

Partnerships for Innovation: Accelerating Innovation Research (PFI: AIR)

PROGRAM SOLICITATION NSF 12-571

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 12, 2012

March 13, 2013

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

November 13, 2012

May 15, 2013

IMPORTANT INFORMATION AND REVISION NOTES

A revised version of the NSF Proposal & Award Policies & Procedures Guide (PAPPG), NSF 13-1, was issued on October 4, 2012 and is effective for proposals submitted, or due, on or after January 14, 2013. Please be advised that the guidelines contained in NSF 13-1 apply to proposals submitted in response to this funding opportunity. Proposers who opt to submit prior to January 14, 2013, must also follow the guidelines contained in NSF 13-1.

Please be aware that significant changes have been made to the PAPPG to implement revised merit review criteria based on the National Science Board (NSB) report, [National Science Foundation's Merit Review Criteria: Review and Revisions](#). While the two merit review criteria remain unchanged (Intellectual Merit and Broader Impacts), guidance has been provided to clarify and improve the function of the criteria. Changes will affect the project summary and project description sections of proposals. Annual and final reports also will be affected.

A by-chapter summary of this and other significant changes is provided at the beginning of both the [Grant Proposal Guide](#) and the [Award & Administration Guide](#).

Please note that this program solicitation may contain supplemental proposal preparation guidance and/or guidance that deviates from the guidelines established in the [Grant Proposal Guide](#).

Revision Summary

The NSF 12-511 solicitation combined two standalone solicitations (NSF 10-581 and 10-608) which combined the PFI: Building Innovation Capacity (PFI: BIC) and PFI: Accelerating Innovation Research (PFI: AIR). This new solicitation separated the two programs into PFI: BIC and PFI: AIR, therefore separate solicitations are being offered to the community. This solicitation focuses on PFI: AIR.

The NSF Partnerships for Innovation (PFI) program is an umbrella for two complementary subprograms, Building Innovation Capacity (BIC) and Accelerating Innovation Research (AIR). While both programs focus on different stages along the innovation spectrum, in the final analysis these programs are concerned with the movement of academic research discoveries into the marketplace. To further the NSF's investment in strengthening the innovation ecosystem, the NSF is offering two options under this solicitation. What distinguishes one option from the other is not the subject matter, but the participants, i.e., the persons or groups involved. The first option, Technology Translation, encourages the translation of technologically-promising research discoveries, made by prior and/or current NSF-funded investigators, to move toward a path of commercialization; while the second option, Research Alliance, promotes synergistic collaborations between an existing NSF-funded research alliance and other public and private entities to motivate the translation and transfer of research discoveries into innovative technologies and commercial reality. A research alliance is defined as a research partnership between/among universities and other entities, formed for mutual benefit, and funded by the NSF.

Each Partnerships for Innovation: Accelerating Innovation Research (AIR) - Technology Translation or Research Alliance proposal must contain all the required components as per the Grant Proposal Guide. Additionally each submitted proposal MUST contain additional information within the following Supplemental Documents module:

- Letters regarding use of human subjects or vertebrate animals, e.g., from Institutional Review Board or providing Institutional Animal Care and Use Committee (IACUC) approval of animal use (if applicable)
- Proposers are encouraged to supply an annotated list of suggested reviewers complete with contact information.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Partnerships for Innovation: Accelerating Innovation Research (PFI: AIR)

Synopsis of Program:

To continue to strengthen the innovation ecosystem, NSF is revising [NSF 12-511](#) to promote two choices under the Partnerships for Innovation (PFI): Accelerating Innovation Research (AIR) subprogram. The first choice, Technology Translation, encourages the translation of technologically-promising research discoveries made by prior and/or current NSF-funded investigators toward a path of commercialization; while the second choice, Research Alliance, promotes synergistic collaborations between an existing NSF-funded research alliance (including consortia such as Engineering Research Centers, Industry University Cooperative Research Centers, Science and Technology Centers, Nanoscale Science and Engineering Centers, Materials Research Science and Engineering Centers, Centers for Chemical Innovation, and Emerging Frontiers in Research and Innovation grantees) and other public and private entities to motivate the translation and transfer of research discoveries into innovative technologies and commercial reality. Both of these choices are designed to accelerate innovation that results in the creation of new wealth and the building of strong local, regional, and national economies.

WEBINAR: A webinar will be held within 6 weeks of the release date of this solicitation to answer any questions about this 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.

- Karlene A. Hoo, Program Director, 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: 40 to 47

The budget for the PFI: AIR Technology Translation is up to \$150,000 for 18 months per award; approximately 30 - 35 awards will be made.

The budget for the PFI: AIR Research Alliance is up to \$800,000 for up to twenty-four months per award; approximately 10 - 12 awards will be made.

Anticipated Funding Amount: \$14,250,000

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

Eligibility Information

Organization Limit:

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 an NSF-funded research alliance can be the lead/submitting institution on a Research Alliance proposal. An NSF-funded research alliance is defined as a research partnership between/among universities and other entities, formed for mutual benefit, and funded by the NSF. Examples of NSF research alliances include but are not limited to consortia, such as Engineering Research Centers, Industry University Cooperative Research Centers, Science and Technology Centers, Nanoscale Science and Engineering Centers, Materials Research Science and Engineering Centers, Centers for Chemical Innovation, and Emerging Frontiers in Research and Innovation grantees.

PI Limit:

A PI may submit to PFI: AIR Technology Translation or PFI: AIR Research Alliance, but NOT both. The PI must specify to which choice s/he is submitting in the title of the proposal. For example, "PFI: AIR Technology Translation - title" and "PFI: AIR Research Alliance - title".

For each choice there may be only one co-PI.

Limit on Number of Proposals per Organization:

None

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 12, 2012
 - March 13, 2013
- **Full Proposal Deadline(s)** (due by 5 p.m. proposer's local time):
 - November 13, 2012
 - May 15, 2013

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 National Science Foundation (NSF) supports both fundamental research and education in science and engineering. NSF's dual role, unique among government agencies, results in new knowledge and tools as well as a capable, innovative workforce. These complementary building blocks of innovation (<http://www.nsf.gov/eng/iip/innovation.pdf>) have led to revolutionary technological advances and whole new industries. Through this initiative, NSF seeks to accelerate the translation and transfer of new knowledge from research discoveries into novel products that provide new value.

There are other federal programs that contribute to the goal of innovation. Internal to NSF there are the following programs: Partnerships for Innovation: Building Innovation Capacity (to be released at a later date), Innovation Corps (*I-Corps*), the Small Business Innovation Research/Small Business Technology Transfer (*SBIR/STTR*), and Grant Opportunities for Academic Liaison with Industry (*GOALI*). 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 (ENG) of the National Science Foundation (NSF) invites requests for funding under the Partnerships for Innovation (PFI): Accelerating Innovation Research (AIR) solicitation. The goals of the PFI: AIR are to motivate the translation and transfer of fundamental research discoveries, to encourage synergistic public-private partnerships between academia and industry, and to educate and train students to understand the innovation and entrepreneurial processes.

The two options available for requesting funding from NSF in the PFI: AIR subprogram are described below.

PFI: AIR Technology Translation

The Technology Translation option is designed to support innovative ideas in the translation of fundamental science and engineering discoveries into market-valued solutions. The outcomes of this option will be more research discoveries on the path to becoming new technologies, and the engagement of faculty and students in entrepreneurial/innovative thinking.

The PFI: AIR Technology Translation program provides an opportunity for prior and/or current NSF-funded investigators to complete the necessary research such as proof-of-concept, prototyping and/or scale-up that addresses real-world constraints and potential market-valued solutions.

- A proof-of-concept (POC) is the realization of a certain method or idea to ascertain its scientific or technological parameters. A POC should be understood sufficiently so that potential application areas can be identified and a working prototype designed.
- A prototype is a functional demonstration of the POC that addresses a relevant application. The prototype should be understood well enough to identify performance parameters, design criteria, and functional limitations in an application area. However, at this stage, predictions of possible manufacturing techniques, costs and scalability to conceive of commercial products have not been validated.

If a POC and a prototype have been developed previously, and preparation of a viable commercialization plan is all that remains for the research activity, the proposal will not be accepted.

The Technology Translation choice is intended to help bridge the funding gap between research discoveries that validate relevant science and engineering fundamentals and their transition toward a path of commercial reality.

The maximum award size for the PFI: AIR Technology Translation is \$150,000 for 18 months per award, commensurate with the planned activities.

PFI: AIR Research Alliance

The Research Alliance option is intended to promote collaborations between an existing NSF-funded research alliance and at least one other research partner entity to form a synergistic relationship that will accelerate the translation and transfer of research discoveries into innovative technologies and commercial realities. An NSF-funded research alliance is defined as a research partnership between/among universities and other entities, formed for mutual benefit, and funded by the NSF. Examples include but are not limited to consortia such as, Engineering Research Centers, Industry University Cooperative Research Centers, Science and Technology Centers, Nanoscale Science and Engineering Centers, Materials Research Science and Engineering Centers, Centers for Chemical Innovation, and Emerging Frontiers in Research and Innovation, and so forth.

One and only one academic institution within a research alliance can be the lead/submitting institution. The narrative must provide a clear description of the role of the 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 moved more rapidly into marketable solutions through the formation of new start-up businesses or partnerships with existing businesses and the creation of new jobs. 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 commercialized more expeditiously. A PFI: AIR Research Alliance award will enable 1) faster translation of research and/or technology(ies) into new start-up business (es) or existing firms; 2) development of a network of connections between university researchers and others leading to a sustainable innovation ecosystem; 3) creation of jobs as a result of the innovation ecosystem; and 4) preparation of students who understand the innovation and entrepreneurship processes.

The partnership between the NSF-funded academic alliance and the third-party investor(s) 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 marketable solutions having potentially high commercial impact.

The maximum award size for the PF: AIR Research Alliance is up to \$800,000 for up to 24 months per award, commensurate with the planned activities.

Third Party Investment

In order for innovation research to be successful, it is essential that a third party investment is in place as a means to accelerate the innovation toward commercialization of a product, process, and/or service. The partnership between the NSF-funded academic entity and the third party investor will create an academic entity based innovation ecosystem that offers a cost-effective, timely, and risk-reduced approach for potential investors to participate in the development of new technologies, products, and/or services 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 company, a venture capital firm, an individual "angel" investor, federal, state or local government, or any combination of the above. The third party investments must be directly tied to the research project envisioned by the application.

Third party investment can be cash, liquid assets, or tangible financial instruments. Intangible assets (e.g. "in-kind") are also acceptable.

III. AWARD INFORMATION

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

Full Proposals submitted on November 13, 2012 will have an approximate award start date of April 1, 2013

Full Proposals submitted on May 15, 2013 will have an approximate award start date of September 1, 2013

IV. ELIGIBILITY INFORMATION

Organization Limit:

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 an NSF-funded research alliance can be the lead/submitting institution on a Research Alliance proposal. An NSF-funded research alliance is defined as a research partnership between/among universities and other entities, formed for mutual benefit, and funded by the NSF. Examples of NSF research alliances include but are not limited to consortia, such as Engineering Research Centers, Industry University Cooperative Research Centers, Science and Technology Centers, Nanoscale Science and Engineering Centers, Materials Research Science and Engineering Centers, Centers for Chemical Innovation, and Emerging Frontiers in Research and Innovation grantees.

PI Limit:

A PI may submit to PFI: AIR Technology Translation or PFI: AIR Research Alliance, but NOT both. The PI must specify to which choice s/he is submitting in the title of the proposal. For example, "PFI: AIR Technology Translation - title" and "PFI: AIR Research Alliance - title".

For each choice there may be only one co-PI.

Limit on Number of Proposals per Organization:

None

Limit on Number of Proposals per PI: 1

Additional Eligibility Info:

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 choice.

PFI: AIR Technology Translation

The Principal Investigator (PI) or a co-PI must have been an NSF research award recipient, no more than 4-years prior to this solicitation's due date, or be a current NSF research award recipient. Regardless, the PI must be a faculty member at a U.S. academic institution at the time of the award.

The subject technology must be derived from a research discovery project already conducted or initiated by the NSF.

If industry/business is participating, it is the responsibility of the award recipients to discuss the appropriate intellectual property policies, including patent disclosures and filings. NSF is not responsible for the type of agreement reached between grantees and the industry/business entity. Submit with the proposal a letter stating that a cooperative research agreement (CRA) will be provided upon recommendation of an award. If an award is recommended, the submitting institution must follow-up by providing a signed, written CRA that has been negotiated with the industry/business entity before NSF funding will be released.

PFI: AIR Research Alliance

One of the partners must be an NSF-funded research alliance and be engaged actively in the alliance. The research alliance must be active at the time of submission.

The other partner(s) may be another research entity or alliance (either NSF-funded, other government agency funded, or privately funded), small business consortia, or a local or regional innovation entity. There must be at least two research 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 either will 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 award recipients 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 an award is recommended, 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 which is available at <http://fastlane.nsf.gov>. The LOI allows the 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 eliminate or deter full proposal submissions.

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.

Additionally, complete these data fields for the LOI:

Scope of Work (255 chars) - brief description of the scope of work.

Acceleration of Innovation (255 chars) - compelling argument to support acceleration of the innovation.

Partners (255 chars) - Technology Translation: provide identification of any industry/business, if appropriate. If none, state NONE. Research Alliance: provide identification of the research party(ies), 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
- Scope of Work is required when submitting Letters of Intent
- Acceleration of Innovation is required when submitting Letters of Intent
- 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.

Important Proposal Preparation Information: FastLane will check for required sections of the proposal, in accordance with *Grant Proposal Guide* (GPG) instructions described in Chapter II.C.2. The GPG requires submission of: Project Summary; Project Description; References Cited; Biographical Sketch(es); Budget; Budget Justification; Current and Pending Support; Facilities, Equipment & Other Resources; Data Management Plan; and Postdoctoral Mentoring Plan, if applicable. If a required section is missing, **FastLane will not accept the proposal.**

Please note that the proposal preparation instructions provided in this program solicitation may deviate from the GPG instructions. If the solicitation instructions do not require a GPG-required section to be included in the proposal, insert text or upload a document in that section of the proposal that states, "Not Applicable for this Program Solicitation." Doing so will enable FastLane to accept your proposal.

Guide to Submission of a Proposal: Technology Translation

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 consists of an overview, a statement on the intellectual merit of the proposed activity, and a statement on the broader impacts of the proposed activity.

The Project Summary should be written in the third person. The summary **MUST** clearly address in separate statements:

- An overview including a listing of "key" words. The key words/phrases should identify the areas of technical expertise in science and engineering, which are to be invoked in reviewing the proposal; and the areas of application that are the initial target of the technology.
- Intellectual merit of the proposed activity. No proprietary information should be included in the summary.
- Broader impacts resulting from the proposed activity. Include information on how the innovation will enhance scientific and technological understanding. Describe the potential societal and commercial impact of the innovation.

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:

- A detailed description of the technology developed. Preference will be given to those technologies that have the most compelling combination of high potential of market viability and commercial payback.
- An overview of the lineage (connections to prior and/or current NSF awards) of the technology and how it came to be in its current state of advancement.
- A succinct specification of the current state of the technology and the remaining research needed for the successful translation of the subject technology to commercial reality. This section should clearly identify the technology knowledge gaps that need to be filled and the research methods to be used to address these gaps.
- An explicit justification that the technology is capable of being delivered as a fully functioning prototype in the timeframe for this award and a technology strategy for how this will be accomplished.
- A preliminary market research study to support the commercial potential of the proposed technology development. This section should include a detailed discussion of the market need addressed, the competitive technologies to meet the need and their shortcomings, and how the subject technology will provide a solution with a compelling profit potential. If it is proposed that intellectual property will be held as trade secrets, a compelling argument must be presented for this choice.
- A preliminary patent search and accompanying discussion to support the feasibility of obtaining needed licenses and/or sufficient protection for the intellectual property developed. This section should include a discussion of any relevant background intellectual property held by the proposing institution, its availability for licensing, and an assessment of how another party might patent or practice around both background and anticipated intellectual property assets.
- A detailed plan for involvement of undergraduate, graduate students and/or post-docs, incorporating an explanation of how the proposed effort will enhance the knowledge of innovation.

Please note that per guidance in the GPG, the Project Description must contain, as a separate section within the narrative, a discussion of the broader impacts of the proposed activities. You can decide where to include this section within the Project Description.

E. References Cited

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

F. Biographical Sketches

Include short bios (two pages maximum) of the PI and co-PI, highlighting their technical expertise and track records in successful technology and/or business development. Biographical sketches for non-academic participants need not follow the academic bio sketch format, but rather one appropriate to their respective backgrounds. Regardless, all participants listed as either "co-PIs or "Non co-PI/Senior Personnel" can submit a bio sketch of no more than two pages.

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. A budget justification is required for each item in the budget; it

should explicitly state how and where the requested funds will be spent. Note that costs of prototype development, patents, and marketing studies are allowable costs.

It is allowable to expend up to 50 percent of the total budget as a subaward to a small business, as defined by the Small Business Administration. Bear in mind that the NSF does not intend to fund industrial research and development; the proposed subaward should augment the research capabilities of the submitting academic institution. If there is any university/industry/business collaboration in which funds are used to support activity of the industry/business, this should be explained and justified clearly in the budget justification.

Funding requests will be evaluated relative to the scope and balance of the research planned.

If a POC and a prototype have been developed previously and preparation of a viable commercialization plan is all that remains for the research activity, the proposal will not be accepted.

H. Current and Pending Support

The proposal should provide information regarding all research to which the PI and other senior personnel either have committed time or have planned to commit time. If none, state NONE.

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

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

***Current and Pending Support must be uploaded into the system. The proposal being submitted under this solicitation 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 project.

J. Supplementary Documents

Proposals missing any of these documents will be returned without review.

- *Milestone chart.* A milestone chart with specific tasks and deliverables.
- *Finance and revenue model.* A preliminary finance and revenue model enumerating the level of funding required for each stage along the path to commercial reality.
- *Letter of Cooperative Research Agreement.* A letter stating that a CRA(s) ([cooperative research agreement](#)) will be provided upon recommendation of the award must be submitted with the proposal, **if applicable**. If an award is recommended, the submitting institution must follow-up by providing a signed, written CRA(s) before NSF funding will be released.
- *Data Management Plan.* A Data Management Plan is required for all proposals submitted to NSF. Consult 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, 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.

Expected accomplishments of PFI: AIR Technology Translation

- Technical - results of proof-of-concept; development, demonstration and evaluation of prototype; identification of design parameters for scalability; development strategy.
- Manufacturing - discussion of potential processes; conceptual process designs.
- Marketing - identification of competitive technologies.
- Financial - estimation of funds, revenues, and capital expenditures to move towards commercial reality.
- Legal - anticipated intellectual property protection; current status of patent disclosures, filings, licensing opportunities; environmental health, safety, and other liabilities; and regulatory issues.

Guide to Submission of a Proposal: Research Alliance

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.

The Research Alliance Proposal consists of the following parts:

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 consists of an overview, a statement on the intellectual merit of the proposed activity, and a statement on the broader impacts of the proposed activity.

The Project Summary should be written in the third person and shall begin as follows: "This Accelerating Innovation Research Alliance project....".

The summary MUST have the following components:

- An overview section with a listing of "key" words. The key words/phrases should identify the areas of technical expertise in science and engineering, which are to be invoked in reviewing the proposal.
- 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 impacts of the project.

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:

- An overview of the lineage (connections to prior and/or current NSF awards) of the technology(ies) and how it (they) came to be in its (their) current state of advancement.
- How the partnership will enable innovation that neither party could do as well or rapidly alone.
- How the partnership leverages the research and technology of the research alliance to accelerate innovation.
- 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 and sustaining an innovation ecosystem that includes the development of and justification for the appropriate stated metrics.
- An education plan that shows how participating students will learn about innovation, entrepreneurship, and the process of research translation, transition, transformation and transfer.
- Include a specific statement that the award recipients have discussed the appropriate intellectual property policies, including patent disclosures and filings, to third-party investors. NSF is not responsible for the type of agreement reached between award recipients and third-party investors.

Please note that per guidance in the GPG, the Project Description must contain, as a separate section within the narrative, a discussion of the broader impacts of the proposed activities. You can decide where to include this section within the Project Description.

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

Include short bios (two pages maximum) for each of the team members, highlighting their technical expertise and track records in successful technology and/or business development. Biographical sketches for non-academic participants need not follow the academic bio sketch format, but rather one appropriate to their respective backgrounds. Regardless, all participants listed as either "co-PIs or "Non co-PI/Senior Personnel" can submit a bio sketch of no more than two pages.

G. Proposal Budget

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 NSF at the end of the first year. A budget justification is required for each item in the budget; it should explicitly state how and where the requested funds will be spent. Note that costs of prototype development, patents, and marketing studies are costs.

The maximum award size will be \$800,000 for up to 24 months, per award, pending the achievement of intermediate milestones as specified in the strategic plan and reported in the annual report. Committed third party funding is required at the time of proposal submission. Up to 25 percent of the third party investment may be in-kind, and the rest must be in cash. 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 an NSF review team, to meet the remaining milestones over the last year of the grant.
- Evidence that all third-party investments are obligated and in place.
- The PI on the NSF-funded PFI: AIR Research Alliance award, a research partner, and a third-party investor present the first year's accomplishments and a strategic plan for the second year. The presentation will be held in the D.C. area; 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 PI and other senior personnel either have committed time or have planned to commit time. If none, state NONE.

For all ongoing or proposed projects, the following information should be provided for the PI and senior personnel:

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

***Current and Pending Support must be uploaded into the system. The proposal being submitted under this solicitation 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 equipment, instrumentation, and facilities required for the proposed work.

J. Supplementary Documents

Proposals missing any of these documents 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, the amount and the type (cash, in-kind).
- *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 PFI:AIR Research Alliance 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.

- **Letter of Cooperative Research Agreement.** A letter stating that a CRA(s) ([cooperative research agreement](#)) will be provided upon recommendation of the award must be submitted with the proposal. If an award is recommended, the partners must follow-up by providing a signed, written CRA(s) that has been negotiated with the partners and third-party investors before NSF funding will be released.
- **Data Management Plan.** A Data Management Plan is required for all proposals submitted to NSF. Consult 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, 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.

Expected accomplishments of PFI: AIR Research Alliance

- The proposed work will enable the translation and transfer 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 of a developing and sustainable innovation ecosystem, as documented using the proposer's assessment method(s) and metric(s); and also by the creation of jobs and spin-off of new businesses through the execution of the award's strategic plan.
- The proposed work will result in students who are prepared to be entrepreneurially competitive.

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.

PFI: AIR Technology Translation - Proposers may request up to \$150,000 from NSF for award durations of 18 months.

PFI: AIR Research Alliance - Proposers may request up to \$800,000 from NSF for award durations of up to 24 months.

Travel:

PFI: AIR Research Alliance - Costs for travel for the PI to make 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 research partner and 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):

September 12, 2012

March 13, 2013

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

November 13, 2012

May 15, 2013

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 for acknowledgement and, if they meet NSF requirements, for review. 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 either as *ad hoc* reviewers, panelists, or both, who are experts in the particular fields represented by the proposal. These reviewers are selected by Program Officers charged with 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. In addition, Program Officers may obtain comments from site visits before recommending final action on proposals. Senior NSF staff further review recommendations for awards. A flowchart that depicts the entire NSF proposal and award process (and associated timeline) is included in the GPG as [Exhibit III-1](#).

A comprehensive description of the Foundation's merit review process is available on the NSF website at: <http://www.nsf.gov/bfa/dias/policy/meritreview/>.

Proposers should also be aware of core strategies that are essential to the fulfillment of NSF's mission, as articulated in [Empowering the Nation Through Discovery and Innovation: NSF Strategic Plan for Fiscal Years \(FY\) 2011-2016](#). These strategies are integrated in the program planning and implementation process, of which proposal review is one part. NSF's mission is particularly well-implemented through the integration of research and education and broadening participation in NSF programs, projects, and activities.

One of the core strategies in support of NSF's mission 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 variety of learning perspectives.

Another core strategy in support of NSF's mission is broadening opportunities and expanding participation of groups, institutions, and geographic regions that are underrepresented in STEM disciplines, which 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.

A. Merit Review Principles and Criteria

The National Science Foundation strives to invest in a robust and diverse portfolio of projects that creates new knowledge and enables breakthroughs in understanding across all areas of science and engineering research and education. To identify which projects to support, NSF relies on a merit review process that incorporates consideration of both the technical aspects of a proposed project and its potential to contribute more broadly to advancing NSF's mission "to promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense; and for other purposes." NSF makes every effort to conduct a fair, competitive, transparent merit review process for the selection of projects.

1. Merit Review Principles

These principles are to be given due diligence by PIs and organizations when preparing proposals and managing projects, by reviewers when reading and evaluating proposals, and by NSF program staff when determining whether or not to recommend proposals for funding and while overseeing awards. Given that NSF is the primary federal agency charged with nurturing and supporting excellence in basic research and education, the following three principles apply:

- All NSF projects should be of the highest quality and have the potential to advance, if not transform, the frontiers of knowledge.
- NSF projects, in the aggregate, should contribute more broadly to achieving societal goals. These "Broader Impacts" may be accomplished through the research itself, through activities that are directly related to specific research projects, or through activities that are supported by, but are complementary to, the project. The project activities may be based on previously established and/or innovative methods and approaches, but in either case must be well justified.
- Meaningful assessment and evaluation of NSF funded projects should be based on appropriate metrics, keeping in mind the likely correlation between the effect of broader impacts and the resources provided to implement projects. If the size of the activity is limited, evaluation of that activity in isolation is not likely to be meaningful. Thus, assessing the effectiveness of these activities may best be done at a higher, more aggregated, level than the individual project.

With respect to the third principle, even if assessment of Broader Impacts outcomes for particular projects is done at an aggregated level, PIs are expected to be accountable for carrying out the activities described in the funded project. Thus, individual projects should include clearly stated goals, specific descriptions of the activities that the PI intends to do, and a plan in place to document the outputs of those activities.

These three merit review principles provide the basis for the merit review criteria, as well as a context within which the users of the criteria can better understand their intent.

2. Merit Review Criteria

All NSF proposals are evaluated through use of the two National Science Board approved merit review criteria. In some instances, however, NSF will employ additional criteria as required to highlight the specific objectives of certain programs and activities.

The two merit review criteria are listed below. **Both** criteria are to be given **full consideration** during the review and decision-making processes; each criterion is necessary but neither, by itself, is sufficient. Therefore, proposers must fully address both criteria. ([GPG Chapter II.C.2.d.i.](#) contains additional information for use by proposers in development of the Project Description section of the proposal.) Reviewers are strongly encouraged to review the criteria, including [GPG Chapter II.C.2.d.i.](#), prior to the review of a proposal.

When evaluating NSF proposals, reviewers will be asked to consider what the proposers want to do, why they want to do it, how they plan to do it, how they will know if they succeed, and what benefits could accrue if the project is successful. These issues apply both to the technical aspects of the proposal and the way in which the project may make broader contributions. To that end, reviewers will be asked to evaluate all proposals against two criteria:

- **Intellectual Merit:** The Intellectual Merit criterion encompasses the potential to advance knowledge; and
- **Broader Impacts:** The Broader Impacts criterion encompasses the potential to benefit society and contribute to the achievement of specific, desired societal outcomes.

The following elements should be considered in the review for both criteria:

1. What is the potential for the proposed activity to
 - a. Advance knowledge and understanding within its own field or across different fields (Intellectual Merit); and
 - b. Benefit society or advance desired societal outcomes (Broader Impacts)?
2. To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts?
3. Is the plan for carrying out the proposed activities well-reasoned, well-organized, and based on a sound rationale? Does the plan incorporate a mechanism to assess success?
4. How well qualified is the individual, team, or organization to conduct the proposed activities?
5. Are there adequate resources available to the PI (either at the home organization or through collaborations) to carry out the proposed activities?

Broader impacts may be accomplished through the research itself, through the activities that are directly related to specific research projects, or through activities that are supported by, but are complementary to, the project. NSF values the advancement of scientific knowledge and activities that contribute to achievement of societally relevant outcomes. Such outcomes include, but are not limited to: full participation of women, persons with disabilities, and underrepresented minorities in science, technology, engineering, and mathematics (STEM); improved STEM education and educator development at any level; increased public scientific literacy and public engagement with science and technology; improved well-being of individuals in society; development of a diverse, globally competitive STEM workforce; increased partnerships between academia, industry, and others; improved national security; increased economic competitiveness of the United States; and enhanced infrastructure for research and education.

Proposers are reminded that reviewers will also be asked to review the Data Management Plan and the Postdoctoral Researcher Mentoring Plan, as appropriate.

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

PFI: AIR Technology Translation

Review criteria:

- A detailed description of the technology developed.
- The lineage of the technology to all previous and/or current NSF awards.
- A succinct discussion of the current state of the technology and the remaining research needed for the successful translation of the subject technology towards commercial reality.
- A plan for a fully functioning prototype to be available within a year.
- A preliminary market research study to support the commercial potential of the proposed technology development.
- A preliminary patent search and accompanying discussion to support the feasibility of obtaining needed licenses and/or sufficient protection for intellectual property developed.
- The potential for the results to be an entry into the NSF Innovation Corps program or SBIR/STTR competition.
- A detailed plan for involvement of undergraduate, graduate students and/or post-docs, incorporating an explanation of how the proposed effort will enhance their knowledge of innovation.
- Budget and budget justification that indicate how and where the requested funds will be spent. Note, if there is a minimal research component (i.e. most of the work is to generate a technology transfer/business plan), the proposal will not be accepted.

PFI: AIR Research Alliance

Review criteria:

- The quality of the strategic plan, milestones, and deliverables.
- The lineage of the technology(ies) to all previous and/or current NSF awards.
- 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 and types (cash, in-kind) 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 and transfer research and/or technology into commercial reality.
- The effectiveness of the partnership in catalyzing and sustaining an innovation ecosystem.
- The effectiveness of the assessment plan.
- The relevance of the proposer's metrics to the anticipated results.
- The net added value to students of the proposed work.

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 prior to the end of the current budget period. (Some programs or awards require submission of more frequent project reports). Within 90 days following 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 all identified PIs and co-PIs on a given award. 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 Research.gov, for preparation and submission of annual and final project reports. Such reports provide information on accomplishments, project participants (individual and organizational), publications, and other specific products and impacts of the project. Submission of the report via Research.gov constitutes certification by the PI that the contents of the report are accurate and complete. The project outcomes report also 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.

PFI: AIR Research Alliance

In addition, submissions awarded under PFI: AIR Research Alliance will be required to submit an updated strategic plan as part of their first annual report.

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:

- Karlene A. Hoo, Program Director, 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 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

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