NSF 24-532: NSF Innovation Corps Hubs Program (I-Corps™ Hubs)

Program Solicitation

Document information

Document history

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National Science Foundation
Directorate for Technology, Innovation and Partnerships
Translational Impacts

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

April 25, 2024

I-Corps Hub awards (Track 1 and 2)

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Important Information And Revision Notes

- In order to build and sustain a diverse and inclusive innovation network, strengthen research and education in the sciences and engineering throughout the United States, and avoid undue concentration of such research and education in one region or state, NSF encourages proposers to develop partnerships that cover geographic areas that have not been previously included in current NSF I-Corps Hubs awards (Hub Map). NSF especially encourages Hub proposals that are led by institutions in EPSCoR jurisdictions as per Section 10325 of CHIPS and Science (42 USC 19014).
- The I-Corps Hubs program will continue to support two types of awards: I-Corps Hub awards for Track 1 and Track 2.
- The addition of New Partner Institutions (NPIs) to the Hub will continue to take place through supplemental funding. A NPI may be a current or former I-Corps Node or Site, or they may be entirely new to the I-Corps program.
- The I-Corps Hubs program has developed guidelines for the required tracking and assessment of program outcomes to meet the needs of the American Innovation and Competitiveness Act (AICA). Tracking and assessment of regional teams conducted by the Hubs will be incorporated into the AICA NSF reporting requirements.
- The proposal preparation instructions have been revised.

Informational webinar(s): One or more webinars will be held within approximately 30 days of the release of the solicitation, which will discuss key aspects and expectations of the program, as revised. At NSF's discretion, a recorded version of the webinar may be posted (https://new.nsf.gov/funding/initiatives/i-corps/webinars-resources).

Any proposal submitted in response to this solicitation should be submitted in accordance with the *NSF Proposal & Award Policies & Procedures Guide* (PAPPG) that is in effect for the relevant due date to which the proposal is being submitted. The NSF PAPPG is regularly revised and it is the responsibility of the proposer to ensure that the proposal meets the requirements specified in this solicitation and the applicable version of the PAPPG. Submitting a proposal prior to a specified deadline does not negate this requirement.

Summary Of Program Requirements

General Information

Program Title:

NSF Innovation Corps Hubs Program (I-Corps™ Hubs)

Synopsis of Program:

The National Science Foundation (NSF) seeks to further develop and nurture a national innovation ecosystem that guides the output of scientific discoveries closer to the development of technologies,

products, processes, and services that benefit society. The goal of the NSF Innovation Corps (I-Corps) program, created in 2011, is to reduce the time and risk associated with translating promising ideas and technologies from the laboratory to the marketplace, to increase the economic competitiveness of the United States, to encourage collaboration between academia and industry, and to train NSF-funded faculty, students, post-docs, and other researchers in innovation and entrepreneurship skills. The I-Corps program utilizes experiential learning of customer and industry discovery, coupled with first-hand investigation of industrial problems and processes, to quickly assess the translational potential of inventions. The I-Corps program is designed to support the commercialization of so-called "deep technologies," i.e., those based on fundamental discoveries in science and engineering. The I-Corps program addresses the skills and knowledge gaps associated with the transformation of promising basic research outcomes into deep technology ventures (DTVs).

In the I-Corps program's initial phase, I-Corps Nodes and Sites were funded separately to serve as the backbone of the National Innovation Network (NIN). Previous solicitations for NSF I-Corps Nodes and NSF I-Corps Sites now have been archived. A solicitation for a new operational model, the I-Corps Hubs program, was introduced initially in 2020 and revised in 2022. The I-Corps Hubs model replaced the I-Corps Nodes and Sites. This updated I-Corps Hubs solicitation has been informed by feedback received from the community and lessons learned since the start of the I-Corps Hubs program.

In 2017, the American Innovation and Competitiveness Act (AICA, Public Law 114-329, Sec. 601) formally authorized and directed the expansion of the NSF I-Corps program. Through this solicitation, NSF seeks to continue to evolve the current structure toward a more integrated operational model capable of sustained operation at the scope and scale required to support the expansion of the NSF I-Corps program as directed by AICA. In this more integrated model, I-Corps Hubs, comprising a Lead and initially seven Partner institutions, form the operational backbone of the NIN. Each Hub is funded through a single award, and the term "Hub" refers to a consortium of institutions identified in a proposal responding to this solicitation, including the Lead and Partner institutions.

The I-Corps Hubs program will support proposals from former Nodes and Sites (Track 1) and institutions new to I-Corps (Track 2).The I-Corps Hubs program seeks to build and sustain a diverse and inclusive innovation network across the country.

In order to build and sustain a diverse and inclusive innovation network, strengthen research and education in the sciences and engineering throughout the United States, and avoid undue concentration of such research and education in one region or state, NSF encourages proposers to develop partnerships that cover geographic areas that have not been previously included in current NSF I-Corps Hubs awards (Hub Map). NSF especially encourages Hub proposals that are led by institutions in EPSCoR jurisdictions as per Section 10325 of CHIPS and Science (42 USC 19014).

I-Corps Hubs are consortia of institutions of higher education with common goals and challenges that collaborate to provide entrepreneurial training to members of the scientific community (students, postdocs, faculty, and other researchers). These collaborating institutions span geographic areas and participate in a Hub to achieve operational excellence and to facilitate interactions with stakeholders in their entrepreneurial and innovation ecosystem. Each Hub has a Lead institution to oversee operational management of the consortium and seven initial Partner institutions that contribute to the success of the Hub objectives, activities, and expected outcomes. A Lead institution may be a current or former I-Corps Node or Site (Track 1), or they may be entirely new to the I-Corps program (Track 2).

Hubs are expected to add one New Partner Institution (NPI) annually. NPIs are institutions of higher education that seek to join an existing Hub. Funding for NPIs will be provided through supplemental funding, however, Hubs are allowed to provide funding from their award budgets. NPIs are expected to collaborate with the Hub and demonstrate that the proposed activities of the NPI are coordinated with the Hub's objectives and expected outcomes. A NPI may be a current or former I-Corps Node or Site, or they may be entirely new to the I-Corps program.

It is expected that a process for **Hub Renewals** will be announced at a later date and may provide up to five additional years of funding for existing Hubs that are able to demonstrate their regional and national impact on the innovation ecosystem.

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.

- Ruth Shuman, Program Director, National Science Foundation, telephone: (703) 292-2160, email: rshuman@nsf.gov
- Molly M. Wasko, Program Director, National Science Foundation, telephone: (703) 292-4749, email: mwasko@nsf.gov
- Jaime A. Camelio, Program Director, National Science Foundation, telephone: (703) 292-2061, email: jcamelio@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 --- STEM Education
- 47.079 --- Office of International Science and Engineering
- 47.083 --- Office of Integrative Activities (OIA)
- 47.084 --- NSF Technology, Innovation and Partnerships

Award Information

Anticipated Type of Award: Cooperative Agreement

Estimated Number of Awards: 2

Up to 2 I-Corps Hubs will be awarded under this solicitation.

Anticipated Funding Amount: $6,000,000

NSF I-Corps Hub recipients will be supported at a level of up to $3,000,000 per year for up to five years. All funds are awarded to the Lead institution; Partner institutions receive funding as subawardees.

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

PLEASE NOTE: NSF I-Corps Hub proposals must be submitted by a single Lead institution, with Partners listed as subawardees in the budget. ***Separately submitted collaborative proposals submitted in response to this solicitation will be returned without review.***

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.

Who May Serve as PI:

The PI must be in a senior academic administrative role, at the level of Dean or higher, at the Lead (defined in Section II: Program Description) institution.

Each Partner (defined in Section II: Program Description) institution must identify a senior academic administrator at the level of Dean or higher to be included as Senior/Key Personnel.

Limit on Number of Proposals per Organization: 1

Organizations only may be a participant (Lead or Partner) in one proposal per deadline identified in this solicitation.

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

An Individual may be PI, co-PI, or Senior/Key Personnel of only one NSF I-Corps Hub proposal per deadline identified in this solicitation.

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 Research.gov: *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:**

  Other budgetary limitations apply. Please see the full text of this solicitation for further information.

C. Due Dates

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

  April 25, 2024

  I-Corps Hub awards (Track 1 and 2)

Proposal Review Information Criteria

Merit Review Criteria:

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

Award Administration Information

Award Conditions:

Additional award conditions apply. Please see the full text of this solicitation for further information.

Reporting Requirements:

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

I. Introduction

NSF seeks to develop and nurture a national innovation ecosystem built upon fundamental research that guides the output of scientific and engineering discoveries closer to the development of technologies, products, processes, and services that benefit society. The goal of the NSF Innovation Corps (I-Corps) program is to use experiential education to help researchers reduce the time necessary to translate a promising idea from the laboratory bench to widespread implementation. In addition to accelerating technology translation, the I-Corps program seeks to reduce the risk associated with technology development conducted without insight into industry/customer requirements and challenges.

Through this solicitation, NSF seeks to create the structure required to support the expansion of the NSF I-Corps program throughout the community of NSF-funded and other researchers, local and regional entrepreneurial communities, other federal agencies, and national laboratories. The resulting National Innovation Network (NIN; https://new.nsf.gov/funding/initiatives/i-corps/about-national-innovation-network) will work collaboratively to create and sustain a national innovation ecosystem. The NIN is expected to be diverse, equitable, inclusive, and accessible in all aspects, including research areas, personnel, institutions, tools, programs, capabilities, and geographic locations – providing the network with the flexibility to grow or reconfigure as needs arise.

Definitions:

For the purposes of this solicitation, the following definitions apply:

National Innovation Network – The National Innovation Network is designed to be a tightly connected, highly functional organization of I-Corps Hubs, Nodes, and Sites spanning the nation. Currently, Hubs, Nodes, and Sites implement the regional I-Corps training programs in the research community. Hubs are consortia of eight institutions initially, while Nodes comprise several universities responsible for providing regional I-Corps training, and Sites are single universities providing I-Corps training and internal institutional support to scientists and engineers. Together, Hubs, Nodes, and Sites form a network of institutions to help researchers translate fundamental research to the marketplace.

I-Corps Hub – A consortium of institutions clustered in a distinct geographical region initially comprising a Lead institution and at least seven Partner institutions that operate collaboratively to provide regional I-Corps training.

Regional I-Corps Training Programs – I-Corps short courses provided by I-Corps Hubs, Nodes, and Sites that serve as an entry point for participants to explore entrepreneurship and the market potential of their research innovation.

National I-Corps Training Program – An intense, seven-week entrepreneurial training program provided by NSF aimed at NSF-funded and other researchers to explore the market potential and reduce the risk of translating promising technologies in science and engineering.

Hub Council – A coordinating body that is comprised of one representative from each Hub. This group works to coordinate and manage activities among Hubs, share best practices and challenges, and provide oversight to the I-Corps Curriculum

Committee.

I-Corps Curriculum Committee – The NSF I-Corps curriculum is built on a customized, accelerated version of Stanford University's Lean LaunchPad course with additional elements designed just for I-Corps grantees. The I-Corps Curriculum Committee reviews both regional and national I-Corps course materials and makes recommendations for changes to the Hub Council and NSF.

II. Program Description

A. Vision of the I-Corps Program

The I-Corps program serves the nation by enabling the transformation of invention to impact based on an approach of integrating scientific inquiry and industrial discovery in an inclusive, data-driven culture driven by rigor, relevance, and evidence. The I-Corps program is implemented in the research community by a network of Hubs, with each Hub characterized by institutions actively pursuing the following strategic goals:

- **Technology Translation. The** Hub provides operational infrastructure and entrepreneurial training to assist researchers at academic institutions in translating discoveries into technologies with near- and long-term benefits for the economy and society.
- **Entrepreneurial Training and Workforce Development**. The Hub standardizes and delivers an abridged version of the I-Corps entrepreneurial training program and recommends teams to the national I-Corps training program. The I-Corps program teaches a process to identify valuable solutions and product opportunities that can emerge from academic research and offers entrepreneurship training to participants through a targeted curriculum. The result is that academically trained researchers develop entrepreneurial skills to create startups that have economic benefit.
- **Economic Impact**. The Hubs and the I-Corps program prepare scientists and engineers to extend their focus beyond the laboratory to increase the economic and societal impact of NSF-funded and other basic research projects. The I-Corps program seeks to increase the economic competitiveness of the United States and enhance partnerships between academia and industry to commercialize cutting-edge technologies.
- **Collaboration and Inclusion**. Hubs are collaborative environments combining institutional strengths of the members within distinct geographic boundaries to create synergies and significantly impact the nation's innovation capacity. Supporting participation of individuals and institutions traditionally underrepresented in deep technology development, translation, and entrepreneurship is integral to every aspect of the I-Corps program. Importantly, Hubs model a culture in which all members are valued, contribute, and gain mutual benefit from participating.

B. NSF I-Corps Hubs

To implement the I-Corps vision, NSF seeks to bring together multiple Institutions of Higher Education (IHEs, as defined in Section IV) within a distinct geographical region to collaborate and deliver a standardized curriculum that teaches a process to explore the commercial potential of deep technologies to members of the scientific community (students, postdocs, faculty, and other researchers) and others in that region. This consortium of IHEs is called a ***Hub***. Each Hub facilitates interactions with stakeholders in the entrepreneurial and innovation ecosystem, creating a regional network of trusted partners (university leaders, faculty, industry leaders, mentors, advisors, investors, and others) working together to create and enhance the capacity for innovation within the region. Multiple Hubs, in turn, form the NIN (see Definitions above), along with current and former I-Corps Nodes and I-Corps Sites. The NIN is a tightly connected, highly functional network spanning the entire nation.

I-Corps Hubs will serve as regional centers of excellence that achieve the strategic goals of the I-Corps program through the following objectives:

- Recruiting participant teams for regional and national I-Corps training,
- Providing regional I-Corps training programs to participants,
- Providing and training regional I-Corps instructors and mentors,

- Providing instructors to the national I-Corps training programs,
- Collecting information on regional teams for program evaluation and assessment,
- Contributing to the work of the Hubs Council (see Definitions) and meetings of the NIN,
- Participating in the I-Corps Curriculum Committee,
- Recruiting NPIs to expand the Hub,
- Broadening participation by increasing outreach, engagement, accessibility and inclusion in all Hub activities, and
- Conducting research in entrepreneurship, particularly as it relates to translational ventures and broadening participation.

In order to build and sustain a diverse and inclusive innovation network, strengthen research and education in the sciences and engineering throughout the United States, and avoid undue concentration of such research and education, NSF encourages proposers to develop partnerships that cover geographic areas that have not been previously included in current NSF I-Corps Hubs awards (Hub Map). NSF especially encourages Hub proposals that are led by institutions in EPSCoR jurisdictions as per Section 10325 of CHIPS and Science (42 USC 19014).

B.1. Components of a Hub

Each Hub has two types of institutions:

NSF I-Corps Hub Lead Institution ("Lead"): The Hub Lead, a U.S.-based IHE (see Eligibility Information in Section IV), effectively coordinates the multiple activities and functions of the Hub. As the NSF recipient, the Lead is identified as the Hub headquarters and is responsible for the financial and reporting obligations of the Hub award. To qualify as a Lead, a minimum of two members from the Lead institution must participate in the Hub, one of whom must be in a senior academic administrative role **at the level of Dean or higher** and be listed as PI on the Hub proposal. The second member of the team should be a faculty member who plays a key role in connecting faculty members to the I-Corps community and also serves as Faculty Lead.

The primary responsibilities of the Lead are to:

- Coordinate Hub Partner activities and meetings,
- Coordinate regional I-Corps training programs in the Hub,
- Coordinate I-Corps instructor and mentor training programs in the Hub,
- Collect and compile data and metrics for Hub reporting,
- Participate in Hub activities including recruiting teams for regional and national training, and providing instructors and mentors for the regional and national I-Corps training programs,
- Manage the curriculum for regional I-Corps training,
- Implement best practices to broaden participation in I-Corps,
- Share data, metrics, and best practices, including Broadening Participation results, and
- Coordinate recruiting, submission of NPI supplemental funding requests, and on-boarding and integration of NPIs.

NSF I-Corps Hub Partner Institution ("Partner"): In addition to the Lead, each Hub has at least seven Partners, which must be U.S.-based IHEs (see Eligibility Information in Section IV). To qualify as a Partner, a minimum of two members from the Partner institution must participate in the Hub, one of whom must be a senior **academic administrator at the level of Dean or higher** and be listed as Senior/Key Personnel on the Hub proposal. The other individual is a faculty member who plays a key role in connecting faculty members to the I-Corps community and serves as a Partner Faculty Lead.

The specific roles and responsibilities of each Partner are determined by the Hub and described in the proposal. The primary responsibilities of Partners are to:

- Contribute to the activities of the Hub to achieve the Hub's expected outcomes,
- Participate in Hub activities including recruiting teams for regional and national training, and providing instructors and mentors for regional and national I-Corps training program,
- Implement best practices to broaden participation in I-Corps,

- Collect and compile data and metrics for reporting through the Lead, and
- Share data, metrics, and best practices, including Broadening Participation results, with Lead and other Partners.

The Hubs are intended to be flexible in the ability of participating institutions to evolve in their program roles.

B.2. Activities of the Hubs

NSF I-Corps Hubs (comprising Lead and Partners) achieve their objectives through six principal activities:

Activity 1: Team expansion: Recruit individuals and teams (faculty, students, post-docs, and other researchers) to expand participation of researchers in regional and national I-Corps training. The participants may be located at Hub institutions or other institutions of higher education in the geographic region that are not members of the Hub. Participants may be researchers affiliated with NSF research awards, as well as other researchers that have not been supported by NSF but may have received funding from other sources including other federal agencies or may be researchers in national laboratories.

Activity 2: I-Corps training: Deliver regional I-Corps training at the Lead and Partners' locations (including in-person or virtually) and provide instructors and mentors for national I-Corps training cohorts. This will require Hubs to recruit and train regional I-Corps instructors and to recruit and identify industry mentors to work with I-Corps teams. In addition, the Hub is expected to offer I-Corps training opportunities to participants from non-Hub institutions and also offer training at institutions in their geographic region that are not members of the Hub.

Activity 3: Institutional expansion of the Hub: Recruit, on-board, and integrate NPIs. The Hub should plan to add one NPI annually starting in year 1, depending on the availability of supplemental funding for new partners. Funding for NPIs will be provided through a NPI Supplement (see Section II.C. on supplemental funding).

Activity 4: Evaluation: Collect and compile data annually for inclusion in NSF's Biannual AICA Report to Congress. The goal is to aid evaluation of the impact of regional I-Corps programs.

Activity 5: Entrepreneurial research: Conduct entrepreneurial research aimed at advanced scholarship on topics related to national support of technology transfer, entrepreneurship, entrepreneurial ecosystems, and best practices particularly as they relate to translational ventures.

Activity 6: Broadening Participation: Develop and implement plans to broaden participation in I-Corps regionally to reflect the principles of outreach, engagement, accessibility and inclusion in their activities and to ensure that all sectors of society can participate in and contribute to the translation of promising technologies. These plans should expand efforts toward DEIA of groups that have been historically underrepresented and represent the full diversity of institution types across the geographical region in all Hub activities.

B.3. Coordination of the Hubs

The coordination of the Hubs is managed by the Hubs Council. Each Hub will be required to appoint a delegate to represent their Hub on the Council. The responsibilities of the Hubs Council is to:

- Hold quarterly meetings to share best practices including practices that broaden participation, address challenges, and suggest future areas of improvement.
- Hold annual joint meetings of the Hubs and other members (current and former I-Corps Nodes and Sites) of the NIN.
- Facilitate collaboration among Hubs and across the NIN.
- Define responsibilities and activities of the Curriculum Committee and disseminate curriculum in coordination with NSF to ensure standardization.
- Identify a research review committee to provide coordination and collaboration opportunities for entrepreneurial research under Activity 5for each Hub.

B.4. Activities Not Responsive to the Solicitation

The activities of the Hub and the Project Description must be focused on the I-Corps program. Other activities such as entrepreneurship training that are outside of the I-Corps program (e.g., forming a business, financial accounting, raising capital, etc.) and holding events for community startups should not be included in this proposal. However, other entrepreneurship support may be included in the Description of Hub members of the Project Description (section V.A. of this document).

B.5. Oversight of the Hub

Strategic Plan - The Hub will be required to provide a Strategic Plan in the proposal that describes how the activities of the Hub will be integrated to achieve the vision, goals, and objectives. The Plan should include a description of the Hub management and governance and the high-level strategies and tactics that will be employed for each of the Activities as well as the strategic role of the Lead and Partner institutions in achieving these goals and objectives. The Plan also should provide the high-level expected progress of the Hub's efforts across the 5 years of support including a roadmap with annual major milestones and success metrics for each Activity. If selected for award, the Hub will be asked to revise/update the Strategic Plan and submit to NSF for review and approval within 30 days of the start date of the Hub award.

Annual Reporting - 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 30 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 Annual Project Report, and a Project Outcomes Report for the General Public.

In addition, to provide oversight, the NSF Program Officer and a site visit team may visit the Hub at least once each year either virtually or in-person during the course of the award. Visits may include observing regional training or other events provided by the Hub.

AICA Reporting - In addition to, and separate from, the Annual Reporting requirement, NSF requires each Hub to collect and compile data annually as required by the AICA to aid evaluation of the impact of the I-Corps program as required in Activity 4. This Report will track the progress of teams that have participated in Regional I-Corps training (but not Hub teams that have participated in national I-Corps training). Teams that participate in the national I-Corps program will be tracked by NSF. NSF will provide survey questions and instructions to be followed for regional reporting at the time the award is made.

C. Hub Supplements for New Partner Institutions (NPIs)

NPIs are institutions of higher education that seek to join an existing Hub as a new Partner. A NPI may be a current or former I-Corps Node or Site, or they may be entirely new to the I-Corps program. NPIs are expected to collaborate with a Hub and demonstrate that the proposed activities of the NPI are coordinated with the Hub's objectives, expected outcomes, and outlined activities (See **NSF I-Corps Hub Partner** in Section II.B.1. above). Each Hub may add NPIs annually beginning in year 1, depending on the availability of funds, by submitting a supplemental funding request.

NPIs must be U.S.-based IHEs (see Eligibility Information). To qualify as a NPI, a minimum of two faculty members from the Partner institution must participate in the Hub, one of whom must be a senior **academic administrator at the level of Dean or higher** and be listed as Senior/Key Personnel on the supplemental funding request, and the other of whom plays a key role in connecting faculty members to the I-Corps community and serves as a Partner Faculty Lead. Prior to submitting a supplemental funding request, proposers should contact their cognizant NSF Program Officer.

III. Award Information

Anticipated Type of Award: Cooperative Agreement

Estimated Number of Awards: 2

Up to 2 I-Corps Hubs will be awarded under this solicitation.

Anticipated Funding Amount: $6,000,000

NSF I-Corps Hub recipients will be supported at a level of up to $3,000,000 per year for up to five years. All funds are awarded to the Lead institution; Partner institutions receive funding as subawardees.

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

PLEASE NOTE: NSF I-Corps Hub proposals must be submitted by a single Lead institution, with Partners listed as subawardees in the budget. ***Separately submitted collaborative proposals submitted in response to this solicitation will be returned without review.***

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.

Who May Serve as PI:

The PI must be in a senior academic administrative role, at the level of Dean or higher, at the Lead (defined in Section II: Program Description) institution.

Each Partner (defined in Section II: Program Description) institution must identify a senior academic administrator at the level of Dean or higher to be included as Senior/Key Personnel.

Limit on Number of Proposals per Organization: 1

Organizations only may be a participant (Lead or Partner) in one proposal per deadline identified in this solicitation.

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

An Individual may be PI, co-PI, or Senior/Key Personnel of only one NSF I-Corps Hub proposal per deadline identified in this solicitation.

Additional Eligibility Info:

Multi-institution NSF I-Corps Hub proposals must be submitted by a single Lead institution, with Partners listed as subawardees in the budget. The institutional eligibility requirements apply to the Lead and Partner institutions of the Hub.

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 Research.gov or Grants.gov.

- Full Proposals submitted via Research.gov: Proposals submitted in response to this program solicitation should be prepared and submitted in accordance with the general guidelines contained in the *NSF Proposal and Award*

Policies and 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) 292-8134 or by e-mail from nsfpubs@nsf.gov. The Prepare New Proposal setup will prompt you for the program solicitation number.

- 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) 292-8134 or by e-mail from nsfpubs@nsf.gov.

See PAPPG Chapter II.D.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.

1. Proposal for an I-Corps Hub

In addition to the requirements specified in the NSF PAPPG, an NSF I-Corps Hub proposal consists of the following required elements:

Title:

The title should include, as a prefix, the name NSF I-Corps Hub (Track 1 or 2): followed by an indication of the geographic region addressed by the Hub, for example: "NSF I-Corps Hub (Track 1): Central Region."

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. The proposal must contain a summary of the proposed activity suitable for publication. It should not be an abstract of the proposal, but rather a self-contained description of the institutions that form the Hub, distinguishing features of the Hub, highlights of key activities, and the activity and potential outcomes that would result if the proposal were funded. The Summary should be written in the third person and include a statement of objectives and methods to be employed. It should be informative to other persons working in the same or related fields and, insofar as possible, understandable to a scientifically or technically literate lay reader.

Project Description (may not exceed 20 pages): The project description must include the following sections in the order specified. The bullet points in each section are suggestions for the information to be discussed and are provided as a guide. Please note that the instructions for this section of the proposal supplements the guidance in the PAPPG.

a) Vision for the Hub (one page)

i. The proposed vision for the Hub must be provided, with a discussion of the anticipated regional and national societal and economic impact.

ii. Provide a description of the region.

iii. Make the case for why the proposed Hub members have been selected to achieve the anticipated impact. Articulate the synergistic value of the proposed Hub compared with achievements expected if institutions were not connected through the Hub.

b) Description of Hub members (seven pages)

i. Describe each Hub member including the Lead and the seven Partners.

ii. Table of Hub members - The description must start with a table that includes: 1) Name of the institution, 2) name of the Lead PI (and Hub Director, if different from the Lead PI) and Partner PIs, and 3) Faculty Leads, and 4) other committed senior/key personnel.

iii. Describe the strengths, contribution, and responsibilities of the Lead and each of the Partners.

c) Strategic Plan (1-2 pages) The Strategic Plan should describe how the Hub will achieve the vision, goals, and objectives of the proposal. The Plan should include a description of the Hub governance and the high-level strategies and tactics within each of the Activities that will be described in more detail in later sections as well as the strategic roles of the Lead and Partners in achieving these goals. The Plan also should provide the high-level expected progress of the Hub's efforts across the 5 years of support including a roadmap with annual major milestones and success metrics for each Activity. If selected for award, the Hub will be asked to revise/update the Strategic Plan and submit to NSF for review and approval within 30 days of the start date of the Hub award.

d) Hub Leadership Team and Hub Management Plan (1-2 pages)

Leadership Team: Leadership and operational roles are required and must be indicated clearly in the Project Description, Budget, and Budget Justification. Individuals must be named at the time of the submission of the proposal and any changes must be approved by NSF. Unnamed placeholders will not be accepted for the following roles, except for the Hub Coordinator.

- Hub Director (HD): An experienced faculty or staff member at the Lead institution with an affiliation to the Lead's innovation activities, responsible for strategic management and Hub operations, including data collection, communications, reporting, etc. Proposers are encouraged to select individuals with prior commercialization experience as Hub Director.
- Lead and Partner Faculty Leads: The Lead and Partner institutions each must identify a single faculty member to serve as the Faculty Lead (FL) responsible for faculty engagement at their institution. Faculty Leads with prior commercialization experience and affiliation with the institution's innovation activities are strongly encouraged. These FLs should be indicated as Senior/Key Personnel in the budget. At the Lead institution, the individual serving as Hub Director also may serve as the FL, but this is not required.
- Lead Instructor (LI): An instructor experienced in teaching lean startup methodology and customer discovery principles must be named to recruit, staff, and vet potential instructors for regional and national I-Corps training. The individual serving as Hub Director also may serve as the Lead Instructor, but this is not required.
- Hub Coordinator (HC): A coordinator should be identified to manage regional training programs and team recruiting logistics across the Hub. (Note that national I-Corps training is managed by NSF and should not be included in the Hub proposal budget.)

Hub Management Plan: The proposal should describe the proposed management and governance of the Hub. Responsibilities and processes such as oversight, strategic planning, and decision-making should be considered.

e) Description of Plans for Required Activities (6 pages)

Activity 1: Team expansion: Recruit individuals and teams (faculty, students, post-docs, and other researchers) to expand participation of researchers in regional and national I-Corps training. The participants should be in the geographic region, either at Hub institutions or institutions that are not members of the Hub. Participants may be researchers affiliated with NSF research awards, as well as other researchers that have not been supported by NSF but may have received funding from other sources including other federal agencies or may be researchers in national laboratories. In addition, the Hub is expected to offer I-Corps training opportunities to participants at institutions in their geographic region that are not members of the Hub.

- Recruiting process. Describe proposed outreach programs to identify and vet qualified teams for regional and national cohorts. Include estimates of the number of participants and annual capacity and describe the processes to ensure the success of achieving the projected numbers of recruited teams. Discuss creative ideas for recruiting new teams and align recruitment plans with the Hub's broadening participation plan. Each Hub is expected to generate at least 25 teams per year for the national I-Corps training program.

Activity 2: I-Corps training: Deliver regional I-Corps training at the Lead and Partners and provide instructors for national I-Corps training cohorts. This will require Hub programs to recruit and train regional I-Corps instructors and to recruit and identify industry mentors to work with teams.

- Provide an estimate of the number of regional training cohorts planned and their locations.
- Describe the regional and national instructional team.
- Describe the process for recruiting mentors.

Activity 3: Institutional expansion of the Hub: Recruit, on-board, and integrate NPIs. The Hub should plan to add one NPI annually starting in year 1 depending on the availability of NPI funding. Funding for NPIs will be provided through supplemental funding.

Activity 4: Evaluation of Hubs: Collect and compile data to aid evaluation of the impact of the I-Corps program.

- Evaluation Lead. Identify an Evaluation Lead. This could be an internal evaluator included in Senior/Key Personnel or an external evaluator.
- Tracking of regional teams. Describe plans and process for tracking participants in your regional training programs. The requirements for tracking and reporting regional data with respect to the information collected for the American Innovation and Competitiveness Act will be provided when awards are issued.

NOTE: Please insert a section header into the Project Description labeled "Broader Impacts". Activities 5 and 6 should be discussed after this label. This section is required by the PAPPG and Research.gov will compliance check the document and not allow submission without it.

Activity 5: Entrepreneurial research: Entrepreneurial research is to be aimed at advanced scholarship on topics related to national support of technology transfer, entrepreneurship, entrepreneurial ecosystems, and best practices particularly as they relate to translational ventures. Describe the following:

- **Research Lead**. Identify a Research Lead. The Research Lead must be a faculty member at the Lead or a Partner institution of the Hub and must be identified as Senior/Key Personnel. The Hub Director or another FL may serve as the Research Lead, but this is not required. Discuss the engagement of the Research Lead with the Hub Leadership Team.
- **Entrepreneurial Scholarship**. Discuss in general terms research planned on entrepreneurial ecosystems and the potential for impact on policy and practice at the national level, particularly on technology transfer and commercialization and broadening participation. A detailed research plan will be requested after the award is made and reviewed by the Hubs Council (see Coordination of the Hubs section) to provide oversight and coordination of Hubs research activities.

Activity 6: Broadening Participation: Hubs are expected to develop and implement plans to broaden participation in I-Corps regionally to address outreach, engagement, accessibility and inclusion and to ensure that all sectors of society can participate in and contribute to the translation of promising technologies. These plans should expand efforts to leverage the full spectrum of talent to include groups that have been historically underrepresented and represent the full diversity of institution types across the geographical region in all NSF I-Corps activities. Broadening Participation Plans should include:

- Context and Objectives: Describe the broadening participation challenges and opportunities present within the geographic region of the proposed Hub that the Hub intends to address and articulate the objectives.
- Intended Population(s): Identify the demographics of the community that the Broadening Participation Plan seeks to engage. Populations may include, but are not limited to I-Corps participants, instructors, mentors, institutions of higher education, and other I-Corps stakeholders.
- Strategy: Outline the plan for each activity with specific intended outcomes and identify roles for the Hub Lead and Partners.
- Preparation: Describe any intended preparation/training activities to implement proposed work.
- Measurement: Describe plans for the measurement of outcomes for the proposed broadening participation activities.

- Hub institutions are encouraged to align Hub broadening participation activities with their institutions' efforts and resources to support a campus climate of inclusion.

f) Results from Prior NSF I-Corps Support (2 pages) *For Track 1:* For the Lead and each Partner Institution that has been a recipient of either an I-Corps Node or Site award from NSF, describe prior experience, achievements, and results as they relate to the Objectives of the proposed Hub and the proposed Activities (Activities 1-6).

For Track 2: For the Lead and each Partner describe prior relevant experience and achievements as they relate to the Objectives of the proposed Hub and the proposed Activities (Activities 1-6).

Senior/Key Personnel

Individuals in the following positions must be designated as Senior/Key Personnel and are required to provide a Biographical Sketch, Current and Pending (Other) Support, and Collaborators & Other Affiliations Information in accordance with the requirements specified in the PAPPG: PIs, Co-PIs, Lead and Partner Faculty Leads, Hub Director, Lead Instructor, Evaluation Lead and Research Lead. These documents are required regardless of the level of support to be provided through this award.

Proposal Budget and Subaward Budgets: NSF I-Corps Hub recipients will be supported at a level of up to $3,000,000 per year for up to five years.

All funds are awarded to the Lead institution; partner institutions receive funding as subawardees. The minimum subaward request for a Partner is $150,000 per year.

Include a summary table that shows the estimated budget for each of the Activities for the Lead, each Partner, and total for each year of the Budget.

Include funding to attend at least two in-person meetings (assuming no travel restrictions) including an annual NIN meeting to be held in the Washington, DC area, and an annual Hub meeting in your region.

Budgets may include funds for Participant Support of regional teams to include modest stipends and funds to cover travel for customer discovery and other reasonable expenses. In addition, Participant Support funds may be requested to sponsor a limited number of national teams that are not able to identify a PI for an I-Corps Teams proposal but otherwise meet the eligibility requirements.

Facilities, Equipment, Other Resources Discuss requirements for and the availability of equipment, instrumentation, and facilities for the proposed project.

Supplementary Documents:

a) Data Management Plan In addition to the guidance in the PAPPG, the required Data Management Plan should discuss capabilities and experience tracking teams into and through Hub programs, as well as beyond to subsequent commercial activity. Data should be collected to satisfy the reporting requirements.

b) Memoranda of Understanding The Lead should provide an executed Memorandum of Understanding (MOU) with each Partner. Each MOU should demonstrate alignment with the overall NSF I-Corps program vision and the specific mission of the Hub. The MOU should communicate a commitment to I-Corps from senior administration, provide overviews of each institution's strategic relationship within the Hub, and highlight important shared resources that will be made available within the Hub. The senior administrators should provide statements as to how the proposed Hub will align with the greater strategic directions of their respective institutions.

B. Budgetary Information

Cost Sharing:

Inclusion of voluntary committed cost sharing is prohibited.

Other Budgetary Limitations:

Other budgetary limitations apply. Please see Section V.A of this solicitation for further information.

C. Due Dates

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

  April 25, 2024

  I-Corps Hub awards (Track 1 and 2)

D. Research.gov/Grants.gov Requirements

For Proposals Submitted Via Research.gov:

To prepare and submit a proposal via Research.gov, see detailed technical instructions available at: https://www.research.gov/research-portal/appmanager/base/desktop?_nfpb=true&_pageLabel=research_node_display&_nodePath=/researchGov/Service/Desktop/ProposalPreparationa For Research.gov user support, call the Research.gov Help Desk at 1-800-381-1532 or e-mail rgov@nsf.gov. The Research.gov Help Desk answers general technical questions related to the use of the Research.gov 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: https://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 Research.gov for further processing.

The NSF Grants.gov Proposal Processing in Research.gov informational page provides submission guidance to applicants and links to helpful resources including the NSF Grants.gov Application Guide, Grants.gov Proposal Processing in Research.gov how-to guide, and Grants.gov Submitted Proposals Frequently Asked Questions. Grants.gov proposals must pass all NSF pre-check and post-check validations in order to be accepted by Research.gov at NSF.

When submitting via Grants.gov, NSF strongly recommends applicants initiate proposal submission at least five business days in advance of a deadline to allow adequate time to address NSF compliance errors and resubmissions by 5:00 p.m. submitting organization's local time on the deadline. Please note that some errors cannot be corrected in Grants.gov. Once a proposal passes pre-checks but fails any post-check, an applicant can only correct and submit the in-progress proposal in Research.gov.

Proposers that submitted via Research.gov may use Research.gov 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 *Leading the World in Discovery and Innovation, STEM Talent Development and the Delivery of Benefits from Research - NSF Strategic Plan for Fiscal Years (FY) 2022 - 2026*. 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.D.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.D.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 other underrepresented groups 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 addition to the standard review criteria, these additional specific review criteria will be evaluated:

- A demonstrated command of the currently deployed I-Corps curriculum.
- Appropriate mixture of geographically distributed personnel and institutions that provide diverse and complementary capabilities to support current and anticipated needs for fostering innovation across a broad spectrum of science and engineering domains.
- A robust plan to broaden participation among students, faculty, staff, management, training, selection, and outreach activities.
- Methods for assessment and metrics of Hub/network performance and impacts.
- Planning processes to accommodate emerging areas and future growth, including the requirement of adding at least one New Partner Institution annually.

B. Review and Selection Process

Proposals submitted in response to this program solicitation will be reviewed by Ad hoc Review and/or Panel Review, or Reverse Site 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 generally will 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 or the Division of Acquisition and Cooperative Support 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.

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 proposers whether their proposals have been declined or recommended for funding within six months. Large or particularly complex proposals or proposals from new recipients 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 or the Division of Acquisition and Cooperative Support 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 an NSF Grants and Agreements Officer. 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) 292-8134 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.

Administrative and National Policy Requirements

Build America, Buy America

As expressed in Executive Order 14005, Ensuring the Future is Made in All of America by All of America's Workers (86 FR 7475), it is the policy of the executive branch to use terms and conditions of Federal financial assistance awards to maximize, consistent with law, the use of goods, products, and materials produced in, and services offered in, the United States.

Consistent with the requirements of the Build America, Buy America Act (Pub. L. 117-58, Division G, Title IX, Subtitle A, November 15, 2021), no funding made available through this funding opportunity may be obligated for an award unless all iron, steel, manufactured products, and construction materials used in the project are produced in the United States. For additional information, visit NSF's Build America, Buy America webpage.

Special Award Conditions:

Release of funding will require the approval of the Strategic Plan, which is to be revised and submitted to NSF for approval within 30 days of the start date of the award.

In addition, to provide oversight, the NSF Program Director and a site visit team may visit the Hub at least once each year, either virtually or in-person, during the course of the award. Visits may include observing regional training or other events provided by the Hub.

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.

AICA Reporting

In addition to and separate from the Annual Reporting requirement, NSF requires the Hub to collect and compile data annually as required by the AICA to aid evaluation of the impact of the I-Corps program as required in Activity 4. This Report will track the progress of teams that have participated in Regional I-Corps training (but not Hub teams that have

participated in National I-Corps training). Teams that participate in the National I-Corps Program will be tracked by NSF. NSF will provide survey questions and instructions to be followed for regional reporting at the time the award is made.

This reporting requirement has undergone the Office of Management and Budget (OMB) information collection review and has been approved (OMB control number 3145-0258).

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:

- Ruth Shuman, Program Director, National Science Foundation, telephone: (703) 292-2160, email: rshuman@nsf.gov
- Molly M. Wasko, Program Director, National Science Foundation, telephone: (703) 292-4749, email: mwasko@nsf.gov
- Jaime A. Camelio, Program Director, National Science Foundation, telephone: (703) 292-2061, email: jcamelio@nsf.gov

For questions related to the use of NSF systems contact:

- NSF Help Desk: 1-800-381-1532
- Research.gov Help Desk e-mail: rgov@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 https://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 (FASED) 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.F.7 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) 292-8134
- **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 proposers 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 proposers 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 System of Record Notices, NSF-50, "Principal Investigator/Proposal File and Associated Records," and NSF-51, "Reviewer/Proposal File and

Associated Records." 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
Policy Office, Division of Institution and Award Support
Office of Budget, Finance, and Award Management
National Science Foundation
Alexandria, VA 22314