IIP deepen reporting and analytics based on this data, including the possibility of linking to public/3rd party data (e.g. from the Angel Capital Association/Angel Resource Institute, PWC MoneyTree). There remains large opportunities for extracting insights relevant to NSF SBIR/STTR's crystallizing vision as "America's Seed Fund". For example the larger dollar impacts (revenue, corporate partnership funding, acquisition or IPO exits) can be isolated and correlated with other parameters to inform funding decisions that will be more likely to result in future economic impact.

Appendix One shows the members of this working group.

Entrepreneurial Education Working Group

The AdCom appreciates the opportunity to attend the Phase 2 Grantees meeting including the pilot of the new entrepreneurial educational program. Several AdCom members attended or spoke at various sessions and we thank them for their participation. We also express deep thanks to staff, particularly Ruth Shuman and Gracie Narcho for their extensive efforts in pulling together a successful program. Anecdotal comments were quite positive. Therefore, the program appears to be a success.

Staff has also been conducting periodic bootcamps for the Phase I Grantees; with recent completion of the fifth program. Phase I Grantees are not required to attend, but Program Directors have strongly encouraged many of the Grantees to attend. As a result, 95% of the Grantees attended the last program in September 2015. I-Corp has led the training. Feedback has been very positive. Many thanks to staff for this excellent early-stage educational program - vital for our young grantees.

The second Phase 2 Grantee educational workshop is moving forward with most courses already selected and trainers committed. The topics were selected based on feedback from the 2015 attendees. Some new topics include mergers & acquisitions and negotiations. The pitching session will be repeated based on popular demand from the Grantees.

Thank you all who contributed to last year's program and who have volunteered to participate again in the 2016 Phase 2 Grantee educational workshops.

On a related topic, Joe asked about the opportunity for the Entrepreneurial Education Working Group to help with the Phase 0 Grantees. The Working Group would be glad to work with Joe and others on structuring a program appropriate and relevant for these early entrepreneurs.

The AdCom continues to recommend the following future activities to further strengthen entrepreneurial education:

1. Knowledge manager: We have discussed on occasion over the past few years having someone focused on coalescing and making available a wealth of educational materials on multiple topics from entrepreneurial basics to sector specific tools to regional support programs such as accelerators, incubators, mentoring programs, business competitions, etc. The content can be derived from our own programs (e.g., videotaping our Phase II grant training program), outside resources that are considered gold standard quality, YouTube videos, etc. We recommend an internal hire or a contractor be retained to create an extensive database of materials and then maintain and expand over time.
2. Sector-specific programs: The interest in providing sector-specific discussions continues, but how to execute is challenging. With nine discrete program areas, this would necessitate nine separate programs, which is a logistical nightmare. What may be possible is to have webinars or a conference related single session for each sector that deals with some unique issues such as go-to-market strategy or strategic partners.

Appendix One shows the members of this working group.

Joint Report from the Deal Flow/Broadening Participation Working Groups

AdCom recommends outreach efforts to include existing leading hispanic, black, asian and women networks following an initial screening of groups such as:

- <http://www.shpe.org/>
- <http://latinostartupalliance.org/>
- <http://www.womenchemists.sites.acs.org/>
- <http://www.awis.org/>
- <http://societyofwomenengineers.swe.org/>
- <http://www.nsbe.org/home.aspx>

Since the AdCom meeting in June 2015, the Working Groups, Broadening Participation and Deal Flow, have combined to further progress on their mutual goals. The combined group has also included Gracie Narcho as the IIP staff member responsible to engage with this group. The combined Deal Flow/Broadening Participation working groups have met virtually and several working group members had the opportunity to meet F2F before the ADCOM meeting to address feedback in several areas of interest expressed by Gracie. These areas included website recommendations, event data collection & mining, outreach materials, and process related recommendations. Notes from our face to face meeting can be found in Appendix Two.

The AdCom recommends IIP influence and leverage NSF-wide initiatives coming from EVALUATION AND ASSESSMENT CAPABILITY in FY16 particularly (1) the **portfolio analysis tools system** and (2) the cross-cutting evaluation for NSF investments in **broadening participation** on the following populations: underrepresented undergraduate and graduate students, underrepresented faculty in STEM departments, underrepresented principal investigators submitting proposals worthy of support, and underrepresented institutions. These initiatives should feed and be aligned with SBIR/STTR management changes regarding performance assessment of PDs, their inreach into the academic grant making area, as well as the assessment currently being undertaken by Eric Keys. Influencing and feeding from these EAC initiatives could be another input to support to specific IIP program innovation and outreach strategies.¹

The AdCom recommends establishing a baseline of the current size of each of the under-represented groups in the SBIR/STTR portfolio.

The AdCom recommends that Barry Johnson adjoin the SBIR to the other NSF groups that are implementing programs to broaden participation in accordance with the recent mandate from the new Director.

- An additional recommendation was made to have a member of the group appointed to CEOSE to ensure alignment.

The AdCom recommends using budget to contract a marketing professional to build a marketing organization to support SBIR/STTR and its staff with the following:

- In cooperation with the Program Directors, create / complete an overarching, clear, and concise branding message that “introduces” or, in some case, may “re-introduce” SBIR/STTR’s programs and processes to prospective entrepreneurs and PIs.
- Identify both new and existing prospects (groups and/or individuals) to whom to present the message and track these contacts and interactions (metrics).
- Continuous improvement of this message as feedback and results are available

¹ The [EAC evaluation design](https://www.nsf.gov/about/budget/fy2016/pdf/47_fy2016.pdf) will “use a mixed methods approach (qualitative and quantitative) to do a formative assessment of what mechanisms work best and a summative evaluation of the impact of NSF’s historic investments in broadening participation. The EAC will develop a study to explore the cumulative longitudinal impact of NSF funding on individuals, (their career paths, creative ability, mentoring of students, networks, and other spillover effects such as single investigators, Research Experiences for Undergraduates (REUs), fellows, etc.).” Source: https://www.nsf.gov/about/budget/fy2016/pdf/47_fy2016.pdf

The AdCom recommends that the grant application and submission process be reviewed again and streamlined in conjunction with the new branding effort in order to reduce obstacles and pain points that have been identified previously as reasons that prospective applicants chose not to apply.

- Consider embedding “how-to” video links into the online instructions to facilitate applicants with the process.

The AdCom recommends structuring and implementing a set of appropriate metrics to drive the strategy and direction of the combined effort for deal flow and broadening participation, monitor performance, and produce good data for both internal and external use.

- Define a short set of metrics that are specific, measurable, achievable, relevant and time-based.
- Get buy-in from all (Director, Deputy Director, Program Directors and AdCom members)
- Establish a method to collect and share the data (and analysis) on a regular basis.

Appendix One shows the members of this working group.

5.0 FUTURE MEETING AGENDA

The next two AdCom meetings will occur

1. June 8-9, 2016 and will be co-located with the Phase II Grantees conference being held June 5-8 in Atlanta.
2. Spring 2017 dates are TBD. To plan: Opportunity for us to stay at one hotel coordinated by Dave Spencer?

The AdCom appreciated how IIP shared the meeting agenda and the reading materials prior to this meeting, and the interim report on our recommendations from our prior meeting.

AdCom’s Proposed Agenda for the next meeting:

1. Update on IIP mission, vision, and strategic goals, including an update on key strategic metrics:
 - matching funds
 - percentage of SBIR phase 1 awards to new PIs
 - current size of each of the under-represented groups in the SBIR/STTR portfolio.
 - plus any other metrics IIP may care to present
2. Update on our Top Three Priorities/working groups:

- Are permanent resources or rotating resources most appropriate for our top three priorities/working groups? What mix would lead to the best climate to support necessary change?
 - Assessment
 - Deal Flow & Broadening Participation. Please present updated metrics tracking the number of Phase I proposals submitted from women and underrepresented groups
 - Entrepreneurial Education
3. Discussions with Program Directors on topic(s) preselected to be of particular interest to the Program Directors.
 4. Planning for the Move to the New NSF Headquarters Building
 5. Deliberations and Report Out

Appendix One:

AdCom Working Groups, with Members and Key Contacts from IIP Staff

Working Group	Key Contact (from IIP Staff)	Chairperson (from Ad Com)	Members (from Ad Com)
Assessment	Barry Johnson	Robert "Skip" Rung	Susan Butts Dick Paul Susan Preston Karthik Ramani David Spencer
Broadening Participation*	Gracie Narcho	Ann Savoca	Karen Kerr Tom Knight Arlene Garrison William Lockwood-Benet
Deal Flow*	Gracie Narcho	Annette Finsterbusch	Trish Costello Angus Livingstone Karen Kerr Eugene Krentsel Ann Savoca Susan Preston
Entrepreneurial Education	Barry Johnson	Susan Preston	Susan Butts Trish Costello William Lockwood-Benet Karthik Ramani Skip Rung

*Broadening Participation and Deal Flow have significant overlapping activities and will often meet together.

Appendix Two:

Notes from Dec 1, 2015 Joint Meeting of Deal Flow and Broadening Participation Working Groups

Meeting participants:

William Lockwood-Benet

Annette Finsterbusch (by phone)

Arlene Garrison

Tom Knight

Eugene Krentsel

Gracie Narcho

Ann Savoca

I. Website Content:

We discussed opportunities for improvement, including visuals (photos, videos), ensuring content is current (quarterly refresh) and gearing more for the entrepreneur (language, format)

- 1) Visuals- can Digital Marketing be tasked to incorporate into the website photos/short video clips of 1) program managers talking about opportunities in their technology areas, 2) testimonials from phase 1 grantees, especially from successful women and underrepresented minorities, 3) testimonials from investors about quality of programs from NSF investments
- 2) Quarterly website content review- working group recommended a quarterly review of website content to ensure relevance/freshness of content, recognizing that this may need to wait for more dedicated marketing resource
- 3) Entrepreneurial 'gearing'- more 'headlining' to capture attention of new visitors to website (further working group effort to be led by Tom); use of infographics (further working group effort to be led by Tom); examples of other website models that target the more entrepreneurial audience (further working group effort led by Annette)
- 4) Other:
 - a. Organize website by customer function, not NSF internal organizational structure (*Eugene*)
 - b. Website 'countdown' to solicitation deadlines- what to do by when? (*Arlene*)

- c. Consider 'call to action steps' (*Tom*)
- d. Use LinkedIn as well as Twitter to supplement website (*William*)

II. Metrics:

- 1) Website metrics- request for quarterly reports from Digital Marketing
- 2) Survey phase 1 applicants/grantees- how have you learned about the NSF SBIR/STTR funding program? What was most instrumental in encouraging you to apply?
- 3) We need to continue to discuss ways of collecting meaningful information about (potential) applicant pool that will inform the IIP about marketing/outreach and other pipeline investments

III. Collateral:

Abbreviated deck is 'good' but not sufficient- need additional detail (e.g., slides used for 101 video) and photos/videos/quotes from successful 1st time grantees, especially women and underrepresented minorities

IV. Process Improvements:

Given that timing remains a problem for prospective companies, consider rolling solicitations or three/four submissions per year with faster response time