NSF 25-549: NSF National Innovation Corps Teams (NSF National I-Corps (TM) Teams) program

Program Solicitation

Document Information

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U.S. National Science Foundation

Directorate for Technology, Innovation and Partnerships Translational Impacts

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

Proposals Accepted Anytime



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Important Information And Revision Notes

Proposers must have either 1) received a prior award from NSF in a scientific or engineering field relevant to the proposed innovation that is currently active or that has been active within five years from the date of the NSF National I-Corps Teams proposal submission or 2) have participated in a NSF Regional I-Corps Training program hosted by an NSF I-Corps Hub and have a letter of recommendation signed by a senior member of the NSF Regional I-Corps program staff.

Awardees must pay a registration fee (as a direct cost) to a third party that manages the NSF National I-Corps Teams training and logistics. The amount of the current registration fee will be posted on the <u>NSF I-Corps program website</u>. NSF will provide awardees with instructions for payment of the registration fee at the time of the award.

Proposal budgets may include stipends and/or compensation of up to \$10,000 for the Technical Lead (TL), up to \$15,000 for the Entrepreneurial Lead (EL) and up to \$3,000 for the Industrial Mentor (IM).

International travel, technical research and development (R&D) work and/or prototype development are no longer allowed. Please refer to this solicitation and the related MSF National I-Corps Teams Frequently Asked Questions (FAQs) for additional guidance about the preparation and requirements of NSF National I-Corps Teams proposal budgets.

The period of performance is extended to 12 months to enable customer discovery.

Due to the unique nature of the NSF National I-Corps Teams, proposals are not subject to external merit review.

Indirect Cost (F&A) Limitations: Recovery of indirect costs (F&A) shall be limited to \$5,000. As such, this program does require mandatory cost sharing, and, therefore, is an exception to NSF's cost sharing policy.

NSF will offer webinars to answer questions about the NSF National I-Corps Teams program. Details will be posted on the NSF I-Corps Teams program website as they become available.

Any proposal submitted in response to this solicitation should be submitted in accordance with the <u>NSF Proposal & Award Policies & Procedures Guide</u> (PAPPG).

Summary Of Program Requirements

General Information

Program Title:

NSF National Innovation Corps Teams (NSF National I-Corps (TM) Teams) program

Synopsis of Program:

The U.S. National Science Foundation (NSF) continues to 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 all Americans. The goals of the NSF I-Corps™ program are to spur translation of foundational research to the marketplace, to encourage collaboration between academia and industry, and to train NSF-funded faculty, students and other researchers in innovation and entrepreneurship skills.

The NSF National I-Corps program utilizes experiential learning of customer and industry discovery, coupled with first-hand investigation of industrial processes, to quickly assess the translational potential of inventions. The NSF National I-Corps program is designed to support the commercialization of "deep technologies," those revolving around foundational discoveries in science and engineering. The NSF National I-Corps program addresses the skill and knowledge gaps associated with the transformation of basic research into deep technology ventures (DTVs).

The purpose of the NSF National I-Corps Teams program is to provide NSF-funded researchers additional support in the form of entrepreneurial education, mentoring, and funding to accelerate the translation of knowledge derived from foundational research into emerging products, processes, and services that may attract subsequent third-party funding. The outcomes of NSF National I-Corps Teams' projects are threefold: 1) a decision on a clear path forward based on an assessment of the business model, 2) substantial first-hand evidence for or against product-market fit, with the identification of customer segments and corresponding value propositions, and 3) a narrative of a technology demonstration for potential partners.

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.

• NSF I-Corps program, telephone: 703-292-2038, email: i-corps@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: Standard Grant

Estimated Number of Awards: 240

Estimated program budget and number of awards are subject to the availability of funds.

Anticipated Funding Amount: \$12,000,000

The anticipated funding amount is approximately \$12,000,000 subject to availability of funds.

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:

Recovery of indirect costs (F&A) shall be limited to \$5,000. As such, this program does require mandatory cost sharing, and, therefore, is an exception to NSF's cost sharing policy.

• 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. submitting organization's local time):

Proposals Accepted Anytime

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

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. Taken together, these outcomes result from substantial, sustained investment in science and engineering. A strong capacity for leveraging foundational scientific discoveries into powerful engines of innovation is essential to maintain the competitive edge for the United States into the future.

The NSF Directorate for Technology, Innovation and Partnerships (TIP) seeks to benefit all Americans by accelerating key technologies to advance U.S. competitiveness. The directorate partners across sectors to advance three primary focus areas – accelerating technology translation and development, fostering regional innovation and economic growth, and preparing the American workforce for better-quality, higher-wage jobs. Through the NSF National I-Corps Teams program, TIP seeks to accelerate the development of new technologies, products, processes and services that arise from foundational research. NSF National I-Corps Teams investments strategically strengthen the innovation ecosystem by addressing the challenges inherent in the early stages of the innovation process. This solicitation supports collaborations between academia and industry that are designed to overcome many of the obstacles in the path of innovation.

II. Program Description

The NSF National I-Corps Teams program provides NSF-funded faculty, students, and other researchers with entrepreneurial education, mentoring, and funding to accelerate the translation of knowledge derived from foundational research into emerging products, processes, and services that may attract subsequent third-party funding.

The selected teams participate in the NSF National I-Corps Teams program curriculum. This curriculum, now delivered exclusively in an online format, typically includes a Kick-off meeting with entrepreneurial immersion training, weekly training meetings, and a Lessons Learned Closing Presentation.

An NSF National I-Corps team includes an Entrepreneurial Lead, Technical Lead, and the Industrial Mentor. During the training program, the team will be expected to spend significant time conducting active customer discovery, including interviewing potential customers and potential partners. More details on the NSF National I-Corps Teams program may be found in the NSF I-Corps Teams FAQs.

The outcomes of NSF National I-Corps Teams projects will be threefold: 1) a decision on a clear path forward based on an assessment of the business model, 2) substantial first-hand evidence for or against product-market fit, with the identification of customer segments and corresponding value propositions, and 3) a narrative of a compelling technology demonstration for potential partners and investors.

Requirements:

To be eligible to pursue funding in the NSF National I-Corps Teams program, proposers must have received a prior award from NSF in a scientific or engineering field relevant to the proposed innovation that is currently active or that has been active within five years from the date of the NSF National I-Corps Teams proposal submission. The lineage of the prior award extends to the PI, co-PIs, Senior Personnel, Postdoctoral Researchers, Professional Staff or others who were supported under the award. The prior award may range from a single-investigator award to a large, distributed center.

Proposing NSF National I-Corps teams without a prior award from NSF are also eligible to apply based on participation in a Regional NSF I-Corps Training Program hosted by an NSF I-Corps Hub. A senior member of the Regional I-Corps Program staff must provide a letter of recommendation for the team to be considered for the NSF National I-Corps Teams Program. This letter is to be submitted with the Executive Summary application and should be included in the Other Supplementary Documents in the proposal.

The technology underlying the effort must: 1) have an explicit connection to an IHE (beyond personnel); 2) be consistent with NSF requirements for intellectual merit; and 3) represent a deep technical innovation based on discovery in fundamental science and/or engineering.

Before an I-Corps Teams proposal may be submitted, PIs must complete a series of steps that may lead to an invitation to submit a proposal. The steps are as follows:

1. Team Formation:

Identify at least three NSF National I-Corps Team members. The NSF National I-Corps team will consist of three roles:

The **Entrepreneurial Lead (EL)** may be a postdoctoral scholar, graduate, or other student, staff member, researcher, or other personnel with relevant knowledge of the technology and a deep commitment to investigating the commercial potential and landscape surrounding the innovation. The Entrepreneurial Lead will typically guide translation of the technology, should the NSF National I-Corps Teams project demonstrate the potential for commercial viability.

The **Technical Lead (TL)** may be a faculty member, senior research scientist, or postdoctoral scholar with deep and direct technical expertise in the relevant core technology about which the National NSF I-Corps team is exploring commercial potential. Typically, the TL will also serve as the Principal Investigator (PI) of the award.

The **Industry Mentor (IM)** may be an experienced entrepreneur or business leader with expertise in transitioning technology out of academic labs. The IM should be a third-party resource and may be recommended by the proposing institution. The IM will be responsible for advising the team on its progress throughout the NSF National I-Corps Program and will usually have contacts in the industry area(s) being explored. For more details on the role of the IM, please see the NSF I-Corps Teams FAOs.

Teams may have an additional member in the role of co-EL, co-TL, or co-IM. Teams with more than four members will typically not be supported.

2. Executive Summary Preparation:

Prepare a two-page (maximum) Executive Summary that describes the following:

- **Team Members.** Composition and roles (EL, TL, and IM, plus any additional co-EL, co-TL or co-IM) of the team members proposing to participate in the NSF National I-Corps Teams program and a brief description of each member's professional expertise.
- **Principal Investigator.** Principal Investigator (PI) and a brief description of their connection to the team. In most cases the PI will also be the TL.
- **Lineage.** Relevant current/prior NSF awards establishing team eligibility, including that of a Regional I-Corps Training Program if appropriate.
- **Technology.** Brief description of the core technology.
- **Application/Market.** Brief description of the potential commercial application.
- Current Plan. Brief description of the current commercialization plan.

If the proposed NSF National I-Corps Team is applying based on participation in an NSF Regional I-Corps training program hosted by a current NSF I-Corps Hub, a senior member of the Hub must provide a letter of recommendation for the Team to be considered in the NSF National I-Corps Teams program. This letter is to be submitted with the Executive Summary application and included in the Other Supplementary Documents. The technology underlying the effort must: 1) have an explicit connection to an IHE (beyond personnel); 2) be consistent with NSF requirements for intellectual merit; and 3) represent a deep technical innovation based on discovery in foundational science and/or engineering.

3. NSF Contact:

Submit the initial application, called an Executive Summary, via the Executive Summary Form for review. This will require creating a login account.

4. Executive Summary Review Process:

5. Proposal Submission:

The NSF National I-Corps Teams program will not accept proposals that have not been authorized for submission by a cognizant NSF Program Officer. Uninvited proposals will be returned without review.

Each team member will be asked to agree to all program requirements: meeting the target number of interviews (typically, a minimum of 100 interviews) with potential customers and potential partners from their proposed target market(s) ecosystem during the program, allocating the time required to meet the program requirements, agreeing to attend all NSF National I-Corps Teams meetings, and committing fully to the NSF National I-Corps Teams program before receiving approval to submit a proposal to NSF.

See Section V on Proposal Preparation for instructions about preparing an NSF National I-Corps Teams proposal.

6. I-Corps Teams Program Participation

All NSF National I-Corps team members are required to participate in the NSF National I-Corps Teams program. This curriculum, delivered exclusively in an online format, typically includes a Kick-off meeting with Entrepreneurial Immersion Training, a weekly training meeting and a Lessons Learned Closing Presentation. An NSF National I-Corps team includes the EL, TL, and IM. More details on the NSF National I-Corps Teams program can be found in the NSF I-Corps Teams

FAQs. Dates for upcoming cohorts are posted on the NSF I-Corps Teams program website.

The NSF National I-Corps Teams program provides a real-world, hands-on, immersive learning experience to evaluate the commercial opportunity around the innovation. The main activity is customer discovery where the team "leaves the lab" to evaluate the potential product-market fit and the wider business model. The team's progress in customer discovery will be shared with the entire cohort to facilitate group learning. At the end of the curriculum, teams are expected to have performed at least one hundred (100) interviews with potential customers and potential partners from their proposed target market(s).

NSF National I-Corps teams are encouraged to travel to reach their customer discovery goals when feasible. Travel to customer discovery interviews typically does not need approval by NSF, however, teams must obtain written prior approval from their NSF I-Corps Program Officer for travel to an academic conference. International travel is not allowed.

Outcomes from an NSF National I-Corps Teams Grant:

Successful completion of the NSF National I-Corps Teams Program is expected to contribute to one or more of the following:

- · Enhanced entrepreneurial mindset among NSF-funded researchers,
- Students prepared to be competitive entrepreneurially,
- Informed decision about the commercial potential of the proposed technology,
- Selection of a licensing commercialization strategy
- Submission of a SBIR/STTR proposal,
- Formation of a for-profit, start-up business, and
- Development of a business model suitable for review by third-party investors.

NSF will seek to collect outcomes from the grantees along the lines listed above during the post-award period.

III. Award Information

Anticipated Type of Award: Standard Grant

Estimated Number of Awards: 240

Estimated program budget and number of awards are subject to the availability of funds.

Anticipated Funding Amount: \$12,000,000

The anticipated funding amount is approximately \$12,000,000, subject to availability of funds.

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 sub-awards 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.

Principal Investigator (PI) Limit:

Multiple awards based on the same core technology generally will not be supported.

Limit on Number of Proposals per Organization:

There are no restrictions or limits.

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

Multiple I-Corps awards to a PI participating on a currently active I-Corps team generally will not be supported. Collaborative proposals are not eligible for the I-Corps Teams Program.

Additional Eligibility Info:

Proposers must have either 1) received a prior award from NSF in a scientific or engineering field relevant to the proposed innovation that is currently active or that has been active within five years from the date of the NSF National I-Corps Teams proposal submission or 2) have participated in a NSF Regional I-Corps Training program hosted by an NSF I-Corps Hub and have a letter of recommendation signed by a senior member of the NSF Regional I-Corps program staff.

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.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.

Mandatory Communication with cognizant NSF National I-Corps Program Officer: PI(s) must contact one of the cognizant NSF I-Corps Program Officers and receive prior written authorization to submit a proposal. To start this process, the NSF National I-Corps Team should submit an application, called an <u>Executive Summary</u>. (as outlined in Section II-PROGRAM DESCRIPTION) for review. This application will require creating a login account.

Guide to Submission of an NSF National I-Corps Teams Proposal

Note: See the current Proposal and Award Policies and Procedures Guide (PAPPG) for guidance on the required sections of a full research proposal submitted to NSF. The NSF National I-Corps Teams proposal preparation and submission requirements specified below modify or supplement the requirements specified in the PAPPG and thus, supersede the PAPPG.

An NSF National I-Corps Teams proposal must contain the following required sections:

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 summary MUST have the following components:

- 1. The overview section must include a listing of "key" words. The key words/phrases should identify the areas of technical expertise in science, engineering, or education that are to be considered in reviewing the proposal, and the areas of application that are the initial target of the technology.
- 2. The Intellectual Merits section should include a summary limited to 200 words describing the technical aspects of the proposed activity. No proprietary information should be included in the Project Summary.
- 3. Broader impacts section should include a summary limited to 200 words addressing how the innovation will enhance scientific and technological understanding. Describe the potential societal and commercial impact of the project.

Project Description

The project description is **limited to 5 pages**. The following information should be provided in the project description:

1. NSF National I-Corps Team (two-page limit)

Describe the composition of the team and roles (EL, TL, IM, plus any additional co-EL, co-TL or co-IM team members) and provide a one-paragraph description of each member's professional experience. Include each member's entrepreneurial experience and their experience in collaborating with the other team members.

2. Lineage of the Proposed Innovation (one-page limit)

a. Provide a table of previous awards with the cognizant NSF Program Officer (if applicable) identified.

b. Indicate the eligibility pathway by providing the relevant NSF award number(s) or by identifying the NSF Regional I-Corps Training program (include the letter of recommendation in the Supplementary Documents module). Teams qualifying through a Regional I-Corps Training Program must use the following language in

both the letter of recommendation and the lineage statement of the proposal: "The NSF Regional I-Corps Training program award conferring lineage is:" .

- c. Briefly describe the core technology that is being considered for commercialization potential.
- d. Briefly describe how this research has led the team to believe that a commercial opportunity exists for the effort moving forward.

3. Description of the Potential Commercial Impact (one-page limit)

- a. Provide a brief profile of a typical customer of the proposed innovation.
- b. Describe the customer need that you believe will be met by the proposed innovation. How much do you think a customer would pay for your solution? How did you arrive at that estimate?
- c. Describe how the customer currently meets those needs.

4. Brief description of the project plan (one-page limit)

- a. Describe your approach. What is the proposed innovation? How does it relate to the foundational research already conducted under previous award(s)?
- b. Describe the current status of the technology. In what stage is the development: proof-of-principle, proof-of-concept, prototype (alpha, beta), other?
- c. Provide a brief description of the proof-of-concept or technology demonstration you envision will be the next step following the NSF National I-Corps Teams program.

Please note that per guidance in the PAPPG, the Project Description must contain, as a separate section within the narrative, a discussion of the Broader Impacts of the proposed activities. You may decide where to include this section within the Project Description, but it must be a separate section labeled "Broader Impacts."

References Cited

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

Senior/Key Personnel Documents

For the PI, four documents must be prepared in accordance with the requirements specified in the current PAPPG:

- **Biographical Sketch.** Highlight the technical expertise and track records in successful technology and business development. The PI must prepare a biographical sketch using SciENcv (Science Experts Network Curriculum Vitae), which will produce a compliant PDF.
- Current and Pending (Other) Support. The proposal should provide information regarding all research to which the PI has committed time or has planned to commit time outside of this submitted NSF National I-Corps Team proposal. Current and Pending Support must be prepared in accordance with the requirements specified in the PAPPG and uploaded for each of the team members. Note that this proposal is considered "pending" and, therefore, MUST appear on each Current and Pending Support submission. The PIs must prepare Current and Pending (Other) Support files using SciENcv.
- **Synergistic Activities.** The PI must provide a PDF document of up to one-page that includes a list of up to five distinct examples that demonstrates the broader impact of the individual's professional and scholarly activities that focus on the integration and transfer of knowledge as well as its creation.

Proposal Budget

The total amount of the request must not exceed \$50,000/12 months.

Proposal budgets may include stipends and/or compensation of up to \$10,000 for the TL, up to \$15,000 for the EL, and up to \$3,000 for the IM.

Funds should be set aside for customer discovery activities and tools to facilitate program participation and requirements. It is expected that customer discovery will be the largest portion of the NSF National I-Corps Teams budget.

- Virtual tools to facilitate customer interviews such as Zoom Meeting subscriptions, LinkedIn Premium membership, inexpensive headsets, calendar meeting tools such as Calendly, and recommended books.
- Conference fees for attending virtual and in-person conferences.

A registration fee must be paid directly to a third party that manages the NSF National I-Corps Teams training and logistics for NSF. The amount of the current registration fee will be posted on the <u>NSF I-Corps website</u>. NSF will provide awardees with instructions for payment of the registration fee at the time of the award.

Recovery of indirect costs (F&A) is limited to \$5,000 (11.11%).

To complete the NSF National I-Corps Teams budget in Research.gov:

- Include \$45,000 on line G6 (Other Direct Costs), and
- Include \$5,000 on line I.1 (Indirect Costs).

To complete the NSF National I-Corps Teams budget in Grants.gov:

- Include \$45,000 in Field F.8 (Other Direct Costs), and
- Include \$5,000 in Field H (Indirect Costs).

Travel expenses associated with travel for customer discovery including in-person interviews and conferences. The following statement must be included in the budget justification: "The team will require explicit written approval from the cognizant NSF I-Corps Program Officer prior to attending an academic conference under the NSF I-Corps Teams award."

International travel is not allowed.

Facilities, Equipment, and Other Resources

Discuss requirements for and the availability of equipment, instrumentation, and facilities required for the proposed project. If none, state NONE.

Data Management Plan

Proposals MUST contain a supplementary document labeled "Data Management Plan (DMP)".

Mentoring Plan

Proposals must contain a mentoring plan if there are students and/or postdoctoral scholars participating on the team.

Other Supplementary Documentation

Hub recommended teams must include a letter of recommendation from the Hub.

B. Budgetary Information

Cost Sharing:

Inclusion of voluntary committed cost sharing is prohibited.

Indirect Cost (F&A) Limitations:

Recovery of indirect costs (F&A) shall be limited to \$5,000. As such, this program does require mandatory cost sharing, and, therefore, is an exception to NSF's cost sharing policy.

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. submitting organization's local time)

Proposals Accepted Anytime

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?
https://www.research.gov/research-portal/appmanager/base/desktop?
https://nfpb=true&pageLabel=research.gov user support, call the Research.gov Help Desk at 1-800-381-1532 or e-mailto: nfpb=true&pageLabel=research.gov
<a href="mailto:nfpb=true&pageLabe

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/applicants. 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 <u>Grants.gov Proposal Processing in Research.gov informational page</u> provides submission guidance to applicants and links to helpful resources including the NSF <u>Grants.gov Application Guide</u>, <u>Grants.gov Proposal Processing in Research.gov how-to guide</u>, and <u>Grants.gov Submitted Proposals Frequently Asked Questions</u>. 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 email notification from NSF, Research.gov should be used to check the status of an application.

VI. NSF Proposal Processing And Review Procedures

A. 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: 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 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

- Team composition
- Commitment to commercialization

- Focus on a Deep Technology based on fundamental discoveries in science and engineering
- Potential commercial impact on market
- Time horizon to impact

B. Review and Selection Process

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

Internal NSF Review.

NSF National I-Corps Teams proposals are reviewed internally.

Full proposals may only be submitted upon invitation of a cognizant I-Corps program officer. Proposals submitted in response to this program solicitation will be reviewed by internal NSF merit review. The proposal may be declined if there are deviations in the proposal from what has been disclosed or discussed during the initial and final screening interviews.

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

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

VII. Award Administration Information

A. Notification of the Award

Notification of the award is made to *the submitting organization* by 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. 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 <u>Build America</u>, <u>Buy America</u> webpage.

Special Award Conditions:

In compliance with the CHIPS and Science Act of 2022, Section 10636 (Person or entity of concern prohibition) (42 U.S.C. 19235): No person published on the list under section 1237(b) of the Strom Thurmond National Defense Authorization Act for Fiscal Year 1999 (Public Law 105-261; 50 U.S.C. 1701 note) or entity identified under section 1260H of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (10 U.S.C. 113 note; Public Law 116-283) may receive or participate in any grant, award, program, support, or other activity under the U.S. National Science Foundation Directorate for Technology, Innovation and Partnerships. See here for more details.

Team progress will be tracked using an online technology platform that supports the NSF National I-Corps Teams curriculum. This NSF National I-Corps Teams platform is a shared resource provided by a logistics partner and is accessible by NSF, the course instructors, and the peer teams that participate in the NSF National I-Corps Teams Cohort.

Explicit written approval from the cognizant NSFI-Corps Program Officer is required prior to attending an academic conference under the NSF National I-Corps Teams award.

C. Reporting Requirements

The Principal Investigator must submit a final project report and a Project Outcomes Report for the General Public to the cognizant Program Officer within 90 days following the expiration of the grant.

Failure to provide the final project report 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.

The PI is required to use NSF's electronic project-reporting system, available through Research.gov, for preparation and submission of the final project report. 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.

The final report needs to detail the work conducted under the NSF National I-Corps award, the progress and learning made by the team in the reporting period, the outcomes of the work, and the project's vision post-award. It should articulate the customer segments explored, what pivots were made, and how the team sees their value proposition and the rest of the business model.

The final report must include commercialization disposition along lines similar to the following:

- Patent applications
- Patents granted and derived or both
- · Licensing agreements
- Company formation
- · Royalties realized
- SBIR proposal submission (with agency name and date submitted)
- · Third party financing
- Enhanced entrepreneurial mindset of NSF-funded researchers
- · Enhanced career trajectories of team members

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:

• NSF I-Corps program, telephone: 703-292-2038, email: <u>i-corps@nsf.gov</u>

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 <u>Grants Conferences</u>. 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 <u>NSF's website</u>.

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 (703) 292-5111

(NSF Information Center):

• 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/recipients 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

 Vulnerability disclosure
 Inspector General
 Privacy
 FOIA
 No FEAR Act
 USA,gov
 Accessibility

 Plain language
 Image: P



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