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Innovation Corps-National Innovation Network Sites Program (I-Corps Sites)

PROGRAM SOLICITATION NSF 16-547

REPLACES DOCUMENT(S): NSF 14-547



National Science Foundation

- Directorate for Biological Sciences
- Directorate for Computer & Information Science & Engineering
- Directorate for Education & Human Resources
- Directorate for Engineering
- Directorate for Geosciences
- Directorate for Mathematical & Physical Sciences
- Directorate for Social, Behavioral & Economic Sciences

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

May 25, 2016

February 09, 2017

Second Thursday in February, Annually Thereafter

IMPORTANT INFORMATION AND REVISION NOTES

- Due date is earlier than prior solicitation due date.
- I-Corps Sites are expected to collaborate and interact with I-Corps Nodes in the Site's geographic region.

Any proposal submitted in response to this solicitation should be submitted in accordance with the revised *NSF Proposal & Award Policies & Procedures Guide* (PAPPG) ([NSF 18-1](#)), which is effective for proposals submitted, or due, on or after January 29, 2018.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Innovation Corps - National Innovation Network Sites Program (I-Corps Sites)

Synopsis of Program:

The National Science Foundation (NSF) seeks to develop and nurture a national innovation ecosystem that builds upon research to guide the output of scientific discoveries closer to the development of technologies, products and processes that benefit society.

In order to contribute to a national innovation ecosystem, NSF established the NSF Innovation Corps Sites Program (NSF I-Corps Sites). Sites are funded at academic institutions, having already existing innovation or entrepreneurial units, to enable them to:

- Nurture students and/or faculty who are engaged in projects having the potential to be transitioned into the marketplace. I-Corps Sites will provide infrastructure, advice, resources, networking opportunities, training and modest funding to enable groups to transition their work into the marketplace or into becoming [I-Corps](#)

Team applicants.

- Develop formal, active, local innovation ecosystems that contribute to a larger, national network of mentors, researchers, entrepreneurs and investors. Networking is an essential component of all of NSF's I-Corps activities – local and national networking activities help advance the goals of I-Corps and contribute to local and national ecosystems for innovation.

The purpose of an I-Corps Site is to nurture and support multiple, local teams to transition their ideas, devices, processes or other intellectual activities 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.

- Anita J. La Salle, Program Director, CISE/CNS, telephone: (703) 292-5006, email: alasalle@nsf.gov
- Pamela McCauley, Program Director, CISE/CNS, telephone: (703) 292-4505, email: pamccaul@nsf.gov
- Cindy R. WalkerPeach, Program Director, ENG/IIP, telephone: (703) 292-8437, email: crwalker@nsf.gov

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

- 47.041 --- Engineering
- 47.049 --- Mathematical and Physical Sciences
- 47.050 --- Geosciences
- 47.070 --- Computer and Information Science and Engineering
- 47.074 --- Biological Sciences
- 47.075 --- Social Behavioral and Economic Sciences
- 47.076 --- Education and Human Resources
- 47.079 --- Office of International Science and Engineering
- 47.083 --- Office of Integrative Activities (OIA)

Award Information

Anticipated Type of Award: Standard Grant or Continuing Grant

Estimated Number of Awards: 15 to 25

Up to 25 I-Corps Sites awards annually, pending availability of funds.

Anticipated Funding Amount: \$2,500,000

for Type I and Type II Sites

Eligibility Information

Who May Submit Proposals:

Proposals may only be submitted by the following:

- Institutions of Higher Education (IHEs) - Two- and four-year IHEs (including community colleges) accredited in, and having a campus located in the US, acting on behalf of their faculty members. Special Instructions for International Branch Campuses of US IHEs: If the proposal includes funding to be provided to an international branch campus of a US institution of higher education (including through use of subawards and consultant arrangements), the proposer must explain the benefit(s) to the project of performance at the international branch campus, and justify why the project activities cannot be performed at the US campus.
- A competitive proposal for an I-Corps Site will be led by an institution having an already existing unit whose goal is to assist faculty, students and other academic personnel to engage in entrepreneurial activities and transition scientific and technological innovations. Such units are typically called: innovation centers, entrepreneurial centers, technology incubators, etc. Their mission is to provide resources to individuals and teams in the form of space, seed funding, entrepreneurial mentoring, curriculum, or other assets needed to transition technology into the marketplace.

Collaborative proposals from multiple institutions are discouraged. Exceptions can be made, with the approval of the NSF I-Corps Management Team, for institutions that have collaborative entrepreneurial centers already in place. I-Corps Sites are awarded to single institutions and Sites fund teams from their own institution. In exceptional cases, a Site may also fund teams from branch campuses or other institutions in the Site's geographical region. *However, a Site must obtain permission from a cognizant program officer before proposing this model.*

Who May Serve as PI:

There are no restrictions or limits.

Limit on Number of Proposals per Organization: 1

Limit on Number of Proposals per PI or Co-PI: 1

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

- **Letters of Intent:** Not required
- **Preliminary Proposal Submission:** Not required
- **Full Proposals:**
 - Full Proposals submitted via FastLane: *NSF Proposal and Award Policies and Procedures Guide* (PAPPG) guidelines apply. The complete text of the PAPPG is available electronically on the NSF website at: https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg.
 - 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: https://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:**

Not Applicable

C. Due Dates

- **Full Proposal Deadline(s)** (due by 5 p.m. submitter's local time):
 - May 25, 2016
 - February 09, 2017
 - Second Thursday in February, Annually Thereafter

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:

Standard NSF reporting requirements apply.

TABLE OF CONTENTS

[Summary of Program Requirements](#)

- I. [Introduction](#)
- II. [Program Description](#)
- III. [Award Information](#)

- IV. **Eligibility Information**
- V. **Proposal Preparation and Submission Instructions**
 - A. Proposal Preparation Instructions
 - B. Budgetary Information
 - C. Due Dates
 - D. FastLane/Grants.gov Requirements
- VI. **NSF Proposal Processing and Review Procedures**
 - A. Merit Review Principles and Criteria
 - B. Review and Selection Process
- VII. **Award Administration Information**
 - A. Notification of the Award
 - B. Award Conditions
 - C. Reporting Requirements
- VIII. **Agency Contacts**
- IX. **Other Information**

I. INTRODUCTION

America's prosperity has originated in part from the ability to capitalize economically on ground-breaking discoveries from science and engineering research. Simultaneously, a knowledgeable, creative workforce has maintained the country's global leadership in critical areas of technology. These important discoveries and capable workforce resulted from substantial, sustained investment in science and engineering. A strong capacity for leveraging fundamental scientific discoveries into powerful engines of innovation is essential to maintain our competitive edge in the future.

Through this initiative, NSF seeks to accelerate the commercialization of new technologies, products and processes that arise from research. NSF investments will strategically strengthen the innovation ecosystem (<https://www.nsf.gov/eng/iip/innovation.pdf>) by addressing the challenges inherent in the early stages of the innovation process. This solicitation will support activities that are designed to overcome many of the obstacles in the path of innovation.

II. PROGRAM DESCRIPTION

The goals of this program are to spur translation of research, to encourage collaboration between academia and industry, and to train students to understand innovation and entrepreneurship. NSF funding through I-Corps Sites enables academic institutions to support teams whose projects are likely candidates for commercialization.

A competitive proposal for an I-Corps Site will be led by an institution having an already existing unit whose goal is to assist faculty, students and other academic personnel to engage in entrepreneurial activities and transition scientific and technological innovations. Such units are typically called: innovation centers, entrepreneurial centers, technology incubators, etc. Their mission is to provide resources to individuals and teams in the form of space, seed funding, entrepreneurial mentoring, curriculum, or other assets needed to transition technology into the marketplace.

The purpose of an I-Corps Site is to nurture and support multiple, local teams that are transitioning their ideas, devices, processes or other intellectual activities into the marketplace. While different institutions may choose different mechanisms for achieving the goals of an I-Corps Site, certain characteristics of a Site must be consistent - the make-up of the teams the Site supports, the origin and nature of the projects, and the kind of support that is provided to the teams by the Site.

There are two types of I-Corps Site proposals:

Type I - Type I proposals are submitted by institutions that have not had prior funding as an I-Corps Site. These proposals may request \$100,000 per year for up to five years.

Type II - Type II proposals are submitted by institutions that have had prior funding as an I-Corps Site. These proposals may request up to \$100,000 per year for up to three years.

A. I-Corps Site Teams

The I-Corps Sites Program funds an institution's entrepreneurial unit. The unit, in turn, provides resources for the creation, development, and nurturing of entrepreneurial teams. Teams formed under the auspices of an I-Corps Site should include an Entrepreneurial Lead (EL), an Academic Lead (AL), and a Mentor.

The **Entrepreneurial Lead** could be a postdoctoral scholar, graduate student, undergraduate or other student, or professional staff, with relevant knowledge of the technology and a deep commitment to investigate the commercial landscape surrounding the innovation. In rare circumstances, with approval of a cognizant NSF I-Corps Program Officer, it also could be a faculty member. The EL should also be capable

and have the will to support the transition of the technology, should the project demonstrate the potential for commercial viability.

The **Mentor** will typically be an experienced or emerging entrepreneur with proximity to the institution and experience in transitioning technology out of academic labs. The Mentor is a third-party resource and may be recommended by the proposing institution or may be an employee of the institution. The Mentor will be responsible for guiding the team forward and tracking progress.

The **Academic Lead** will be responsible for overall project management. The AL must have an academic appointment that would normally qualify the AL to submit proposals or play the role of a PI in subsequent submissions to NSF.

B. I-Corps Site Projects

Site team ideas or projects can originate from student work, research (funded or unfunded), institutional, or industrial projects. The topical focus of a project must be in an area(s) of science, technology, engineering, or mathematics (STEM) normally supported by the National Science Foundation.

C. I-Corps Site Team Support

The scope of the funding that an I-Corps Site may expend on teams can include, but is not limited to: acquisition of modest amounts of equipment or materials needed to fabricate prototypes; travel expenses to consult with potential clients or experts; training or education related to entrepreneurial immersion; and/or other resources needed to directly advance the goals of transitioning a team's project into the marketplace. I-Corps Site support for an institution's entrepreneurial teams should not be used for legal or administrative costs. Exceptions to the direct support of teams can be made for the costs of planning technical meetings for the direct benefit of entrepreneurial teams, providing those meetings contribute to the commercialization of team projects.

The expectation is that an I-Corps Site will contribute \$1,000 to \$3,000 total to individual teams sponsored by the I-Corps Site and that the duration of the support will typically range from 1 to 3 months. I-Corps Sites are expected to fund at least 30 teams per year if full funding (\$100,000 per year) is requested. However, institutions may request less than full funding for support of fewer than 30 teams per year.

I-Corps Sites are awarded to single institutions and Sites fund Teams from their own institution. In exceptional cases, a Site may also fund Teams from other institutions in the Site's geographical region. *However, a Site must obtain permission from a cognizant program officer before proposing this model.*

D. I-Corps Site Outcomes Expectations

The purpose of an I-Corps Site is to nurture and support multiple, local teams that are transitioning their ideas, devices, processes or other intellectual activities into the marketplace. A Site's entrepreneurial curriculum model should demonstrate consistency with (but not necessarily duplicate) the NSF I-Corps curriculum that can be found at <https://www.nsf.gov/i-corps>. Some of the possible outcomes from an I-Corps Site's team mentorship and guidance are:

- Direct commercialization of team projects;
- Applications submitted by Site Teams to NSF's I-Corp Program;
- New start-up businesses;
- Licensing agreements; and
- Creation of business models suitable for review by third-party investors.

In addition, all I-Corps Site-supported teams will make "go/no-go" decisions about commercialization within six months of receiving support from their I-Corps Site. Sites are expected to track teams' progress using appropriate survey tools, retain the data resulting from those surveys, and, upon request, provide NSF with the outcomes of Site investments in local Teams.

An additional expectation of Sites involves collaboration and interactions with I-Corps Nodes in the Site's geographic region. Networking is an essential component of all of NSF's I-Corps activities – local and national networking activities help advance the goals of I-Corps and contribute to local and national ecosystems for innovation. Institutions preparing proposals for a Site are encouraged to explore the role that I-Corps Nodes play in the National Innovation Network and possible relationships that might be established between their Site and regional Node. Where appropriate, Sites are also encouraged to refer their teams to participate in Node Regional activities.

III. AWARD INFORMATION

Anticipated Type of Award: Continuing Grant or Standard Grant

Estimated Number of Awards: 15 Up to 25 I-Corps Sites awards annually, pending availability of funds.

Anticipated Funding Amount: \$2,500,000

IV. ELIGIBILITY INFORMATION

Who May Submit Proposals:

Proposals may only be submitted by the following:

- Institutions of Higher Education (IHEs) - Two- and four-year IHEs (including community colleges) accredited in, and having a campus located in the US, acting on behalf of their faculty members. Special Instructions for International Branch Campuses of US IHEs: If the proposal includes funding to be provided to an international branch campus of a US institution of higher education (including through use of subawards and consultant arrangements), the proposer must explain the benefit(s) to the project of performance at the international branch campus, and justify why the project activities cannot be performed at the US campus.
- A competitive proposal for an I-Corps Site will be led by an institution having an already existing unit whose goal is to assist faculty, students and other academic personnel to engage in entrepreneurial activities and transition scientific and technological innovations. Such units are typically called: innovation centers, entrepreneurial centers, technology incubators, etc. Their mission is to provide resources to individuals and teams in the form of space, seed funding, entrepreneurial mentoring, curriculum, or other assets needed to transition technology into the marketplace.

Collaborative proposals from multiple institutions are discouraged. Exceptions can be made, with the approval of the NSF I-Corps Management Team, for institutions that have collaborative entrepreneurial centers already in place. I-Corps Sites are awarded to single institutions and Sites fund teams from their own institution. In exceptional cases, a Site may also fund teams from branch campuses or other institutions in the Site's geographical region. *However, a Site must obtain permission from a cognizant program officer before proposing this model.*

Who May Serve as PI:

There are no restrictions or limits.

Limit on Number of Proposals per Organization: 1

Limit on Number of Proposals per PI or Co-PI: 1

Additional Eligibility Info:

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

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 Proposal & Award Policies & Procedures Guide* (PAPPG). The complete text of the PAPPG is available electronically on the NSF website at: https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg. Paper copies of the PAPPG 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: (https://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.

In determining which method to utilize in the electronic preparation and submission of the proposal, please note the following:

Collaborative Proposals. All collaborative proposals submitted as separate submissions from multiple organizations must be submitted via the NSF FastLane system. PAPPG Chapter II.D.3 provides additional information on collaborative proposals.

See PAPPG Chapter II.C.2 for guidance on the required sections of a full research proposal submitted to NSF. Please note that the proposal preparation instructions provided in this program solicitation may deviate from the PAPPG instructions.

Guide to Preparation of an NSF I-Corps Sites Proposal

Proposals submitted to the I-Corps Sites Program deviate from the traditional format of a research proposal as described in NSF's

PAPPG.

An I-Corps Sites proposal consists of the following parts:

Cover Sheet:

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

Note: I-Corps Sites are required to track their Teams and assess the outcomes of investments in those Teams. It is important for proposers to refer to NSF Proposal & Award Policies & Procedures Guide (PAPPG) to ensure that anticipated tracking and assessment processes comply with NSF policy concerning human subjects protection. Provide information, as appropriate, about human subjects on the proposal Cover Sheet.

Proposal Title

Proposal Titles must indicate which type of proposal is being submitted (**Type I or Type II**), followed by a colon, then the project title. For example, a Site proposal from an institution that has not been previously funded as a Site might have the following title: **Type I: Gordell College I-Corps Site for Entrepreneurship**. A Site proposal from an institution with an already existing I-Corps Site might have a title such as: **Type II: Delgardia University Innovation Site**.

Project Summary:

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. In addition to the overview, the one-page summary **MUST** have the following components:

1. A summary limited to 300 words addressing the *Intellectual Merits* of the proposed activity. No proprietary information should be included in the summary.
2. A summary limited to 300 words addressing the *Broader Impacts* of the proposed activity. Describe the potential societal and commercial impact of the proposed Site.

Table of Contents:

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

Project Description:

Site proposals may originate from any unit of a university providing that a case is made for how the goals of the Site will be achieved. An I-Corps Sites proposal should include information organized in the most effective way to present a compelling story about why the proposed Site should be funded and why it will be effective in preparing teams to commercialize their projects. The Project Description is limited to 15 pages and should address the bulleted topics listed below. For each topic listed below, where appropriate, describe how the feature or activity is satisfied now and will change if an I-Corps Site award is made to your institution. In addition, for Type II proposals, describe how you satisfied each of the points for the duration of your previous Site award.

- Describe your center's history and current status including a URL that can be used to explore your institution's entrepreneurial activities.
- Describe how your entrepreneurial center is managed and functions including lead personnel and the role they will assume in your Site.
- Describe the innovation-services the center currently provides.
- Describe how is the center currently funded.
- Describe business, industry, governmental, and community connections, and how they are maintained by the center and how the unit reaches out to and collaborates with the community.
- Describe how the Site will collaborate with its closest regional I-Corps Node and help build the National Innovation Network.
- Describe physical facilities, available resources and staffing.
- Describe the role of your institution's faculty and in-residence personnel. What is the role of venture capitalists and mentors?
- Describe how do you recruit individuals or teams to receive support from your center. How are they vetted? How many individuals or teams do you assist each year? Will your Site focus on faculty, graduate students, postdocs, undergraduates?
- Describe efforts that are made to recruit and support underrepresented participants.
- Describe technology innovation practices, resources provided, entrepreneurial training, mentoring, commercialization launches, coaching, and curriculum used in your center. Provide rationale for the curriculum used.
- Enumerate noteworthy start-up success stories, competitions that were held, and/or publicity your center or projects received and how those achievements may have contributed to the region's or nation's ecosystem.
- Describe assessment/evaluation and follow-up that you do with respect to projects that have been supported and/or launched by your center.

If letters of support are included, they must address actual support mechanisms and/or collaborations, preferably from entities external to the university. Letters that consist of testimonials are discouraged.

References Cited

Provide a comprehensive listing of relevant reference sources, including patent citations.

Biographical sketches

A biographical sketch for all participating Site personnel (two pages maximum per person) must be provided, highlighting technical expertise and track records in successful technology and business development. Biographical Sketches must be prepared in accordance with the requirements specified in the PAPPG. Exhaustive academic resumes are not appropriate.

Proposal Budget

There are two types of I-Corps Site proposals:

Type I - Type I proposals are submitted by institutions that have not had prior funding as an I-Corps Site. These proposals may request \$100,000 per year for up to five years.

Type II - Type II proposals are submitted by institutions that have had prior funding as an I-Corps Site. These proposals may request up to \$100,000 per year for up to three years.

The bulk of the funding should be expended on entrepreneurial teams and the activities needed to pursue commercialization of their products, processes or ideas. **The funding to be dedicated to teams should be included in Section F. of the proposal budget - Participant Support Costs.**

The budget should include funds for Principal Investigator (PI) travel to one I-Corps Sites PI meeting per year.

The I-Corps Sites Program will not fund legal or administrative expenses for commercialization.

Current and Pending Support

The proposal should provide information regarding all research to which the PI and Co-PIs have committed time or have planned to commit time. If none, state NONE. **Current and Pending Support must be uploaded for each of the team members. Note that a proposal in response to this solicitation is considered "pending" and therefore MUST appear on each Current and Pending Support submission.**

Facilities, Equipment, and Other Resources

Discuss requirements for and the availability of equipment, instrumentation, and facilities required for the proposed project.

B. Budgetary Information

Cost Sharing:

Inclusion of voluntary committed cost sharing is prohibited.

Budget Preparation Instructions:

The budget should include funds for PI travel to one I-Corps Sites meeting per year.

C. Due Dates

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

May 25, 2016

February 09, 2017

Second Thursday in February, Annually Thereafter

D. FastLane/Grants.gov Requirements

For Proposals Submitted Via FastLane:

To prepare and submit a proposal via FastLane, see detailed technical instructions 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.

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://www.grants.gov/web/grants/applicants.html>. In addition, the NSF Grants.gov Application Guide (see link in Section V.A) provides instructions regarding the technical 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.

Proposers that submitted via FastLane are strongly encouraged to use FastLane to verify the status of their submission to NSF. For proposers that submitted via Grants.gov, until an application has been received and validated by NSF, the Authorized Organizational Representative may check the status of an application on Grants.gov. After proposers have received an e-mail notification from NSF, Research.gov should be used to check the status of an application.

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 PAPPG Exhibit III-1.

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

Proposers should also be aware of core strategies that are essential to the fulfillment of NSF's mission, as articulated in *Building the Future: Investing in Discovery and Innovation - NSF Strategic Plan for Fiscal Years (FY) 2018 – 2022*. 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 strategic objectives 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 must recruit, train, and prepare a diverse STEM workforce to advance the frontiers of science and participate in the U.S. technology-based economy. NSF's contribution to the national innovation ecosystem is to provide cutting-edge research under the guidance of the Nation's most creative scientists and engineers. NSF also supports development of a strong science, technology, engineering, and mathematics (STEM) workforce by investing in building the knowledge that informs improvements in STEM teaching and learning.

NSF's mission calls for the broadening of 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. (PAPPG 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 PAPPG 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

Reviewers will be asked to consider additional criteria when reviewing I-Corps Sites proposals. For Type II proposals, reviewers will focus on how the prior Site satisfied the criteria for the duration of the Site award.

- Does this institution's entrepreneurial center have clearly-defined goals and a proven track record of providing assistance in transitioning academic projects into the marketplace?
- Are there sufficient and appropriate leadership, staffing, and in-residence personnel to manage the additional load that an I-Corps Site may induce?
- Are the innovation services that the center currently provides in line with the expectations of the I-Corps Sites Program?
- Will the majority of the Site's proposed budget be expended on services for and direct support to teams?
- Does the center maintain a network of business, industry, governmental, and community connections? How are those networks utilized to the advantage of the people and projects served by the center? Does the proposal describe how the Site will collaborate with its closest regional I-Corps Node and help build the National Innovation Network?
- Does the center have processes in place for pursuing and tracking new ideas, projects, and people for support? Does the support extend to student teams? Do faculty play an active role in advising and mentoring student projects? Are efforts made to recruit and support underrepresented participants?
- Does the center have a current curriculum in place for entrepreneurial training? Is rationale provided for why the particular curriculum was chosen?
- Does the center provide noteworthy start-up success stories?
- Are tracking, assessment/evaluation and follow-up processes in place to measure success and track supported projects?

B. Review and Selection Process

Proposals submitted in response to this program solicitation will be reviewed by Panel Review.

Reviewers will be asked to evaluate proposals using two National Science Board approved merit review criteria and, if applicable, additional program specific criteria. A summary rating and accompanying narrative will generally be completed and submitted by each reviewer and/or panel. 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 strives to be able to tell

applicants whether their proposals have been declined or recommended for funding within six months. Large or particularly complex proposals or proposals from new awardees may require additional review and processing time. The time interval begins on the deadline or target date, or receipt date, whichever is later. The interval ends when the Division Director acts upon the Program Officer's recommendation.

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. After an administrative review has occurred, Grants and Agreements Officers perform 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.

Once an award or declination decision has been made, Principal Investigators are provided feedback about their proposals. In all cases, reviews are treated as confidential documents. Verbatim copies of reviews, excluding the names of the reviewers or any reviewer-identifying information, 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.

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 notice, 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 notice; (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 notice. 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 https://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 Proposal & Award Policies & Procedures Guide* (PAPPG) Chapter VII, available electronically on the NSF Website at https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg.

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 no later than 90 days prior to the end of the current budget period. (Some programs or awards require submission of more frequent project reports). No later than 120 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 Proposal & Award Policies & Procedures Guide* (PAPPG) Chapter VII, available electronically on the NSF Website at https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg.

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:

- Anita J. La Salle, Program Director, CISE/CNS, telephone: (703) 292-5006, email: alabelle@nsf.gov
- Pamela McCauley, Program Director, CISE/CNS, telephone: (703) 292-4505, email: pamccaul@nsf.gov
- Cindy R. WalkerPeach, Program Director, ENG/IIP, telephone: (703) 292-8437, email: crwalker@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, "NSF Update" is an information-delivery system 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 [Grants Conferences](#). Subscribers are informed through e-mail or the user's Web browser each time new publications are issued that match their identified interests. "NSF Update" also is available on [NSF's website](#).

Grants.gov provides an additional electronic capability to search for Federal government-wide grant opportunities. NSF funding opportunities may be accessed via this 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 (FASSED) provide funding for special assistance or equipment to enable persons with disabilities to work on NSF-supported projects. See the *NSF Proposal & Award Policies & Procedures Guide* Chapter II.E.6 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 <https://www.nsf.gov>

- **Location:** 2415 Eisenhower Avenue, Alexandria, VA 22314
- **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
Office of the General Counsel
National Science Foundation
Alexandria, VA 22314

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