Partnerships for Innovation (PFI)

PROGRAM SOLICITATION
NSF 12-511

REPLACES DOCUMENT(S):
NSF 10-581, NSF 10-608

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)***:***

January 04, 2012

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

March 01, 2012

IMPORTANT INFORMATION AND REVISION NOTES

This program solicitation, *Partnerships for Innovation (PFI),* is pursuant to two separate program solicitations: NSF 10-581, *Partnerships for Innovation (PFI)*, and NSF 10-608, *Accelerating Innovation Research (AIR).* It combines these two programs into a single solicitation that consists of: 1) *Building Innovation Capacity (BIC),* based on NSF 10-581; and 2) *Accelerating Innovation Research (AIR option 2: Research Alliance Competition*), based on NSF 10-608. Thus, the NSF Partnerships for Innovation (PFI) program is now an umbrella for two complementary subprograms, one of which involves an earlier stage that focuses on building innovation capacity, and the other which involves a later stage that focuses on the acceleration of innovation research. The former emphasizes the transformation of knowledge into market-accepted innovations created by the research and education enterprise; while the latter emphasizes the translation of research to commercialization by NSF-funded research alliances. A research alliance is defined as a research partnership formed for mutual benefit, and funded by NSF, between/amongst universities and other entities. In the final analysis, both programs, while focusing on different stages, are concerned with the movement of academic research into the marketplace.

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.

All Building Innovation Capacity (BIC) and Accelerating Innovation Research (AIR) proposals must contain all the required components as per the Grant Proposal Guide.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Partnerships for Innovation (PFI)
Building Innovation Capacity (BIC) and Accelerating Innovation Research (AIR)

Synopsis of Program:

National prosperity today is more dependent on research and technology advances and since the product development cycle in all industrial sectors is more rapid than before, NSF's role of supporting discovery research across all fields of science and engineering is closer and more relevant to economic development at this time than at any time in our past.

By establishing and expanding partnerships, research from institutions of higher education can be translated into innovation. Thus, the impact of research can be increased by moving it to realistic deployment, linking new knowledge to economic growth and other societal benefits. Partnerships with participation from science, engineering, education, the private sector and government can accelerate the process of innovation--the transformation of scientific and technological advances into new products, processes, systems, and services. In turn, new jobs are produced, wealth created, and the standard of living and quality of life worldwide are improved.

The NSF Partnerships for Innovation (PFI) program is an umbrella for two complementary subprograms: one of which involves an earlier stage that focuses on building innovation capacity and the other involves a later stage that focuses on the acceleration of innovative research. The former emphasizes the transformation of knowledge to market-accepted innovations created by the research and education enterprise, while the latter emphasizes the translation of research to commercialization by NSF-funded research alliances. A research alliance is defined as a research partnership formed for mutual benefit, and funded by NSF, between/amongst universities and other entities. In the final analysis, both programs, while focusing on different stages are concerned with the movement of academic research into the marketplace.

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, Building Innovation Capacity (BIC), telephone: (703) 292-7077, email: snerlove@nsf.gov
- Karlene A. Hoo, Accelerating Innovation Research (AIR), telephone: (703) 292-4609, email: khoo@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: 22 (total for both BIC and AIR)

Anticipated Funding Amount: $15,000,000

Anticipated Funding Amount is subject to the availability of funds and the quality of proposals received.

- Awards for BIC may be up to $600,000 with an award duration of two years.
- Awards for AIR may be up to $800,000 with an award duration of up to two years.

Eligibility Information

Organization Limit:

Proposals may only be submitted by the following:

- No collaborative proposals (defined as simultaneous proposal submissions for a joint project from different organizations, with each organization requesting a separate award) will be accepted for either sub-program.

  BIC - 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.
  - At least two or more existing small business concerns must participate in the proposal.

  AIR - proposals may only be submitted by the following:

  - U.S. universities and four-year 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.
  - One and only one institution within a research alliance can be the lead/applicant institution. An alliance is defined as a research partnership formed for mutual benefit, and funded by NSF, between/amongst universities and other entities. Examples include but are not limited to consortia, such as Engineering Research Centers (ERC), Industry University Cooperative Research Centers (I/UCRC), Partnerships for Innovation (PFI), prior PFI awardees, Science and Technology Centers (STC), Nanoscale Science and Engineering Centers (NSEC), Materials Research Science and Engineering Centers (MRSEC) grantees.

PI Limit:

BIC

- The PI cannot be a PI on a Partnership for Innovation award that will be active after June 1, 2012.
- One of the Co-PIs must be a Senior Administrator (at the level of dean or above), who has a demonstrated commitment to knowledge transfer of university research. The senior administrator must have an active role that is explicitly described, along with a specification of a time commitment on the project.

AIR

- Proposals may only include the PI and one Co-PI.

Limit on Number of Proposals per Organization:

BIC - Lead academic institutions are limited to participation in only one proposal.

AIR - No limit

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)***:***

  January 04, 2012

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

  March 01, 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.

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I. INTRODUCTION

The Division of Industrial Innovation and Partnerships (IIP) of the Directorate for Engineering (ENG) introduces under the Partnerships for Innovation (PFI) program two "*new*" subprograms: Building Innovation Capacity (BIC) and Accelerating Innovation Research (AIR). The goal of the "*new*" PFI is to build innovation capacity through early support of the partnering of academic institutions with the small business sector and to accelerate innovation research by supporting existing NSF grantees that collaborate with third-parties in order to move innovations to market.

There are other federal programs that contribute to the goal of innovation, including: Innovation Corps (I-Corps), the Small Business Innovation Research/Small Business Technology Transfer Research (SBIR/STTR), the Grant Opportunities for Academic Liaison with Industry (GOALI) and the Economic Development Administration (EDA) of the Department of Commerce's i6 Challenge program. Taken together, these programs provide serial momentum that promotes the common goal of innovation.

PFI: Building Innovation Capacity. One of the general goals of the subprogram, Building Innovation Capacity (BIC), is to stimulate the transformation of knowledge created by the research and education enterprise into innovations that create new wealth and build strong local, regional, and national economies. Aligned with this goal, the funds will provide support for innovation capacity building to dynamic interactive knowledge-enhancing partnership (KEP) groups composed of academic researchers and small business practitioners focused on intense exploration, re-definition, and re-creation of one research platform with the intention of moving toward market-accepted innovations. The basic organizational core of each proposed knowledge-enhancing partnership group must be composed of an academic lead institution and, at a minimum, two small businesses. The hallmark of these partnerships is a collaboration in which research and its translation paths are shaped and expanded from both the research and the business perspectives. While the center-piece of this group is academe and small business, large businesses and non-profits may participate in this knowledge-enhancement partnership core, which in turn may be embedded in a broader network of the project partnership. An important purpose of these knowledge-enhancing partnerships is to develop researchers more agile in adapting their research for use in new applications and to increase the potential viability of existing small businesses.

The ideal project would consist of exploration, re-definition, and re-creation of a single research platform (versus de novo development of a platform). The research platform is one that can be applied to more than one market and problem/opportunity. In this early stage work, the focus is on the "re-discovery" of discovery research with an eye towards applications so that at the end of the day, the knowledge-enhancing partnerships can address whether or not the research has garnered any advantage in the market place.

This competition will support promising partnerships between academic researchers and small business practitioners that engage in the important process of dynamic knowledge enhancement to build capacity to generate and sustain innovation. Partnerships may also include other academic institutions, other private sector organizations (such as large businesses and not-for-profit organizations), and state/local/federal government. Bearing in mind that it is important not to inhibit the spirit of collegiality in the core KEP group, NSF will require a signed written cooperative research agreement (CRA) between the lead institution and the small businesses at the time of the award. The CRA outlines any issues surrounding the intellectual property that each party may bring to the table or intellectual property that maybe an outcome of the relationship. For an example of a CRA model, reference http://www.nsf.gov/eng/iip/sbir/cooperative_agreement.jsp.

The competition will support awards of up to $600,000 per award for a 2-year duration. Awarded funds may be allocated appropriately to the knowledge-enhancement partner companies - in the form of subawards or consultancies - as well as to the lead institution. It should be clear how resources are shared by the partnership.

PFI: Accelerating Innovation Research. To accelerate the process of innovation, the AIR subprogram fosters connections between an existing NSF innovation research alliance. An alliance is defined as a research partnership formed for mutual benefit, and funded by NSF, between/amongst universities and other entities. Examples include but are not limited to consortia, such as Engineering Research Centers (ERC), Industry University Cooperative Research Centers (I/UCRC), Partnerships for Innovation (PFI) prior PFI awardees, Science and Technology Centers (STC), Nanoscale Science and Engineering Centers (NSEC), Materials Research Science and Engineering Centers (MRSEC) grantees and other partner entities that have as their complementary focus spurring the development of discoveries into innovative technologies through collaboration. The activity is designed to strengthen the U.S. innovation ecosystem.

In order for accelerating innovation research to be successful, it is essential that a third-party investment is committed as a means

to accelerate the innovation toward commercialization of a product, process, or system. A third-party investor may include such entities as another company, a venture capital firm, an individual "angel" investor, federal (non-SBIR), state or local government, or any combinations of the above. A third-party investment is a crucial component of the AIR subprogram.

The competition will support awards of up to $800,000 per award for up to 2 years duration, commensurate with the planned activities. Committed third-party investment (1:1) is required at the time of the proposal submission. The third-party investment must be at least 75 percent cash.

II. PROGRAM DESCRIPTION

SUB-PROGRAM DESCRIPTION: BUILDING INNOVATION CAPACITY (BIC)

One of the general goals of the subprogram Building Innovation Capacity (BIC) is to stimulate the transformation of knowledge created by the research and education enterprise into innovations that create new wealth and build strong local, regional, and national economies. Aligned with this goal, the funds will provide support for innovation capacity building to dynamic interactive knowledge-enhancing partnership groups. The groups are composed of academic researchers and small business concerns focused on intense exploration, re-definition, and re-creation of one research platform with the intention of moving toward market-accepted innovation. The basic organizational core of each proposed knowledge-enhancing partnership (KEP) group must be composed of an academic lead institution and, at a minimum, two small businesses. The hallmark of these partnerships is a collaboration in which research and its translation paths are shaped and expanded from both the research and the business perspectives. Fundamental to the success of such collaborations is trust. While the center-piece of this group is academe and small business, large businesses and non-profits may participate in this knowledge-enhancement partnership core, which in turn may be embedded in the broader network of the project partnership. An important purpose of these knowledge-enhancing partnerships is to develop researchers more agile in adapting their research for use in new applications and to increase the potential viability of existing small businesses. In particular, these partnerships will 1) increase the researchers' effectiveness to respond to and anticipate the constraints imposed by operational limitations on translation of the research and 2) improve the future of business practitioners' capability to develop products that will have potentially strong market demand.

Each partnership project will be composed of knowledge-enhancement partners (KEP), a small group consisting, at a minimum, of the lead institution and two or more existing small businesses. In some cases, each KEP company may engage in two-way interactions with the researchers; in others, KEP companies may interact collaboratively with each other as well as with the researchers. There may be situations where companies can serve to provide researchers with, e.g., a tool for carrying out needed experiments, important data, etc. Thus, the KEP also may function, in part, as a division of labor. However, the relationship cannot be limited to a division of labor; there must always be two-way interaction and mutual learning between the company and the researchers. Moreover, there always is the intention that each KEP company have a "takeaway" from the project.

The substantive core of the project focuses on exploration, re-definition, and re-creation of a single research platform. This research platform is one that could be applied to more than one market and problem/opportunity. It should not be research that will lead to a product or process that has a single application or that will lead to an application that is represented by a single product or process.

The partnership is not limited to the KEP. The choice as to the number and the type of any additional partners for participation in the broader network of the partnership is left to the discretion of the applicants. Additional partners can include other academic institutions (from which one or more members of the project research team could be drawn); public sector institutions; and other private sector institutions, such as large for-profit businesses as well as not-for profit private sector organizations. Partnerships that include state and local government entities are encouraged as are partnerships that include international partners in cases where they advance the goals of the partnership project.

It is well to bear in mind that the nature of agreements between the academic institution and the small businesses in the knowledge-enhancement partnerships needs to accommodate different possibilities that may not be anticipated in advance. It is the responsibility of the lead (grantee) institution to discuss the appropriate intellectual property policies, including patent disclosures and filings, with knowledge-enhancement partner companies. NSF is not responsible for the type of agreement reached between the grantees and the knowledge-enhancement partner companies. Submit with the proposal a letter stating that a cooperative research agreement (CRA) will be provided upon recommendation of an award. Then, if an award is recommended, the lead (grantee) institution must follow-up by providing a signed written CRA between the lead institution and the knowledge-enhancement partner companies.

In the interest of being thoughtful about the future, an appropriate risk management strategy dealing with (eventual) intellectual property (IP) sharing and ownership should be developed for the project from both the research and business perspectives.

Expected outcomes to come out of the knowledge-enhancement partnership interactions are as follows:

- Uncovering, enumerating, and analyzing new insights from multiple perspectives *versus* confirming what was known a priori
- Knowledge supported design and product conceptualization
- Understanding technical barriers to market adaptation that research might enable business to overcome
- Research platform development: Instantiation of potential application(s) of the research platform with concurrent consideration of technological, business, and market dimensions
- Increasing awareness and understanding of the knowledge-enhancement partners of the entrepreneurial enterprise

SUB-PROGRAM DESCRIPTION: ACCELERATING INNOVATION RESEARCH (AIR)

This competition is intended to foster a collaborative effort between an NSF-funded innovation research alliance. An alliance is defined as a research partnership formed for mutual benefit, and funded by NSF, between/amongst universities and other entities. Examples include but are not limited to consortia such as ERC, I/UCRC, PFI (prior PFI awardees), STC, NSEC, MRSEC grantees and at least one partner entity to form a synergistic relationship that will accelerate the innovation of a product, a process, or system. One and only one institution within a research alliance can be the lead/applicant institution. The narrative must provide a clear description of the role of those academic institutions in the alliance that are participating in the proposed work vis-à-vis the institution designated as the locus of the proposed project activities. In other words, the proposal must discuss what activities and/or talents other academic institutions in the alliance are bringing to the lead institution for the work proposed and how that leverages the core mission of the research alliance.

The ideal partnership would be one that ultimately leverages the collaborative relationship developed under the grant to strengthen the innovation ecosystem. The collaboration would link multiple entities such that research results are more rapidly moved into

marketable products through the creation of new start-up businesses or partnerships with existing businesses. The grant may be used to fund translational research necessary to bring a particular technology from either the research alliance or the partner entity to market, or to fund infrastructure, such as a rapid prototype facility, that would enable technologies to be more expeditiously commercialized. An award will enable 1) faster translation of research and/or technology (ies) into new startup business (es) or existing firms; 2) development of a network of connections between university researchers and others leading to an innovation ecosystem; 3) creation of jobs as a result of the innovation ecosystem; and 4) the preparation of students who understand innovation and entrepreneurship.

In order for innovation research to be successful, it is essential that a third-party investment is committed as a means to accelerate the innovation toward commercialization of a product, process, or system. The partnership between the NSF-funded academic entity and the third-party investor will create an academic-based innovation ecosystem that offers a cost-effective, timely, and risk-reduced approach for potential investors to participate in the development of new products, processes, and systems having potentially high commercial impact. Market research, advertising, patent applications, and refining of the business plan are good examples of uses of the third-party investment.

A third-party investor may include such entities as another company, a venture capital firm, an individual "angel" investor, federal (non-SBIR), state or local government, or any combinations of the above. The third-party investments must be tied directly to the research project envisioned in the application. The committed third-party (1:1) investment must be at least 75 percent cash.

Expected accomplishments are as follows:

- The proposed work will enable the translation of research results and/or technologies into new start-up businesses or existing firms.
- The proposed work will result in the development of a network of connections between university researchers and the business community that accelerates innovation.
- At the end of the proposed work, there will be measurable evidence, as documented using the proposed assessment method(s) and metric(s), of a developing innovation ecosystem and the creation of jobs through the execution of the award's strategic plan.
- The proposed work will develop students who are prepared to be entrepreneurially competitive.

III. AWARD INFORMATION

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

BIC AWARD INFORMATION: 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 (submitting) institution and all others participating in the project cannot exceed $600,000.*

AIR AWARD INFORMATION: NSF will make awards up to $800,000 for up to 2 years duration, subject to the availability of funds and quality of proposals. Third-party investment (1:1) is required and must be available at the time of the NSF award. All third-party funds must be administered by the university submitting the proposal.

IV. ELIGIBILITY INFORMATION

Organization Limit:

Proposals may only be submitted by the following:

- No collaborative proposals (defined as simultaneous proposal submissions for a joint project from different organizations, with each organization requesting a separate award) will be accepted for either sub-program.

  BIC - 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.
  - At least two or more existing small business concerns must participate in the proposal.

  AIR - proposals may only be submitted by the following:

  - U.S. universities and four-year 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.
  - One and only one institution within a research alliance can be the lead/applicant institution. An alliance is defined as a research partnership formed for mutual benefit, and funded by NSF, between/amongst universities and other entities. Examples include but are not limited to consortia, such as Engineering Research Centers (ERC), Industry University Cooperative Research Centers (I/UCRC), Partnerships for Innovation (PFI), prior PFI awardees, Science and Technology Centers (STC), Nanoscale Science and Engineering Centers (NSEC), Materials Research Science and Engineering Centers (MRSEC) grantees.

PI Limit:

BIC

- The PI cannot be a PI on a Partnership for Innovation award that will be active after June 1, 2012.
- One of the Co-PIs must be a Senior Administrator (at the level of dean or above), who has a demonstrated commitment to knowledge transfer of university research. The senior administrator must have an active role that is explicitly described, along with a specification of a time commitment on the project.

AIR

- Proposals may only include the PI and one Co-PI.

Limit on Number of Proposals per Organization:

BIC - Lead academic institutions are limited to participation in only one proposal.

AIR - No limit

Limit on Number of Proposals per PI: 1

Additional Eligibility Info:

ADDITIONAL ELIGIBILITY INFO - BIC:

Core knowledge-enhancement business partners (two or more of which are existing small businesses) can be a combination of any of the following three types:

- Type I: Independents, companies with no previous formative connection to the lead academic institution
- Type II: Spin-offs from the lead academic institution
- Type III: Hybrids, where equity and responsibility are shared with researchers at the lead academic institution, but where there also is a strong third-party entrepreneurial and business presence.

ADDITIONAL ELIGIBILITY INFO - AIR:

One of the partners must be an NSF-funded innovation research alliance (including Engineering Research Centers, Industry/University Collaborative Research Centers, Materials Research Science and Engineering Centers, Nanoscale Science and Engineering Centers, and Science and Technology Centers). The research alliance must be under an active grant or cooperative agreement from NSF at the time of award in the current competition.

The other partner(s) may be another research entity (either NSF-funded, other government agency funded, or privately funded), a small business consortium, or a local or regional innovation entity. There must be at least two partners. In the case that one of the partners is a multi-organization entity, it counts as a single partner.

The submitting institution must be an NSF-funded research alliance. The partners will either be budgeted for a subaward to the NSF research alliance or will bring their own funding to the partnership. In the case of a partnership with a federally-funded National Laboratory or FFRDC (Federally Funded Research and Development Center), that center or agency must co-fund its portion of the effort because, in general, NSF funds cannot be used to support other federally funded centers.

It is the responsibility of the awardees to discuss the appropriate intellectual property policies, including patent disclosures and filings, with third-party investors. NSF is not responsible for the type of agreement reached between grantees and third-party investors. Submit with the proposal a letter stating that a cooperative research agreement (CRA) will be provided upon recommendation of an award. If the proposal is selected for award, the partners must follow-up by providing a signed written CRA that has been negotiated with the partners and third-party investors before NSF funding will be released.

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 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.

Enter the requested core Letter of Intent information as prompted by FastLane.

The "synopsis" and the "other comments" data fields each can contain a maximum of 2,500 characters. Note that the LOIs are restricted as to the number of data fields and the number of characters in each of the "additional information" data fields that can be entered in FastLane.

BIC - Include in the LOI these three "additional information" data fields:

- ***Platform*** *(255 chars)* - description of the research platform and some major potential application areas of importance to U.S. competitiveness; and identification of researcher(s), including the senior administrative who will be constitute the research portion of the knowledge-enhancement partnership
- ***Knowledge-Enhancement Partners*** *(255 chars)* - for each knowledge-enhancement partner company, designate type (Type I, II, or III), name of company, its location, description of mission/technology foci, number of employees, and founding date
- ***Measurement*** *(255 chars)* - briefly address the issue of the development of the characterization and measurement of project progress and enumerate the baseline data to be gathered to enable assessment of future impact.

AIR - Include in the LOI these three "additional information" data fields:

- ***Scope of Work*** *(255 chars)* - description of the scope of work
- ***Acceleration of Innovation*** *(255 chars)* - compelling argument to support acceleration of innovation
- ***Partners*** *(255 chars)* - identification of the research partner(s) and the third-party investor(s)

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
- Platform/Scope of Work is required when submitting Letters of Intent
- Knowledge-Enhancement Partners/Acceleration of Innovation is required when submitting Letters of Intent
- Measurement/Partners 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.

I. Guide to Submission of a PFI: Building Innovation Capacity (BIC) Proposal

For specific information related to BIC, contact Sara Nerlove, Program Director, 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 Building Innovation Capacity (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 the partners, placing them into categories
    - the names of the organizations in the knowledge-enhancement partner group (starting with small businesses and then any others that are part of the KEP core)
    - other partner organizations that are members of the BIC 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, engineering, or education, which 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 these subsections.

Narrative Description, Including Information About the Senior Institutional Administrator Serving as Co-PI. The narrative must describe the research platform and how it provides a strong base that can contribute to realization of the goal of building the innovation capacity of the dynamic knowledge-enhancement partnership groups. The proposal should establish the following:

- Platform to be explored, re-defined, and re-created is of potential importance to the enhancement of U.S. economic competitiveness.
- Choice of participating knowledge-enhancement partner companies that makes sense in terms of each company's mission and expertise. These knowledge-enhancement partner companies should a) occupy different spaces, that is, be geared toward different vertical markets; or b) occupy complementary spaces, that is, address the same problem solution. No knowledge-enhancement partnership company should be in direct competition with any other.
- A schema to characterize and measure project progress using metrics, whenever and wherever possible. Also, enumerate

the baseline data to be gathered to enable assessment of future impact.
- There is an opportunity for the leadership of the BIC project to serve as role models that: impact students' and faculty careers, enable knowledge transfer in the lead institution and beyond, and inspire or corroborate incentives in support of BIC.

Management Plan: Partnership Roles, Responsibilities, Resources, and Commitments. Provide a narrative description of the coordination of the respective roles, responsibilities, and resources of the knowledge-enhancement partnerships and the other core partners and how their efforts will be pooled to meet the goals of the project. Specifically, describe the technical and human resources available for this project and where they are situated within the overall partnership.

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

Short bios (two pages maximum per team member) of the team members (PI, Co-PIs, lead representative from each knowledge-enhancement company), highlighting experience relevant to BIC and to this project. (Note, in some cases, one or more KEP company representatives are Co-PIs.)

g) Budgets and Subaward budgets

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 for travel for the PI for one trip per year to the D.C. area to report on progress or participate in grantees workshops should be included in the requested budget (minimum of $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.

Awarded funds may be allocated appropriately to knowledge-enhancement partner companies - in the form of subawards or consultancies - as well as to the lead institution. It should be clear how resources are shared by the partnership.

The budget should reflect expenditures on students (e.g., including student internships).

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;
- 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" 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 at knowledge-enhancement partner companies.

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 in the following order:

- *List of Partnership Organizations and Personnel (five-page limit).* Provide a list of all partnership organizations subdivided into the following categories: knowledge enhancement-partnership group followed by the other core partners: academic institutions, private sector organizations, public sector organizations: including state and local governments, government laboratories; and others. List: 1) the members of the knowledge-enhancement partnership group; 2) then list by category and alphabetize within each category the other core participating organizations and their participating members; that is, a list of each organization's senior personnel participating in the BIC. For each of the personnel representing academic institutions, include the department(s) and/or school(s) with which the individual is associated.
- *Organizational/Role Diagram*. This is an organizational chart that identifies the roles to be played by each participating organization.
- *Collaboration Plans (one-page limit).* Provide plans delineating mechanisms designed to foster collaboration among all parties in the enterprise to enable the sharing of resources, experiences, expertise and ideas, and to stimulate the creation of new paradigms.
- *Partnership Letters.* Partnership letters from each of the knowledge-enhancement partner companies and all other core partner organizations for the proposed project. These letters must be provided on the organization's letter head, signed by the appropriate institutional or organizational representative. These must be scanned into the Supplementary Docs module in FastLane or Grants.gov.
- *Risk Management Strategy (one-page limit).* An appropriate risk management strategy dealing with (anticipated) intellectual property sharing and ownership should be developed from both the research and business perspectives.
- *Cooperative Research Agreement*. A letter stating that a CRA will be provided upon notification of the award must be submitted with the proposal. Then, if an award is recommended, the lead (grantee) institution must provide a signed written CRA (cooperative research agreement) between the lead institution and the knowledge-enhancement partner companies.
- *Letters of Support (limit of five letters).* Letters of support from relevant stakeholders act as indicators of the potential significance of the proposed effort. These letters must be provided on the organization's letter head, signed by the appropriate institutional or organizational representative. These must be scanned into the Supplementary Docs module in FastLane or Grants.gov.
- *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 IACUC approval of animal use, if applicable.

k) Single Copy Documents

Proposers are encouraged to supply an annotated list of suggested reviewers complete with contact information. This list can also be emailed directly to the cognizant Program Director.

II. Guide to Submission of a PFI: Accelerating Innovation Research (AIR) Proposal

For specific information related to AIR, contact Karlene A Hoo, Program Director, email: khoo@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 Accelerating Innovation Research (AIR) project....".

The summary MUST have the following components:

- A summary limited to 200 words addressing the Intellectual Merits of the proposed activity. No proprietary information should be included in the summary.
- A summary limited to 200 words addressing the Broader Impacts of the proposed activity. Describe the potential societal and commercial impact of the project.
- A listing of "key" words. The key words/phrases should identify the areas of technical expertise in science, engineering, or education 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:

- How the partnership will enable innovation that neither party could do as well or rapidly alone.
- How the partnership leverages the research and technology derived from the core mission of the research alliance to accelerate innovation.
- The role of the expected research/technology contributions from the research alliance institutions.
- How the partnership is expected to impact the development of an innovation ecosystem.
- A strategic plan and milestone chart with specific tasks and deliverables.
- Information on management and staffing.
- An assessment plan that will gauge the success of the partnership in creating an innovation ecosystem that includes the development of and justification for appropriate metrics.
- Proposers participating in the OSTP/NSF/NIH Federal Demonstration Partnership's 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 this requirement.
- An education plan that shows how participating students will learn about innovation, entrepreneurship, and technology translation process.
- Include a specific statement the awardees that have discussed the appropriate Intellectual Property policies, including patent disclosures and filings, to third-party funders. NSF is not responsible for the type of agreement reached between grantees and third-party investors.

e) References Cited

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

f) Biographical Sketches

Short bios (two pages maximum per team member) of the team members, highlighting their technical expertise and track records in successful technology and business development.

g) Budgets and Sub-budgets

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. The budget must include funds for a one day trip to the D.C. area. at the end of the first year.

The award will be up to $800,000 for 2 years, per grant, pending the achievement of intermediate milestones as specified in the strategic plan and reported in the annual report. Third-party funding (1:1) must be committed to the research alliance at the time of the NSF award and must be made available no later than the end of the first year of the award. The third-party investment must be at least 75 percent cash and the funds must be administered by the academic institution submitting the proposal. Center membership fees cannot be counted as part of the cash commitment. The selected proposal will receive up to $400,000 for the first year. The remainder will be provided once the following conditions are met:

- The proposed one-year milestones are achieved, as documented in the first year's annual report.
- As part of the first year's annual reporting requirements, the PI also provides an updated strategic plan, approved by the NSF Program Director, to meet the remaining milestones over the last year of the grant.
- The third-party investment is available.
- The PI of the NSF-funded AIR award, a representative from the partner entity, and a representative of a third-party investor present the first year's accomplishments and plans for the second year. The presentation will be held at NSF and details will be provided after the award is made.

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 or proposed projects, the following information should be provided for the Principal Investigator and senior personnel:

- Name of sponsoring organization;
- 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" 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 required for the proposed work.

j) Supplementary Documents

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

- *Letters of Commitment.* Letters of commitment from the expected third-party investors must be provided at the time of submission of the proposal.
- *Third Party Investment Table.* A table of third-party investments that shows the source and the amount.
- *Allocation of Funding Table.* A table that shows how NSF and non-NSF funding will be allocated functionally across proposed tasks for each year.
- *Letter of Support.* If the PI of the AIR proposal is not the PI of the NSF-funded research alliance, the proposal must include a letter of support from the PI of the NSF-funded research alliance that describes how the work proposed leverages the core mission of the research alliance.
- *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 applicab**l**e***.
- *Other Supplementary Docs.* Letters regarding Use of Human subjects, e.g., Institutional Review Board or IACUC approval of animal use, if applicable.

k) Single Copy Documents

Proposers are encouraged to supply an annotated list of suggested reviewers complete with contact information.

B. Budgetary Information

Cost Sharing: Inclusion of voluntary committed cost sharing is prohibited

Other Budgetary Limitations:

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

Budget Limitations:

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

AIR Proposers may request up to $800,000 from NSF for award durations of up to two years.

Travel:

BIC - Costs for travel for the PI for one trip per year to the D.C. area to report on progress or participate in grantees workshops should be included in the requested budget (minimum of $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.

AIR - Costs for travel for the PI of the NSF-funded AIR award for one trip to the D.C. area to report on the accomplishments of year one and plans for year two should be included in the requested budget (minimum of $2000/year) and spelled out explicitly in the budget justification. Additional travel costs can be budgeted for a representative from the partner entity and a representative of a third-party investor to travel for the same purpose.

C. Due Dates

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

  January 04, 2012

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

  March 01, 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 judgements.

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 Criteria: BIC

Reviewers will be asked to review the documented qualifications of the PIs, Co-PIs, and other personnel on the BCI project team extensively. In particular, they will be asked to evaluate evidence of the PI's understanding of the research and ability to ultimately

lead the transfer of results to market and societal impact in the proposed domain. The PI should have 1) demonstrated and verifiable experience with one or more spinoff firms from an academic environment, 2) translational research collaboration with small business partners, or 3) other appropriate experiences with business.

Other additional review criteria are as follows:

- Potential importance of the project to the enhancement of U.S. competitiveness
- Degree to which the proposed activity will stimulate new innovation opportunities for the partner organizations, especially for the core knowledge-enhancement partner companies
- Potential of the proposed BIC Partnership to foster and sustain or leave a legacy as a result of engaging in this type of innovation-building capacity
- Quality of the schema to characterize and measure progress and clarity of the information on the baseline data to be collected
- Value of the proposed international activities (if any) in advancing the goals of the BCI program

Additional Review Criteria: AIR

- The quality of the strategic plan, milestones, and deliverables
- The quality and commitment of the partners and stakeholders
- The role and expected contributions from the research alliance
- The commitment of the third-party investors and the level of the proposed funding amounts relative to the work being proposed
- The overall quality of the management plan including the specifics of participant, partner, and stakeholder roles
- The effectiveness of the proposed plan to translate research and/or technology
- The effectiveness of the partnership in catalyzing an innovation ecosystem
- The effectiveness of the assessment plan
- The relevance of the proposed metrics to the anticipated results
- The net added value to students of the proposed work

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.

NSF also requires BIC and AIR awardees to collect and submit data to NSF secure databases. Data may also be collected from all participating organizations, not just the BIC and AIR 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, Building Innovation Capacity (BIC), telephone: (703) 292-7077, email: snerlove@nsf.gov
- Karlene A. Hoo, Accelerating Innovation Research (AIR), telephone: (703) 292-4609, email: khoo@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 40,000 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:

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