Partnerships for Innovation: Building Innovation Capacity (PFI: BIC)

PROGRAM SOLICITATION
NSF 12-578

REPLACES DOCUMENT(S):
NSF 12-511

National Science Foundation

Directorate for Engineering
Division of Industrial Innovation and Partnerships

Letter of Intent Due Date(s) ***(required)*** (due by 5 p.m. proposer's local time)***:***

September 26, 2012

Full Proposal Deadline(s) (due by 5 p.m. proposer's local time):

December 12, 2012

IMPORTANT INFORMATION AND REVISION NOTES

The NSF 12-511 solicitation combined two standalone solicitations (NSF 10-581 and NSF 10-608), joining PFI: Building Innovation Capacity (PFI: BIC) and PFI: Accelerating Innovation Research (PFI: AIR). Two separate solicitations are now being offered to the community: one for PFI: BIC and one for PFI: AIR (NSF 12-571). This solicitation describes PFI: BIC.

The NSF Partnerships for Innovation (PFI) program is an umbrella for two complementary subprograms, one of which involves an **early stage** that focuses on building innovation capacity and the other, which involves a later stage that focuses on accelerating innovation research. This program solicitation, *Partnerships for Innovation: Building Innovation Capacity (PFI: BIC),* is pursuant to the PFI: BIC portion of the program solicitation NSF 12-511. The PFI: BIC program **starts** with an existing sound scientific and/or engineering-based **research discovery** that can be translated through a partnership between academe and small businesses to potentially market-valued solutions and to enhance the innovation capacity of the partners.

The merit of a proposal relies on the following elements: the existence of research discovery findings that have potential to contribute to U.S. competitiveness or to provide a solution to a problem of national and/or global importance; the quality of the established partnership between the academic research team and the small technology-based businesses; the quality of the proposed partnership activities to translate the existing research discovery findings into technical and/or economic "takeaways"--defined as capabilities, competencies, or more tangible items that one can take possession of and can move forward with--for both academe and the businesses; and the strategy that has the potential to build the innovation capacity.

The funds will provide support to an academic institution to partner with at least two small technology-based businesses that are not in direct competition with each other. The primary aims of the activities of this partnership are three-fold: (1) to build the innovation capacity of the individual participants from academe and from business; (2) to increase the viability of the small business concerns; and (3) to develop the next-generation workforce by providing opportunities for students at different levels to effectively learn from, participate in, and be profoundly changed by exposure to the process of building innovation capacity that occurs in BIC projects. The active collaboration between academe and business could result in solutions with potential for an impact on more than one market.

There is **no longer a requirement for a Co-PI to be a senior administrator**, as in the previous year's solicitation.

Close attention needs to be paid to the Additional Eligibility Information pertaining to the small technology-based business partners.

Important Reminders

A revised version of the *NSF Proposal & Award Policies & Procedures Guide* (PAPPG), NSF 11-1, was issued on October 1, 2010 and is effective for proposals submitted, or due, on or after January 18, 2011. Please be advised that the guidelines contained in NSF 11-1 apply to proposals submitted in response to this funding opportunity.

Cost Sharing: The PAPPG has been revised to implement the National Science Board's recommendations regarding cost sharing. Inclusion of voluntary committed cost sharing is prohibited. In order to assess the scope of the project, all organizational resources necessary for the project must be described in the Facilities, Equipment and Other Resources section of the proposal. The description should be narrative in nature and must not include any quantifiable financial information. Mandatory cost sharing will only be required when explicitly authorized by the NSF Director. See the PAPP Guide Part I: *Grant Proposal Guide (GPG)* Chapter II.C.2.g(xi) for further information about the implementation of these recommendations.

Data Management Plan: The PAPPG contains a clarification of NSF's long standing data policy. All proposals must describe plans for data management and sharing of the products of research, or assert the absence of the need for such plans. FastLane will not permit submission of a proposal that is missing a Data Management Plan. The Data Management Plan will be reviewed as part of the intellectual merit or broader impacts of the proposal, or both, as appropriate. Links to data management requirements and plans relevant to specific Directorates, Offices, Divisions, Programs, or other NSF units are available on the NSF website at: http://www.nsf.gov/bfa/dias/policy/dmp.jsp. See Chapter II.C.2.j of the GPG for further information about the implementation of this requirement.

Postdoctoral Researcher Mentoring Plan: As a reminder, each proposal that requests funding to support postdoctoral researchers must include, as a supplementary document, a description of the mentoring activities that will be provided for such individuals.

Please be advised that if required, FastLane will not permit submission of a proposal that is missing a Postdoctoral Researcher Mentoring Plan. See Chapter II.C.2.j of the GPG for further information about the implementation of this requirement.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Partnerships for Innovation: Building Innovation Capacity (PFI: BIC)

Synopsis of Program:

National prosperity today has become more dependent upon research and technology. Thus, NSF's role of supporting discovery research across all fields of science and engineering has become increasingly more relevant to economic development. By establishing and expanding partnerships, existing research discovery findings from institutions of higher education can be translated to innovations.

This program solicitation, *Partnerships for Innovation: Building Innovation Capacity (PFI: BIC)* starts with an existing sound scientific and/or engineering-based research discovery that can be translated to market-valued solutions through a partnership between academe and small technology-based businesses. The funds will provide support to an academic institution to partner with at least two small technology-based businesses that are not in direct competition with each other to carry out early translational-research activities The primary aims of the activities of this partnership are three-fold: (1) to build the innovation capacity of the individual participants from academe and from business; (2) to increase the viability of the small business concerns; and (3) to develop the next-generation workforce by providing opportunities for students at different levels to effectively learn from, participate in, and be profoundly changed by exposure to the process of building innovation capacity that occurs in BIC projects. The active collaboration between academe and business could result in solutions with potential for an impact on more than one market.

WEBINAR: A webinar will be held within 6 weeks of the release date of this solicitation to answer any questions about the solicitation. Details will be posted on the Industrial Innovation and Partnerships (IIP) website. (www.nsf.gov/div/index.jsp?div=iip) as they become available.

Cognizant Program Officer(s):

Please note that the following information is current at the time of publishing. See program website for any updates to the points of contact.

- Sara B. Nerlove, Program Director, telephone: 703-292-7077, email: snerlove@nsf.gov

Applicable Catalog of Federal Domestic Assistance (CFDA) Number(s):

- 47.041 --- Engineering

Award Information

Anticipated Type of Award: Standard Grant or Continuing Grant

Estimated Number of Awards: 11 to 13

Anticipated Funding Amount: $8,000,000

- Anticipated Funding Amount is subject to the availability of funds and the quality of proposals received.
- Awards may be up to $600,000 with an award duration of two years.

Eligibility Information

Organization Limit:

Proposals may only be submitted by the following:

- U.S. universities and two-and four-year colleges (including community and technical colleges) accredited in, and having a campus located in the U.S., acting on behalf of their faculty members. Such organizations also are referred to as academic institutions. The lead (submitting) organization must be an academic institution.

  Collaborative proposals between organizations are not permitted. (A collaborative proposal is defined as simultaneous proposal submissions for a joint project from different organizations, with each organization requesting a separate award).

PI Limit:

The PI cannot be a PI on a Partnership for Innovation award that will be active after September 30, 2013.

A PI who submits a proposal in response to this program solicitation **may not** also submit a proposal to the Partnerships for Innovation: Accelerating Innovation Research (PFI: AIR) program

Limit on Number of Proposals per Organization: 1

Lead academic institutions are limited to participation on **one proposal** as a lead institution. A lead academic institution may NOT participate as a subawardee on any other proposal submitted under this solicitation. A lead academic institution, however, may be a partner (**not** receiving **funding**) on another proposal or may provide consultants to another proposal submitted under this solicitation.

Limit on Number of Proposals per PI: 1

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

- **Letters of Intent:** Submission of Letters of Intent is required. Please see the full text of this solicitation for further information.
- **Preliminary Proposal Submission:** Not Applicable
- **Full Proposals:**
  - Full Proposals submitted via FastLane: NSF Proposal and Award Policies and Procedures Guide, Part I: Grant Proposal Guide (GPG) Guidelines apply. The complete text of the GPG is available electronically on the NSF website at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg.
  - Full Proposals submitted via Grants.gov: NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov Guidelines apply (Note: The NSF Grants.gov Application Guide is available on the Grants.gov website and on the NSF website at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantsgovguide)

B. Budgetary Information

- **Cost Sharing Requirements:** Inclusion of voluntary committed cost sharing is prohibited.
- **Indirect Cost (F&A) Limitations:** Not Applicable
- **Other Budgetary Limitations:** Other budgetary limitations apply. Please see the full text of this solicitation for further information.

C. Due Dates

- **Letter of Intent Due Date(s) *(required)*** (due by 5 p.m. proposer's local time)*:*

  September 26, 2012

- **Full Proposal Deadline(s)** (due by 5 p.m. proposer's local time):

  December 12, 2012

Proposal Review Information Criteria

Merit Review Criteria: National Science Board approved criteria. Additional merit review considerations apply. Please see the full text of this solicitation for further information.

Award Administration Information

Award Conditions: Standard NSF award conditions apply.

Reporting Requirements: Additional reporting requirements apply. Please see the full text of this solicitation for further information.

TABLE OF CONTENTS

I. INTRODUCTION

The goal of the Partnerships for Innovation: Building Innovation Capacity (PFI: BIC) program is to build innovation capacity through partnerships between academe and small businesses by moving existing academic research discoveries to potentially market-valued solutions that ultimately could create new wealth and contribute to U.S. competitiveness or provide a solution to a problem of national and/or global importance.

The funds will provide support to an academic institution to partner with at least two small technology-based businesses that are not in competition with each other to translate existing science and/or engineering-based research discoveries into knowledge and paradigm shifts enhanced by both the perspectives of academia and business. The primary aims of the activities of this partnership are three-fold: (1) to build the innovation capacity of the individual participants from academe and from business; (2) to increase the viability of the small business concerns; and (3) to develop the next-generation workforce by providing opportunities for students at different levels to effectively learn from, participate in, and be profoundly changed by exposure to the process of building innovation capacity that occurs in BIC projects. The active collaboration between academe and business could result in solutions with potential for an impact on more than one market.

Additionally, each project also may have a broader network of partnerships. Such partnerships may include state and local government entities, international partners or others as long as they advance the goals of the partnership project. The significance of these entities' involvement with the early translational-research activities can serve to guide their categorization as 1) partners, 2) broader-context partners, 3) others: those without current active connections to the project or with more peripheral and/or less direct connections to the project (e.g., potential beneficiaries, stakeholders, users); or 4) potential partners, e.g., contingent upon outcomes. Categories 3 and 4 may be the sources of support letters. Note that **support letters are to be distinguished from partnership letters.** Support letters do not have firm financial and/or in-kind commitments.

There are other federal programs that contribute to the goal of innovation. Internal to NSF, there are the following programs: Partnerships for Innovation: Accelerating Innovation Research (PFI: AIR), Innovation Corps (I-Corps), Small Business Innovation Research/Small Business Technology Transfer Research (SBIR/STTR), and Grant Opportunities for Academic Liaison with Industry (GOALI), and Industry University Cooperative Research Centers (I/UCRC). For more information on these programs, go to the Division of Industrial Innovation and Partnerships website: http://www.nsf.gov/div/index.jsp?org=IIP

II. PROGRAM DESCRIPTION

The Directorate for Engineering of the National Science Foundation invites requests for funding under the Partnerships for Innovation: Building Innovation Capacity (PFI: BIC) solicitation. The hallmark of PFI: BIC partnerships are the early translational-research activities informed by the perspectives of both academe and the businesses to move the existing academic research discoveries to potentially market-valued solutions. While the minimum partnership must consist of academe and two small technology-based businesses; large businesses, non-profits and other entities may participate.

The nature of collaborative activity within the partnership may vary. Each partner company may engage separately in two-way interactions with the academic partner; or interact with each other and with the academic partner. The fundamental element of the BIC partnerships is that two or more parties each agree to commit resources to work towards a common goal with the academic institution. The activities they engage in may result in each party having "takeaways"--defined as capabilities, competencies, or more tangible items that one can take possession of and can move forward with--for both academe and the businesses.

It is important to differentiate partnerships from business connections (no commitment involved). What the joining of the perspectives of academia and business in a BIC partnership can result in is exemplified by the following:

- Strategy for building innovation capacity that results from the translational-research activities
- Identification of market niches and needs, technology gaps and competitive factors
- Identification and addition of expertise to carry out the early translational-research activities
- Addition of new entities and/or formation of consortia that reflect the evolution of the partnership
- Development of the next-generation workforce through students' participation in BIC projects

Bearing in mind that it is important not to inhibit the spirit of collegiality, NSF will require signed written cooperative research agreements (CRAs) between the lead institution and each of the small businesses at the time of the award as well as between the lead organization and any other organizations to which such an agreement might pertain. The CRAs outline any issues surrounding the intellectual property that each party may bring to the table or intellectual property that could be an outcome of the relationship. NSF is not responsible for the type of agreement reached between the parties. Submit with the proposal a brief letter stating that a cooperative research agreement (CRA) will be provided upon recommendation of an award. If an award is recommended, the lead institution must follow-up by providing signed written CRAs between the lead institution and the individual partner companies.

The program will support awards of up to $600,000 per award with an award duration of two-years. As appropriate, awardees have the option to allocate funds for the participation of small businesses in the early translational-research activities in the form of subawards or consultancies. Whether or not this option is exercised, it should be clear how the funds and other resources of the project (e.g., special facilities, equipment, and students) are shared by the partnership.

III. AWARD INFORMATION

Estimated program budget, number of awards and average award size/duration are subject to the availability of funds.

NSF will make awards subject to the availability of funds and quality of proposals. Awards may be up to $600,000 with an award duration of two years. *The total budget request to NSF for the lead institution and all others participating in the project cannot exceed $600,000.*

IV. ELIGIBILITY INFORMATION

Organization Limit:

Proposals may only be submitted by the following:

- U.S. universities and two-and four-year colleges (including community and technical colleges) accredited in, and having a campus located in the U.S., acting on behalf of their faculty members. Such organizations also are referred to as academic institutions. The lead (submitting) organization must be an academic institution.

  Collaborative proposals between organizations are not permitted. (A collaborative proposal is defined as simultaneous proposal submissions for a joint project from different organizations, with each organization requesting a separate award).

PI Limit:

The PI cannot be a PI on a Partnership for Innovation award that will be active after September 30, 2013.

A PI who submits a proposal in response to this program solicitation **may not** also submit a proposal to the Partnerships for Innovation: Accelerating Innovation Research (PFI: AIR) program

Limit on Number of Proposals per Organization: 1

Lead academic institutions are limited to participation on **one proposal** as a lead institution. A lead academic institution may NOT participate as a subawardee on any other proposal submitted under this solicitation. A lead academic institution, however, may be a partner (**not** receiving **funding**) on another proposal or may provide consultants to another proposal submitted under this solicitation.

Limit on Number of Proposals per PI: 1

Additional Eligibility Info:

Partner Organizations: Small Technology-Based Businesses

Number: At least 2 or more small technology-based businesses must participate in the project. (For a definition of small business, see http://www.nsf.gov/eng/iip/sbir/definitions.jsp#sbc.)

Age: One of these small businesses must have been founded no later than December 2011. One of these small businesses must have been founded no later than December 2007.

Partner Requirement: At least one of the small technology-based businesses must not have financial ties through ownerships, licensing, etc. with the lead institution or principal investigator. The ties between all of the small technology-based businesses to the lead institution must be clearly described; providing details of the financial, ownership, licensing and/other financial connections of the small technology-based business and the lead institution.

Business Acumen: It is important that considerable experience (of the non-technical, non-engineering, non-R&D) is brought to the collaboration. Each small technology-based business **must have one team member** with entrepreneurial and business experience as evidenced in the biographical sketches.

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

Letters of Intent *(required):*

Submission of a Letter of Intent (LOI) from the lead institution is mandatory. Letters of intent are to be submitted via Fastlane at http://fastlane.nsf.gov/ The LOI, which is pre-requisite to proposal submission, allows NSF to examine the proposals with respect to the eligibility requirements, to identify correctible issues, and to categorize proposals in order to prepare for the proposal review process. *The LOI will not be used to disallow full proposal submissions.*

The "synopsis" and the "other comments" data fields each can contain a maximum of 2,500 characters--use this space wisely to convey important aspects of the project. Note that the LOIs are restricted as to the number of data fields and the number of characters in each of the maximum of three "additional information" data fields that can be entered in FastLane.

The listing of the Senior Project Personnel *(see below under "Letter of Intent Preparation Instructions")* pertains in this context to the official Co-PIs. The maximum number individuals appearing on the NSF cover page is 5. These individuals need not all be at the lead institution. Include in the LOI these three "additional information" data fields:

- ***Research Discovery Findings (255 chars) - Describe the existing research discovery findings and some major potential application areas of importance to U.S. competitiveness or to a solution of a problem of national and/or global importance.***
- ***Small Technology-Based Businesses (255 chars) - Identify the small technology-based businesses; Provide for each: name, age/founding date, and mission/technology foci. Reasonable abbreviations can be used.***
- ***Translational-Research Activities (255 chars) - List some major translational-research activities that will result in a strategy to build innovation capacity of the partners.***

Letter of Intent Preparation Instructions:

When submitting a Letter of Intent through FastLane in response to this Program Solicitation please note the conditions outlined below:

- Sponsored Projects Office (SPO) Submission is required when submitting Letters of Intent
- A Minimum of 0 and Maximum of 4 Other Senior Project Personnel are allowed
- A Minimum of 0 and Maximum of 4 Other Participating Organizations are allowed
- Research Discovery Findings is required when submitting Letters of Intent
- Small Technology-Based Businesses is required when submitting Letters of Intent
- Translational-Research Activities is required when submitting Letters of Intent
- Submission of multiple Letters of Intent is not allowed

Full Proposal Preparation Instructions: Proposers may opt to submit proposals in response to this Program Solicitation via Grants.gov or via the NSF FastLane system.

- Full proposals submitted via FastLane: Proposals submitted in response to this program solicitation should be prepared and submitted in accordance with the general guidelines contained in the NSF Grant Proposal Guide (GPG). The complete text of the GPG is available electronically on the NSF website at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg. Paper copies of the GPG may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from nsfpubs@nsf.gov. Proposers are reminded to identify this program solicitation number in the program solicitation block on the NSF Cover Sheet For Proposal to the National Science Foundation. Compliance with this requirement is critical to determining the relevant proposal processing guidelines. Failure to submit this information may delay processing.

- Full proposals submitted via Grants.gov: Proposals submitted in response to this program solicitation via Grants.gov should be prepared and submitted in accordance with the NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov. The complete text of the NSF Grants.gov Application Guide is available on the Grants.gov website and on the NSF website at: (http://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantsgovguide). To obtain copies of the Application Guide and Application Forms Package, click on the Apply tab on the Grants.gov site, then click on the Apply Step 1: Download a Grant Application Package and Application Instructions link and enter the funding opportunity number, (the program solicitation number without the NSF prefix) and press the Download Package button. Paper copies of the Grants.gov Application Guide also may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from nsfpubs@nsf.gov.

Guide to Submission of a Proposal

For program information, contact Sara Nerlove, Program Director, (703) 292-7077, email: snerlove@nsf.gov

Note: the submission criteria outlined below are in addition to requirements contained within the NSF Grant Proposal Guide (GPG) or NSF Grants.gov Application Guide

A. *Cover Sheet:*

The cover sheet is automatically generated by FastLane or Grants.gov based on information entered into the "Cover Sheet" module.

B. *Project Summary* ***(one-page limit)***

The Project Summary should be written in the third person and shall begin as follows: "This Partnerships for Innovation: Building Innovation Capacity (PFI: BIC) project...." Provide the title of the proposed BIC, the name of the PI, and the lead institution. Open with a succinct statement of what the proposal is about.

The summary ***MUST*** *clearly address in separate statements:*

- *Intellectual merit of the proposed activity*
- *Broader impacts resulting from the proposed activity*
- *A listing of all the partners* ***excluding*** *the lead academic institution, placing them into categories*
  - *the names of the small technology-based businesses, age/founding date, location, mission/technology foci. If you do not have sufficient space just include age/founding date and situate the complete information for the small technology-based businesses* ***early*** *in the Project Description.*
  - *other entities that are members of the partnership - in labeled categories, listed alphabetically within the category.*
- *A listing of "key" words. The key words/phrases should identify the areas of technical expertise in science or engineering that are to be invoked in reviewing the proposal.*

C. *Table of Contents*

The table of contents is automatically generated by FastLane or Grants.gov.

D. *Project Description (cannot exceed 15 pages): The project description must include the following parts.*

Part 1. Narrative Description: *The narrative must describe the existing research discovery findings (list, if any, the lineage of the research discoveries in past NSF awards; for each previously funded project-include the directorate name, division name, & award number), a plan that describes the early translational-research activities influenced by academe and business perspectives, technological barriers, and market niches and needs; and the takeaways for the partners;*

Part 2. Management Plan: *Provide a description of the respective roles, responsibilities, and resources of the partnership.*

Part 3. Timetable: *A table of the translational-research tasks to be done, the designated partners to accomplish each task, and the timeline associated with each task.*

Part 4. Intellectual Property: *Include a discussion of any relevant background intellectual property held by the proposing institution and/or the businesses, its availability for licensing, and an assessment of how another party might patent or practice around both background and anticipated intellectual property assets.*

Part 5. Results from Prior NSF Support *If any PI or co-PI identified on the project has received NSF funding in the past five year; information on the award(s) is required. Each PI and co-PI who has received more than one award (excluding amendments) must report on the award most closely related to the proposal. The following information must be provided:*

a. *the NSF award number, amount and period of support*

b. *the title of the project*

c. *number of publications resulting from the NSF award*

E. *References Cited*

Provide a comprehensive listing of relevant reference sources, including patent citations. If there are no references cited in the proposal, put a statement to that effect in this module.)

F. *Biographical Sketches*

Include short bios (two pages maximum) for each of the academic research team members (PI, Co-PIs,), highlighting experience relevant to BIC and this project. All participants listed as either "Co-PIs or "Non Co-PI/Senior Personnel" can submit a bio sketch of no more than two page; See J. Supplementary Documents, Partnership Letters, regarding inclusion of biosketches for representatives of each participating small technology-based business.)

G. *Budget, Subaward Budgets, and Consultants*

The NSF Summary Proposal Budget is generated in FastLane or Grants.gov. Prepare a budget for each year. The system will automatically generate a cumulative budget for the entire project. Costs of one trip per year for the PI to travel to D.C. area to report on progress or participate in grantees workshops should be included in the requested budget (approximately $2000/year) and spelled out explicitly in the budget justification. Additional travel costs can be budgeted for a partner, a student, and/or other participants on the project to travel for the same or similar purposes. Other travel costs, while needing careful justification, need not be limited to the aforementioned $2000/year.

NSF does not intend to fund industrial or business research and development. Awarded funds may be allocated in the form of subawards or consultancies, as appropriate, for participation of the businesses in the ***translational-research activities****, but subawards or consultancies for the small businesses are optional. It should be clear in the budget justification and narrative how the funds and other resources of the project (e.g., special facilities, equipment, and* ***students****) are shared by the partnership.*

If consultants are used, consultant letter(s) must be provided with the number of days and the amount per day, and the role of the consultant; provide an explicit statement that the consultant's role is deemed reasonable and necessary for the project. ***If consultants are from the small technology-based businesses, include the consultant information in the Partnership Letters (see below, Section J. Supplementary Documents).***

H. *Current and Pending Support*

The proposal should provide information regarding all research to which the Principal Investigator and other senior personnel either have committed time or have planned to commit time. For all ongoing and proposed projects, the following information should be provided for the Principal Investigator and senior personnel:

- *Name of sponsoring organization and add:* ***award number***
- *Title and performance period of the proposal; and*
- *Person-months/calendar months (per year) devoted to the project by the Principal Investigator and each of the senior personnel.*

Current and Pending Support must be uploaded into the system. The proposal being submitted is considered "pending" (i.e., this proposal) and therefore MUST appear in the Current and Pending Support module.

I. *Facilities, Equipment, and Other Resources*

Discuss requirements for and the availability of facilities, equipment, and other resources for the proposed work. Include relevant facilities, equipment, and other resources that the ***partners*** *are bringing to the project.*

J. *Supplementary Documents*

Proposals missing any of the required documents outlined below will be returned without review.

The following information must be provided as supplementary documents (unless otherwise indicated) and submitted to the Supplementary Docs module in FastLane or Grants.gov:

- *Partnership List (five-page limit). Provide a list of all the partners subdivided into the following categories:*
  - *Lead institution*
  - *Small technology-based businesses*
  - *Other partners* (*e.g., academic institutions, private sector organizations, public sector organizations: including state and local governments, government laboratories; others)*
  - *Provide a list of each partner's personnel participating in the BIC project. For each of the personnel representing academic institutions, include the department and/or school/college with which the individual is associated.*
- *Organizational/Role Diagram. Provide an organizational chart that identifies the roles to be played by each of the partners.*
- *Partnership Letters. Provide partnership letters from the two (or more) small technology-based businesses. A partnership is one where resources are explicitly committed (either financial or in-kind). These letters must be provided on letterhead, signed by the appropriate institution or partner representative and begin with "This letter confirms the* ***partnership*** *between ....". Each partnership letter*

from a small technology-based business must be followed by at least two (2) bio sketches from personnel, at least one of whom has strong entrepreneurial and business experience. These letters together with the associated bio sketches must be submitted to the Supplementary Docs module in FastLane or Grants.gov.

- Other Partners Letters: *Provide other partner letters from all other partners engaged in the proposed project.*
- *Cooperative Research Agreements (CRAs). A letter (not an official legal document at this point, but signed by an appropriate person at the lead institution) stating that CRAs will be provided upon notification of the award must be submitted with the proposal. Then, if an award is recommended, the lead institution must provide signed written CRAs between the lead institution and the partners at the time of the award.*
- *Preliminary Patent Search: If appropriate, a preliminary patent search and accompanying discussion to support the feasibility of obtaining needed licenses and/or sufficient protection for the intellectual property developed.*
- *Support Letters (optional ,limit of five letters). Support letters from relevant entities and potential partners that are not considered part of the broader context of the partnership act as further indicators of the potential significance of the proposed effort. These letters must be provided on letterhead, signed by the appropriate institution or partner representative and begin with "This letter of **support...**".*
- *Data Management Plan. A Data Management Plan is required for **all proposals** submitted to NSF. Please reference the data management requirements at this link http://www.nsf.gov/pubs/policydocs/pappguide/nsf11001/gpg_2.jsp#dmp*
- *Postdoctoral Research Mentoring Plan. A postdoctoral mentoring plan, **if applicable**.*
- *Other Supplementary Docs. Letters regarding use of human subjects or vertebrate animals, e.g., from Institutional Review Board or provided by* Institutional Animal Care and Use Committee (*IACUC) approval of animal use, **if applicable**.*

K. *Single Copy Documents*

Proposers are encouraged to supply an annotated list (map them onto the key words of the project summary) of suggested reviewers complete with contact information. Proposers are also encouraged to email this information directly to the cognizant Program Director in conjunction with the submission of the LOI.

B. Budgetary Information

Cost Sharing: Inclusion of voluntary committed cost sharing is prohibited

Other Budgetary Limitations:

Limitations:

NSF will not provide salary support for personnel employed by Federal Agencies or Federally Funded Research and Development Centers.

Budget Limitations:

Proposers may request up to $600,000 from NSF for an award duration of two years.

C. Due Dates

- **Letter of Intent Due Date(s) *(required)*** (due by 5 p.m. proposer's local time)*:*

  September 26, 2012

- **Full Proposal Deadline(s)** (due by 5 p.m. proposer's local time):

  December 12, 2012

D. FastLane / Grants.gov Requirements

- **For Proposals Submitted Via FastLane:**

  Detailed technical instructions regarding the technical aspects of preparation and submission via FastLane are available at: https://www.fastlane.nsf.gov/a1/newstan.htm. For FastLane user support, call the FastLane Help Desk at 1-800-673-6188 or e-mail fastlane@nsf.gov. The FastLane Help Desk answers general technical questions related to the use of the FastLane system. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this funding opportunity.

  Submission of Electronically Signed Cover Sheets. The Authorized Organizational Representative (AOR) must electronically sign the proposal Cover Sheet to submit the required proposal certifications (see Chapter II, Section C of the Grant Proposal Guide for a listing of the certifications). The AOR must provide the required electronic certifications within five working days following the electronic submission of the proposal. Further instructions regarding this process are available on the FastLane Website at: https://www.fastlane.nsf.gov/fastlane.jsp.

- **For Proposals Submitted Via Grants.gov:**

  Before using Grants.gov for the first time, each organization must register to create an institutional profile. Once registered, the applicant's organization can then apply for any federal grant on the Grants.gov website. Comprehensive information about using Grants.gov is available on the Grants.gov Applicant Resources webpage: http://www07.grants.gov/applicants/app_help_reso.jsp. In addition, the NSF Grants.gov Application Guide provides additional technical guidance regarding preparation of proposals via Grants.gov. For Grants.gov user support, contact the Grants.gov Contact Center at 1-800-518-4726 or by email: support@grants.gov. The Grants.gov Contact Center answers general technical questions related to the use of Grants.gov. Specific questions related to this program solicitation should be

referred to the NSF program staff contact(s) listed in Section VIII of this solicitation.

Submitting the Proposal: Once all documents have been completed, the Authorized Organizational Representative (AOR) must submit the application to Grants.gov and verify the desired funding opportunity and agency to which the application is submitted. The AOR must then sign and submit the application to Grants.gov. The completed application will be transferred to the NSF FastLane system for further processing.

VI. NSF PROPOSAL PROCESSING AND REVIEW PROCEDURES

Proposals received by NSF are assigned to the appropriate NSF program where they will be reviewed if they meet NSF proposal preparation requirements. All proposals are carefully reviewed by a scientist, engineer, or educator serving as an NSF Program Officer, and usually by three to ten other persons outside NSF who are experts in the particular fields represented by the proposal. These reviewers are selected by Program Officers charged with the oversight of the review process. Proposers are invited to suggest names of persons they believe are especially well qualified to review the proposal and/or persons they would prefer not review the proposal. These suggestions may serve as one source in the reviewer selection process at the Program Officer's discretion. Submission of such names, however, is optional. Care is taken to ensure that reviewers have no conflicts of interest with the proposal.

A. NSF Merit Review Criteria

All NSF proposals are evaluated through use of the two National Science Board (NSB)-approved merit review criteria: intellectual merit and the broader impacts of the proposed effort. In some instances, however, NSF will employ additional criteria as required to highlight the specific objectives of certain programs and activities.

The two NSB-approved merit review criteria are listed below. The criteria include considerations that help define them. These considerations are suggestions and not all will apply to any given proposal. While proposers must address both merit review criteria, reviewers will be asked to address only those considerations that are relevant to the proposal being considered and for which the reviewer is qualified to make judgments.

What is the intellectual merit of the proposed activity?
How important is the proposed activity to advancing knowledge and understanding within its own field or across different fields? How well qualified is the proposer (individual or team) to conduct the project? (If appropriate, the reviewer will comment on the quality of the prior work.) To what extent does the proposed activity suggest and explore creative, original, or potentially transformative concepts? How well conceived and organized is the proposed activity? Is there sufficient access to resources?

What are the broader impacts of the proposed activity?
How well does the activity advance discovery and understanding while promoting teaching, training, and learning? How well does the proposed activity broaden the participation of underrepresented groups (e.g., gender, ethnicity, disability, geographic, etc.)? To what extent will it enhance the infrastructure for research and education, such as facilities, instrumentation, networks, and partnerships? Will the results be disseminated broadly to enhance scientific and technological understanding? What may be the benefits of the proposed activity to society?

Examples illustrating activities likely to demonstrate broader impacts are available electronically on the NSF website at: http://www.nsf.gov/pubs/gpg/broaderimpacts.pdf.

Mentoring activities provided to postdoctoral researchers supported on the project, as described in a one-page supplementary document, will be evaluated under the Broader Impacts criterion.

Additional Solicitation Specific Review Criteria

In making the final award decisions, NSF also may consider the following:

- Geographic distribution and diversity of academic institutions involved in the partnership
- Distribution of technology or industry sectors served

Additional Review

Reviewers will be asked to evaluate the documented qualifications of the PIs, Co- PIs, and other personnel on the PFI: BIC project team extensively. In particular, they will be asked to determine in light of the joint perspectives of academe and business whether the existing research discoveries can be moved from their current state to potentially market-valued solutions.

Other additional review criteria are as follows:

- The quality of the partnership
- Potential of the scientific and/or engineering-based research discovery to enhance innovation capacity building
- Potential importance of the project to the enhancement of U.S. competitiveness or to provide a solution to a problem of national and/or global importance.
- Potential for the results to be an entry into programs further along the innovation spectrum such as: SBIR/STTR, NSF PFI: AIR, and others.

NSF staff also will give careful consideration to the following in making funding decisions:

Integration of Research and Education
One of the principal strategies in support of NSF's goals is to foster integration of research and education through the programs, projects, and activities it supports at academic and research institutions. These institutions provide abundant opportunities where individuals may concurrently assume responsibilities as researchers, educators, and students and where all can engage in joint efforts that infuse education with the excitement of discovery and enrich research through the diversity of learning perspectives.

Integrating Diversity into NSF Programs, Projects, and Activities
Broadening opportunities and enabling the participation of all citizens -- women and men, underrepresented minorities, and persons with disabilities -- is essential to the health and vitality of science and engineering. NSF is committed to this principle of diversity and deems it central to the programs, projects, and activities it considers

and supports.

B. Review and Selection Process

Proposals submitted in response to this program solicitation will be reviewed by Ad hoc Review and/or Panel Review.

Reviewers will be asked to formulate a recommendation to either support or decline each proposal. The Program Officer assigned to manage the proposal's review will consider the advice of reviewers and will formulate a recommendation.

After scientific, technical and programmatic review and consideration of appropriate factors, the NSF Program Officer recommends to the cognizant Division Director whether the proposal should be declined or recommended for award. NSF is striving to be able to tell applicants whether their proposals have been declined or recommended for funding within six months. The time interval begins on the deadline or target date, or receipt date, whichever is later. The interval ends when the Division Director accepts the Program Officer's recommendation.

A summary rating and accompanying narrative will be completed and submitted by each reviewer. In all cases, reviews are treated as confidential documents. Verbatim copies of reviews, excluding the names of the reviewers, are sent to the Principal Investigator/Project Director by the Program Officer. In addition, the proposer will receive an explanation of the decision to award or decline funding.

In all cases, after programmatic approval has been obtained, the proposals recommended for funding will be forwarded to the Division of Grants and Agreements for review of business, financial, and policy implications and the processing and issuance of a grant or other agreement. Proposers are cautioned that only a Grants and Agreements Officer may make commitments, obligations or awards on behalf of NSF or authorize the expenditure of funds. No commitment on the part of NSF should be inferred from technical or budgetary discussions with a NSF Program Officer. A Principal Investigator or organization that makes financial or personnel commitments in the absence of a grant or cooperative agreement signed by the NSF Grants and Agreements Officer does so at their own risk.

VII. AWARD ADMINISTRATION INFORMATION

A. Notification of the Award

Notification of the award is made to *the submitting organization* by a Grants Officer in the Division of Grants and Agreements. Organizations whose proposals are declined will be advised as promptly as possible by the cognizant NSF Program administering the program. Verbatim copies of reviews, not including the identity of the reviewer, will be provided automatically to the Principal Investigator. (See Section VI.B. for additional information on the review process.)

B. Award Conditions

An NSF award consists of: (1) the award letter, which includes any special provisions applicable to the award and any numbered amendments thereto; (2) the budget, which indicates the amounts, by categories of expense, on which NSF has based its support (or otherwise communicates any specific approvals or disapprovals of proposed expenditures); (3) the proposal referenced in the award letter; (4) the applicable award conditions, such as Grant General Conditions (GC-1); * or Research Terms and Conditions * and (5) any announcement or other NSF issuance that may be incorporated by reference in the award letter. Cooperative agreements also are administered in accordance with NSF Cooperative Agreement Financial and Administrative Terms and Conditions (CA-FATC) and the applicable Programmatic Terms and Conditions. NSF awards are electronically signed by an NSF Grants and Agreements Officer and transmitted electronically to the organization via e-mail.

*These documents may be accessed electronically on NSF's Website at http://www.nsf.gov/awards/managing/award_conditions.jsp?org=NSF. Paper copies may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from nsfpubs@nsf.gov.

More comprehensive information on NSF Award Conditions and other important information on the administration of NSF awards is contained in the NSF *Award & Administration Guide* (AAG) Chapter II, available electronically on the NSF Website at http://www.nsf.gov/publications/pub_summ.jsp?ods_key=aag.

C. Reporting Requirements

For all multi-year grants (including both standard and continuing grants), the Principal Investigator must submit an annual project report to the cognizant Program Officer at least 90 days before the end of the current budget period. (Some programs or awards require more frequent project reports). Within 90 days after expiration of a grant, the PI also is required to submit a final project report, and a project outcomes report for the general public.

Failure to provide the required annual or final project reports, or the project outcomes report will delay NSF review and processing of any future funding increments as well as any pending proposals for that PI. PIs should examine the formats of the required reports in advance to assure availability of required data.

PIs are required to use NSF's electronic project-reporting system, available through FastLane, for preparation and submission of annual and final project reports. Such reports provide information on activities and findings, project participants (individual and organizational), publications, and other specific products and contributions. PIs will not be required to re-enter information previously provided, either with a proposal or in earlier updates using the electronic system. Submission of the report via FastLane constitutes certification by the PI that the contents of the report are accurate and complete. The project outcomes report must be prepared and submitted using Research.gov. This report serves as a brief summary, prepared specifically for the public, of the nature and outcomes of the project. This report will be posted on the NSF website exactly as it is submitted by the PI.

More comprehensive information on NSF Reporting Requirements and other important information on the administration of NSF awards is contained in the NSF *Award & Administration Guide* (AAG) Chapter II, available electronically on the NSF Website at http://www.nsf.gov/publications/pub_summ.jsp?ods_key=aag.

The Final Report must address specifically the following:

- ***Translational Research Activities*** *- Address how the partnership activities have moved the existing research discoveries from their initial state to the current state due to influences such as existing or newly identified market niches and needs, the potential for the creation of innovative market solutions, and innovation capacity building enhanced by two-way collaboration and mutual learning.*
- ***Partnerships*** *- Provide the number of partnerships formed. Describe how the partnerships built innovation capacity, increased the viability of the small business concerns, and developed the next-generation workforce. Elaborate on how the partnerships overcame technological barriers, promoted mutual learning and/or restricted collaboration among the partners.*
- ***Takeaways*** *- Detail how the small technology-based business takeaways provide a means of expanding, refining, and moderating, i.e., sustaining, their portfolios; navigating market barriers; and identifying different or additional market niches.*

NSF also requires PFI:BIC awardees to collect and submit data to NSF secure databases. Data may also be collected from all participating organizations, not just the BIC awardees. Data collected may be both survey data and annual report data. Survey data may also be collected post the completion of the grant. Data could include indicators of progress, outcomes, and impacts. NSF will provide data definitions and guidelines for assembling and submitting the data. We will obtain OMB approval should the need arise.

ASSESSMENT

OMB/OSTP Memorandum M-09-27 directed science and technology agencies to describe the expected outcomes from their research in relation to these four practical challenges and cross-cutting areas, providing quantitative metrics where possible, and describe how they plan to evaluate the success of various techniques to increase support for high-risk research.

In compliance with this memorandum, each annual and final project report should provide an explanation of the quantitative and qualitative metrics that have been used in evaluating the impact of their activities.

In order to reduce reporting and administrative burden, proposers are encouraged to use administrative records where possible. Universities participating in the OSTP/NIH/NSF/Federal Demonstration Partnership's (FDP) STAR METRICS program (http://sites.nationalacademies.org/PGA/fdp/PGA_057189) are encouraged to contact their institutional representatives to identify ways in which the program could support the evaluation of their activities.

The report should be filed in the activities and findings section of the annual and final reports.

VIII. AGENCY CONTACTS

Please note that the program contact information is current at the time of publishing. See program website for any updates to the points of contact.

General inquiries regarding this program should be made to:

- Sara B. Nerlove, Program Director, telephone: 703-292-7077, email: snerlove@nsf.gov

For questions related to the use of FastLane, contact:

- FastLane Help Desk, telephone: 1-800-673-6188; e-mail: fastlane@nsf.gov.

For questions relating to Grants.gov contact:

- Grants.gov Contact Center: If the Authorized Organizational Representatives (AOR) has not received a confirmation message from Grants.gov within 48 hours of submission of application, please contact via telephone: 1-800-518-4726; e-mail: support@grants.gov.

IX. OTHER INFORMATION

The NSF Website provides the most comprehensive source of information on NSF Directorates (including contact information), programs and funding opportunities. Use of this Website by potential proposers is strongly encouraged. In addition, National Science Foundation Update is a free e-mail subscription service designed to keep potential proposers and other interested parties apprised of new NSF funding opportunities and publications, important changes in proposal and award policies and procedures, and upcoming NSF Regional Grants Conferences. Subscribers are informed through e-mail when new publications are issued that match their identified interests. Users can subscribe to this service by clicking the "Get NSF Updates by Email" link on the NSF web site.

Grants.gov provides an additional electronic capability to search for Federal government-wide grant opportunities. NSF funding opportunities may be accessed via this new mechanism. Further information on Grants.gov may be obtained at http://www.grants.gov.

ABOUT THE NATIONAL SCIENCE FOUNDATION

The National Science Foundation (NSF) is an independent Federal agency created by the National Science Foundation Act of 1950, as amended (42 USC 1861-75). The Act states the purpose of the NSF is "to promote the progress of science; [and] to advance the national health, prosperity, and welfare by supporting research and education in all fields of science and engineering."

NSF funds research and education in most fields of science and engineering. It does this through grants and cooperative agreements to more than 2,000 colleges, universities, K-12 school systems, businesses, informal science organizations and other research organizations throughout the US. The Foundation accounts for about one-fourth of Federal support to academic institutions for basic research.

NSF receives approximately 55,000 proposals each year for research, education and training projects, of which approximately 11,000 are funded. In addition, the Foundation receives several thousand applications for graduate and postdoctoral fellowships. The agency operates no laboratories itself but does support National Research Centers, user facilities, certain oceanographic vessels and Arctic and Antarctic research stations. The Foundation also supports cooperative research between universities and industry, US participation in international scientific and engineering efforts, and educational activities at every academic level.

Facilitation Awards for Scientists and Engineers with Disabilities provide funding for special assistance or equipment to enable persons with disabilities to work on NSF-supported projects. See Grant Proposal Guide Chapter II, Section D.2 for instructions regarding preparation of these types of proposals.

The National Science Foundation has Telephonic Device for the Deaf (TDD) and Federal Information Relay Service (FIRS) capabilities that enable individuals with hearing impairments to communicate with the Foundation about NSF programs, employment or general information. TDD may be accessed at (703) 292-5090 and (800) 281-8749, FIRS at (800) 877-8339.

The National Science Foundation Information Center may be reached at (703) 292-5111.

The National Science Foundation promotes and advances scientific progress in the United States by competitively awarding grants and cooperative agreements for research and education in the sciences, mathematics, and engineering.

To get the latest information about program deadlines, to download copies of NSF publications, and to access abstracts of awards, visit the NSF Website at http://www.nsf.gov

- **Location:** 4201 Wilson Blvd. Arlington, VA 22230
- **For General Information** (NSF Information Center)**:** (703) 292-5111
- **TDD (for the hearing-impaired):** (703) 292-5090
- **To Order Publications or Forms:**

  Send an e-mail to: nsfpubs@nsf.gov

  or telephone: (703) 292-7827
- **To Locate NSF Employees:** (703) 292-5111

PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

The information requested on proposal forms and project reports is solicited under the authority of the National Science Foundation Act of 1950, as amended. The information on proposal forms will be used in connection with the selection of qualified proposals; and project reports submitted by awardees will be used for program evaluation and reporting within the Executive Branch and to Congress. The information requested may be disclosed to qualified reviewers and staff assistants as part of the proposal review process; to proposer institutions/grantees to provide or obtain data regarding the proposal review process, award decisions, or the administration of awards; to government contractors, experts, volunteers and researchers and educators as necessary to complete assigned work; to other government agencies or other entities needing information regarding applicants or nominees as part of a joint application review process, or in order to coordinate programs or policy; and to another Federal agency, court, or party in a court or Federal administrative proceeding if the government is a party. Information about Principal Investigators may be added to the Reviewer file and used to select potential candidates to serve as peer reviewers or advisory committee members. See Systems of Records, NSF-50, "Principal Investigator/Proposal File and Associated Records," 69 Federal Register 26410 (May 12, 2004), and NSF-51, "Reviewer/Proposal File and Associated Records," 69 Federal Register 26410 (May 12, 2004). Submission of the information is voluntary. Failure to provide full and complete information, however, may reduce the possibility of receiving an award.

An agency may not conduct or sponsor, and a person is not required to respond to, an information collection unless it displays a valid Office of Management and Budget (OMB) control number. The OMB control number for this collection is 3145-0058. Public reporting burden for this collection of information is estimated to average 120 hours per response, including the time for reviewing instructions. Send comments regarding the burden estimate and any other aspect of this collection of information, including suggestions for reducing this burden, to:

Suzanne H. Plimpton
Reports Clearance Officer
Division of Administrative Services
National Science Foundation
Arlington, VA 22230