

Computer and Information Science and Engineering Minority-Serving Institutions Research Expansion Program (CISE-MSI Program)

PROGRAM SOLICITATION NSF 22-518

REPLACES DOCUMENT(S): NSF 21-533



National Science Foundation

Directorate for Computer and Information Science and Engineering
Division of Computer and Network Systems
Division of Computing and Communication Foundations
Division of Information and Intelligent Systems
Office of Advanced Cyberinfrastructure

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

February 11, 2022

Second Friday in February, Annually Thereafter

IMPORTANT INFORMATION AND REVISION NOTES

The award sizes for both Research Capacity Building Planning Projects (RCBP) and Demonstration Projects (DP) Threads have increased.

The Institution eligibility criterion has changed to limit the number of active awards an institution has from the CISE-MSI program.

Important Information

Innovating and migrating proposal preparation and submission capabilities from FastLane to Research.gov is part of the ongoing NSF information technology modernization efforts, as described in [Important Notice No. 147](#). In support of these efforts, research proposals submitted in response to this program solicitation must be prepared and submitted via Research.gov or via Grants.gov, and may not be prepared or submitted via FastLane.

Any proposal submitted in response to this solicitation should be submitted in accordance with the revised *NSF Proposal & Award Policies & Procedures Guide* (PAPP) ([NSF 22-1](#)), which is effective for proposals submitted, or due, on or after October 4, 2021.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Computer and Information Science and Engineering Minority-Serving Institutions Research Expansion Program (CISE-MSI Program)

Synopsis of Program:

With this solicitation, the National Science Foundation's (NSF) Directorate for Computer and Information Science and Engineering (CISE) is continuing its support of research expansion for Minority-Serving Institutions (MSIs). The goal of the CISE-MSI program is to broaden participation by increasing the number of CISE-funded research projects from MSIs and to develop research capacity toward successful submissions to core CISE programs. MSIs are central to inclusive excellence: they foster innovation, cultivate current and future undergraduate and graduate computer and information science and engineering talent, and bolster long-term U.S. competitiveness. **For the purposes of this solicitation, MSIs include Historically Black Colleges and Universities (HBCUs), Hispanic-Serving Institutions (HSIs), and Tribal College & Universities (TCUs).**

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.

- Subrata Acharya, Lead, Program Director, CISE/CNS, telephone: (703) 292-2451, email: acharyas@nsf.gov
- Michelle L. Rogers, Program Director, CISE/CNS, telephone: (703) 292-7786, email: mlrogers@nsf.gov
- Ephraim P. Glinert, Program Director, CISE/IIS, telephone: (703) 292-4341, email: eglinert@nsf.gov

- James E. Fowler, Program Director, CISE/CCF, telephone: (703) 292-8910, email: jafowler@nsf.gov
- Deepankar Medhi, Program Director, CISE/CNS, telephone: (703) 292-2935, email: dcosley@nsf.gov
- Juan J. Li, Program Director, CISE/OAC, telephone: (703) 292-2625, email: jjli@nsf.gov

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

- 47.070 --- Computer and Information Science and Engineering

Award Information

Anticipated Type of Award: Standard Grant or Continuing Grant

Estimated Number of Awards: 10 to 17

Anticipated number, duration, and size of new awards:

Thread 1: Research Capacity Building Planning Projects (RCBP)

- Number of awards: Up to 4
- Project length: Two years
- Award size: Up to \$400,000

Thread 2: Demonstration Projects (DP)

- Number of awards: Up to 10
- Project length: Three years
- Award size: Up to \$600,000

Thread 3: Research Partnerships Enhancement Projects (RPEP)

- Number of awards: 2 - 3
- Project length: Up to four years
- Award size: Up to \$1,200,000

Anticipated Funding Amount: \$7,000,000

Estimated program budget, number of awards and average award size/duration are subject to the availability of funds and quality of proposals received. An estimated 10 to 17 projects per year will be funded, subject to availability of funds.

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. **Only Historically Black Colleges and Universities (HBCUs), Hispanic-Serving Institutions (HSIs), and Tribal College & Universities (TCUs) are eligible to submit proposals to this solicitation and/or serve as the lead organization of a separately-submitted collaborative proposal.** Non-MSIs and other MSIs which are not listed in this solicitation are welcome to partner with HBCUs, HSIs and TCUs on this solicitation via subawards or collaborative proposals as non-lead organizations.

Who May Serve as PI:

A MSI faculty member should serve as the lead principal investigator(s) on any proposal submission.

Limit on Number of Proposals per Organization:

Institutions that have received an NSF award in the CISE programs within the last five years listed in Section II are ineligible to serve as lead institutions, **but may participate as collaborators.**

There are also *institutional* limits based on how many active awards an institution has from the CISE-MSI program as noted below:

Research Capacity Building Planning Projects (RCBP) Track: Institutions with two or more active RCBP awards are ineligible to be lead institutions for *new* RCBP proposals.

Demonstration Projects (DP) Track: Institutions with two or more active DP awards are ineligible to be lead institutions in *new* DP proposals.

Research Partnerships Enhancement Projects (RPEP) Track: Institutions with one or more active RPEP awards are ineligible to be lead institutions for *new* RPEP proposals.

For all three Tracks, ineligible institutions are encouraged to submit to larger-budget CISE-MSI tracks as well as to the CISE programs noted in Section II of this solicitation.

Limit on Number of Proposals per PI or co-PI: 2

In each annual competition, an individual may participate in at most two proposals, across all solicitation threads, as PI, co-PI, or Senior

Personnel.

These eligibility constraints will be strictly enforced in order to treat everyone fairly and consistently. Any proposal that exceeds this limit at the time of submission for any PI, co-PI, or Senior Personnel will be returned without review. **No exceptions will be made.**

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:**

Not Applicable

C. Due Dates

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

February 11, 2022

Second Friday in February, Annually Thereafter

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:

Standard NSF award conditions apply.

Reporting Requirements:

Standard NSF reporting requirements apply.

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I. INTRODUCTION

The National Science Foundation's (NSF) Directorate for Computer and Information Science and Engineering (CISE) is continuing its support of research expansion for Minority-Serving Institutions (MSIs). The goal of the CISE-MSI program is to broaden participation by increasing the number of research projects from MSIs funded by the CISE programs noted in Section II. Program Description. MSIs are central to inclusive excellence: they foster innovation, cultivate current and future undergraduate and graduate computer and information science and engineering talent, and bolster long-term U.S. competitiveness. **For the purposes of this solicitation, MSIs include Historically Black Colleges and Universities (HBCUs), Hispanic-Serving Institutions (HSIs), and Tribal College & Universities (TCUs).** This solicitation has adopted the MSIs definitions from the U.S. Department of Education and the National Academies of Sciences, Engineering and Medicine[1].

As noted in a recent National Science Board report, *The Skilled Technical Workforce*[2], broadening participation efforts must promote the inclusion of domestic talent (women, African American/Black, Hispanic/Latinx, Native American, and others) to expand and nurture undergraduate and graduate education and research. Given the role of HBCUs and HSIs in educating Black and Hispanic engineering students, recent reports call for more investment to support strategies to bolster long-term commitments and investments in STEM and other initiatives at MSIs[3].

This solicitation has been informed by a series of CISE MSI workshops that took place in 2019 and 2020 involving HBCU, HSI, and TCU faculty. In those workshops, MSI faculty outlined initial research ideas and generated three key recommendations to better understand research capacity at MSIs: (a) while MSI faculty have the opportunity to submit proposals to NSF/CISE programs, there is a need to develop research capacity, infrastructure, and proposal development support to promote success; (b) research capacity and support at MSIs span a wide range within and across different organizations, requiring diverse types of support; and (c) there is a need for NSF/CISE to better understand organizational context from the MSI community and the impacts for points (a) and (b).

[1] National Academies of Sciences, Engineering, and Medicine 2019. *Minority Serving Institutions America's Underutilized Resource for Strengthening the STEM Workforce*. Washington, DC: The National Academies Press.

[2] The National Science Board, *The Skilled Technical Workforce: Crafting America's Science & Engineering Enterprise*, September 2019. Report #: NSB-2019-2

[3] Anderson, E. L., Williams, K. L., Ponjuan, L., & Frierson, H. (2018). *The 2018 Status Report on Engineering Education: A Snapshot of Diversity in Degrees Conferred in Engineering*, Association of Public & Land-grant Universities: Washington, D.C.

II. PROGRAM DESCRIPTION

The goal of the CISE-MSI program is to increase the number of research projects from MSIs funded by the CISE programs noted below.

- Recognizing the wide range of research capacity at MSIs, this solicitation invites researchers from MSIs to submit proposals to the specific "Threads" outlined below. Specifically, Thread 1 proposals, Research Capacity-Building Planning Projects, will be focused on capacity building and research planning; and Thread 2 and Thread 3 proposals, Demonstration Projects and Research Partnerships Enhancement Projects, respectively, will focus on building integrated and sustained partnerships within a single MSI or across multiple MSIs, or with other research-intensive organizations.
- Recognizing the need for proposal development and guidance, this solicitation is informed by a number of CISE activities. In 2019, CISE hosted three conferences with faculty from HBCUs, HSIs and TCUs. These engagements were followed by a 2020 CISE MSI Convening to encourage collaborations, partnerships and ideation among the faculty attendees. In addition, CISE will host workshops in Fall 2021. The activities will be organized recognizing that all MSIs within and across any organization type are not monolithic. CISE will also host a series of virtual webinars for outreach and to inform the broader MSI community about this program.

Prospective principal investigators (PIs) should identify an intended program from among the following set of CISE programs:

CCF:

- Algorithmic Foundations (AF) program [Program Webpage]
- Communications and Information Foundations (CIF) program [Program Webpage]
- Foundations of Emerging Technologies (FET) program [Program Webpage]
- Software and Hardware Foundations (SHF) program [Program Webpage]

CNS:

- CNS Core (CNS Core) program [Program Webpage]

IIS:

- Human-Centered Computing (HCC) program [Program Webpage]
- Information Integration and Informatics (IIS) program [Program Webpage]

- Robust Intelligence (RI) program [[Program Webpage](#)]

OAC:

- OAC Core Research (OAC Core) program [[Program Webpage](#)]

Other programs spanning multiple CISE divisions:

- Cyber-Physical Systems (CPS) ([Program Webpage](#))
- CISE Community Research Infrastructure (CCRI) ([Program Webpage](#))
- Secure and Trustworthy Cyberspace (SaTC) ([Program Webpage](#))
- Smart and Connected Communities (S&CC) ([Program Webpage](#))
- Smart Health and Biomedical Research in the Era of Artificial Intelligence and Advanced Data Science (SCH) ([Program Webpage](#))

Please note that the list of programs above will be used to determine eligibility to submit proposals as noted in Section IV of this solicitation.

PIs are encouraged to consider utilizing NSF-supported research infrastructure (such as the [Platforms for Advanced Wireless Research](#), [FABRIC](#), [Chameleon](#), and [CloudLab](#)) when formulating their research plans and submitting proposals. These resources are available to researchers to conduct experimental research at no cost. Descriptions of the capabilities of each system and their availability can be found at their websites: <https://advancedwireless.org/>, <https://fabric-testbed.net/>, <https://www.chameleoncloud.org/> and <https://cloudlab.us/>.

In addition, proposals may include requests for cloud computing resources through an external cloud access entity supported by NSF's Enabling Access to Cloud Computing Resources for CISE Research and Education (Cloud Access) program, namely CloudBank (<https://cloudbank.org/>).

Proposals specifically responding to this CISE-MSI program solicitation must follow the guidance provided here while also being responsive to the goals of the programs linked above.

PROJECT THREADS

This program solicitation offers three Threads to grow research capacity at MSIs and encourage intra- and inter-organizational collaborations: **1) Research Capacity-Building Planning (RCBP)**, including **(Thread 1, Track A) Enhancement and Development (RCBP-ED)** and **(Thread 1, Track B) Research-Focused (RCBP-RF)**; **2) Demonstration Projects (DP)**; and **3) Research Partnerships Enhancement Projects (RPEP)**.

Within the RCBP Thread, the RCBP-ED (Track 1A) offers PIs an opportunity to develop and access education, training, and advanced computing resources, notably allocations of cloud computing resources, to bolster current or new computing, information, and/or cross-departmental research or teaching collaborations. The RCBP-RF (Track 1B), by contrast, must involve collaborations among multiple disciplinary departments and/or innovative partnerships across MSIs, or between one or more MSIs and other research-intensive organizations. In addition, RCBP-RF (Track 1B) proposals must pursue research aligned with the CISE programs noted above.

The DP Thread is intended to be a step up from the RCBP efforts, leveraging current, or establishing new, research efforts within a single MSI or across multiple organizations, and fostering research involvement of underserved (African American/Black, Hispanic/Latinx, or Native American, women) undergraduate and/or graduate students. PIs receiving an award in this Thread should, in the future, submit to the RPEP Thread, or directly to an appropriate CISE program.

The RPEP Thread is a further step up from DP, focusing on collaborative research partnerships with multiple departments from a MSI, or across MSIs, other research-intensive organizations, and/or national laboratories, to pursue research aligned with the CISE programs noted above. These projects require the inclusion of underserved (African American/Black, Hispanic/Latinx, or Native American, women) undergraduate and/or graduate students.

1. Research Capacity Building Planning Projects (RCBP) Thread (which includes two Tracks)

A. Enhancement and Development (RCBP-ED) - Track 1A: This Track is intended to help MSIs enhance and develop infrastructure elements to support research. These elements may include but are not limited to: (1) establishing partnerships to enable access to advanced computing resources (software, datasets, and testbeds) along with faculty/student/staff training to integrate sustained use of these resources in research and education; and (2) curricula revision/sharing and development of (joint) degree undergraduate/graduate degree programs aimed at preparing students for research. Projects in this category can promote the use of advanced computing resources in providing research experiences to undergraduate and/or graduate students (in the classroom or beyond). PIs should describe how the funds requested for infrastructure elements will enable them to build research capacity.

B. Research-Focused Projects (RCBP-RF) - Track 1B: This Track is intended to help MSIs build research capacity by developing innovative partnerships around CISE research programs. Interdisciplinary departmental collaborations within a single MSI or involving multiple MSIs and other research-intensive organizations are encouraged, though not required, and may include, but are not limited to computer science, information science, the physical sciences broadly, and other fields, including the social sciences. It is expected that the PIs will build partnerships and undertake activities, such as exploratory investigations, data acquisition and testing, and/or prototype development, which will build capacity to write successful proposals submitted as Demonstration Projects or directly to CISE programs. Proposals to this Track should detail how the proposed work will provide new and/or ongoing research opportunities for undergraduate and/or graduate students enrolled at MSIs, or those students involved in research spanning partnerships between one or more MSIs and other research-intensive organizations as well as promote sustainability of the anticipated outcomes. *Standalone (or single-PI) research projects do not qualify for this track.*

RCBP projects, including RCBP-ED (Track 1A) and RCBP-RF (Track 1B) projects, can have total budgets up to \$400,000 for up to two years. Projects should detail and promote sustainability of the anticipated outcomes.

Institutions with two or more active RCBP awards are ineligible to be lead institutions for new RCBP proposals.

2. Demonstration Projects (DP) Thread

A proposal responsive to this Thread should (1) expand a current research collaboration or establish a new one involving multiple departments at a single MSI, multiple MSIs, or one or more MSIs and other research-intensive organizations; and (2) propose research aligned with one or more CISE programs noted above. DP proposals should engage in activities that strengthen partnerships among the proposing teams to promote long-term relationships. Projects in this thread should indicate how undergraduate and/or graduate students from the MSIs will be involved in the research efforts.

DP projects can have total budgets of up to \$600,000 for up to three years. Projects should detail and promote sustainability of the anticipated outcomes.

Institutions with two or more active DP awards are ineligible to be lead institutions in new DP proposals.

3. Research Partnerships Enhancement Projects (RPEP) Thread

A proposal responsive to this Thread develops partnerships that include a MSI along with an NSF-funded research center, a research-intensive organization, and/or a national laboratory. Recalling the overarching goal of this CISE-MSI program solicitation, these projects should be led by one or more MSIs that have not had recent track records of funding through the CISE programs noted above. The proposing team should have demonstrated prior success via collaborative projects and should describe how the requested funds will result in large-scale, transformative impact via the proposed partnership.

Additionally, the project must include undergraduate and/or graduate students in the research activities and should foster student involvement (attendance, presentation, etc.) at technical conferences. RPEP proposals must be comprehensive and well-integrated and should make convincing cases that the collaborative contributions of the project teams will result in enhanced research capacity at the participating MSIs.

The potential of the activities should demonstrate contribution to CISE-focused research and collaborative contributions among researchers that could successfully compete directly in the larger size classes of the CISE programs noted in Section II of this solicitation.

RPEP proposals can have total budgets ranging from \$600,001 to \$1,200,000 for durations up to four years. Projects should detail and promote sustainability of the anticipated outcomes.

Institutions with at least one active RPEP award are ineligible to be lead institutions for new RPEP proposals.

CLOUD COMPUTING RESOURCES

Proposals may request cloud computing resources to use public clouds such as Amazon Web Services (AWS), Google Cloud Platform (GCP), IBM Cloud, and Microsoft Azure. Cloud computing resources described in proposals may be obtained through an external cloud access entity (CloudBank) supported by NSF's Enabling Access to Cloud Computing Resources for CISE Research and Education (Cloud Access) program. For this solicitation, proposers are encouraged to review and respond to the Dear Colleague Letter: Access to Commercial Cloud Computing Resources for Proposers Submitting to the Computer and Information Science and Engineering Minority Serving Institutions Research Expansion (CISE-MSI) Program.

Proposers should describe this request in a Supplementary Document including: (a) which public cloud providers will be used; (b) anticipated annual and total costs for accessing the desired cloud computing resources, based on pricing currently available from the public cloud computing providers; and (c) a technical description of, and justification for, the requested cloud computing resources. The proposal budget should not include the costs for accessing public cloud computing resources via CloudBank. Also, the total cost of the project, including the cloud computing resource request, may not exceed the budget limit described in this solicitation.

The proposal budget should not include the costs for accessing public cloud computing resources via CloudBank. Also, the total cost of the project, including the cloud computing resource request, may not exceed the budget limit described in this solicitation. With the partnership described above, Google Cloud and Microsoft Azure have agreed to provide *matching credits* that do not count toward the proposal budget limits. For example, a proposal submitted to Thread 2 of the CISE-MSI program, namely a Demonstration Project (DP), has a total proposal budget limit of \$600,000. If a PI wishes to request \$50,000 in commercial cloud computing resources through CloudBank, then the proposal budget should not exceed \$575,000 in the PI's NSF budget request (i.e., the NSF Budget and Budget Justification). The \$50,000 request for commercial cloud computing resources should be specified in the Supplementary Document. With the above partnership, for this case, the commercial cloud computing provider requested by the PI would provide \$25,000 in matching cloud credits and NSF will provide funds for the remaining \$25,000.

If incorporating this request into the proposal, a proposer should include "CloudAccess" (one word without space) as a keyword on the Project Summary page, at the end of the Overview section (before the section on Intellectual Merit). Proposers may contact CloudBank (see <https://www.cloudbank.org/faq>) for consultation on estimating the costs for using cloud computing resources.

See Section V.A. Proposal Preparation Instructions, Supplementary Documents, for more information on how to describe the cloud computing resource request as well as the associated budget.

III. AWARD INFORMATION

Anticipated Type of Award: Continuing Grant or Standard Grant

Estimated Number of Awards: 10 - 17

Anticipated number, duration, and size of new awards:

Thread 1: Research Capacity Building Planning Projects (RCBP)

- Number of awards: Up to 4
- Project length: Two years
- Award size: Up to \$400,000

Thread 2: Demonstration Projects (DP)

- Number of awards: Up to 10
- Project length: Three years
- Award size: Up to \$600,000

Thread 3: Research Partnerships Enhancement Projects (RPEP)

- Number of awards: 2 - 3
- Project length: Up to four years

- Award size: Up to \$1,200,000

Anticipated Funding Amount: \$7,000,000

Estimated program budget, number of awards and average award size/duration are subject to the availability of funds and quality of proposals received. An estimated 12 to 17 projects per year will be funded, 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. **Only Historically Black Colleges and Universities (HBCUs), Hispanic-Serving Institutions (HSIs), and Tribal College & Universities (TCUs) are eligible to submit proposals to this solicitation and/or serve as the lead organization of a separately-submitted collaborative proposal.** Non-MSIs and other MSIs which are not listed in this solicitation are welcome to partner with HBCUs, HSIs and TCUs on this solicitation via subawards or collaborative proposals as non-lead organizations.

Who May Serve as PI:

A MSI faculty member should serve as the lead principal investigator(s) on any proposal submission.

Limit on Number of Proposals per Organization:

Institutions that have received an NSF award in the CISE programs within the last five years listed in Section II are ineligible to serve as lead institutions, **but may participate as collaborators.**

There are also *institutional* limits based on how many active awards an institution has from the CISE-MSI program as noted below:

Research Capacity Building Planning Projects (RCBP) Track: Institutions with two or more active RCBP awards are ineligible to be lead institutions for *new* RCBP proposals.

Demonstration Projects (DP) Track: Institutions with two or more active DP awards are ineligible to be lead institutions in *new* DP proposals.

Research Partnerships Enhancement Projects (RPEP) Track: Institutions with one or more active RPEP awards are ineligible to be lead institutions for *new* RPEP proposals.

For all three Tracks, ineligible institutions are encouraged to submit to larger-budget CISE-MSI tracks as well as to the CISE programs noted in Section II of this solicitation.

Limit on Number of Proposals per PI or co-PI: 2

In each annual competition, an individual may participate in at most two proposals, across all solicitation threads, as PI, co-PI, or Senior Personnel.

These eligibility constraints will be strictly enforced in order to treat everyone fairly and consistently. Any proposal that exceeds this limit at the time of submission for any PI, co-PI, or Senior Personnel will be returned without review. **No exceptions will be made.**

Additional Eligibility Info:

MSIs, for the purposes of this solicitation, include Historically Black Colleges and Universities (HBCUs), Hispanic-Serving Institutions (HSIs), and Tribal College & Universities (TCUs) as defined in Section I. Introduction.

Institutions must satisfy the definition of an MSI (HBCU, HSI or TCU) defined earlier in this solicitation (See Section I). The MSI Certification Form is required with submission of the proposal. (See Section V of the solicitation.)

For MSI certification, a representative of the institution (e.g., Sponsored Research Officer or higher) must sign a Certification of MSI Eligibility (see Section V below for the required template) to be included in the Supplementary Documentation section of the proposal.

These eligibility constraints will be strictly enforced in order to treat everyone fairly and consistently. *While non-MSIs may participate in this program, their participation should be clearly justified in terms of how these collaborations foster research capacity at MSIs.* In the event that an organization does not meet these constraints, the proposals will be returned without review. **No exceptions will be made.**

Awards associated with this solicitation are not transferable to other institutions.

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=papppg. 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.

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

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

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

Proposal Titles:

Proposal titles must begin with **CISE-MSI** followed by a colon, then the Thread acronym (e.g., **RCBP-ED**, **RCBP-RF**, **DP**, or **RPEP**) followed by a colon, the acronym(s) of the intended CISE program(s) from the list noted in Section II. Program Description, and then the title of the project. For example, if you are submitting a proposal for a **RPEP** project with CPS as the intended program, then the title of the proposal would be **CISE-MSI: RPEP: CPS: Title**. If a proposal is submitted as part of a set of collaborative proposals, the title of the proposal must begin with **Collaborative Research** followed by a colon, then **CISE-MSI** followed by a colon, then the Thread acronym followed by a colon, the acronym(s) of the intended CISE program(s) from the list noted in Section II. Program Description, and then the title of the project. For example, if you are submitting a collaborative set of proposals for a **DP** project with SaTC as the intended program, then the title of each collaborative proposal would be **Collaborative Research: CISE-MSI: DP: SaTC: Title**. Please note that if submitting via Research.gov, the system will automatically insert the prepended title "Collaborative Research" when the collaborative set of proposals is created.

Project Summary:

At the beginning of the Overview section of the Project Summary, enter the title of the CISE-MSI project and Thread, the acronym(s) of the intended CISE program(s) (e.g., CPS, SaTC), the name of the PI, and the lead organization. Provide a summary description of the CISE-MSI project, including any department, organizational or cross-organizational collaborative research and/or enhancement/development goals, and expected impacts by its results.

If cloud computing resources are being requested from CloudBank, then the keyword "CloudAccess" (one word without space) should be included at the end of the Overview section (before the section on Intellectual Merit) of the Project Summary page.

Project Description:

In the first paragraph of the Project Description, identify the intended CISE program(s) (e.g., CPS, SaTC). The description **must** indicate how the proposed research will foster department and/or organizational research capacity.

Institutional Data Narrative

The Project Description must include institutional data with a narrative describing and contextualizing the institution's need for the proposed project and potential to build research capacity and partnerships.

There is a 15-page limit for the Project Description. Proposals that exceed this limit will be returned without review.

Budget:

The total budget of the project, *including any cloud computing resource request from CloudBank*, may not exceed the corresponding budget limits described elsewhere in this solicitation. However, the costs of the cloud computing resources requested from CloudBank should not be included in the NSF budget, and should be specified only in the associated supplementary document (see below for additional instructions).

Supplementary Documents:

In the Supplementary Documents Section, upload the following:

(1) A list of Project Personnel and Partner Institutions (Note: In collaborative proposals, the lead institution should provide this information for all participants):

Provide current, accurate information for all personnel and institutions involved in the project. NSF staff will use this information in the merit review process to manage reviewer selection. The list should include all PIs, co-PIs, Senior Personnel, paid/unpaid Consultants or Collaborators, Subawardees, Postdocs, and project-level advisory committee members. This list should be numbered and include (in this order) Full name, Organization(s), and Role in the project, with each item separated by a semi-colon. Each person listed should start a new numbered line. For example:

- Mary Smith; XYZ University; PI
- John Jones; University of PQR; Senior Personnel
- Jane Brown; XYZ University; Postdoc
- Bob Adams; ABC Community College; Paid Consultant
- Susan White; DEF Corporation; Unpaid Collaborator
- Tim Green; ZZZ University; Subawardee

(2) Collaboration Plans:

Note: In collaborative proposals, the lead institution should provide this information for all participants.

Since the success of collaborative research efforts are known to depend on thoughtful coordination mechanisms that regularly bring together the various participants of the project, **proposals in all threads** must include a Collaboration Plan of up to 3 pages. The length of and degree of detail provided in the Collaboration Plan should be commensurate with the complexity of the proposed project. Where appropriate, the Collaboration Plan might include: 1) the specific roles of the project participants in all organizations involved; 2) information on how the project will be managed across all the investigators, institutions, and/or disciplines; 3) identification of the specific coordination mechanisms that will enable cross-investigator, cross-institution, and/or cross-discipline scientific integration (e.g., yearly workshops, graduate student exchange, project meetings at conferences, use of the grid for videoconferences, software repositories, etc.); 4) specific references to the budget line items that support collaboration and coordination mechanisms; and 5) a description of the sustainability plan for the research efforts proposed.

If a proposal does not include a Collaboration Plan of up to 3 pages, that proposal will be returned without review.

(3) Data Management Plan (required):

Proposals must include a Supplementary Document of no more than two pages labeled "Data Management Plan." This supplementary document should describe how the proposal will conform to NSF policy on the dissemination and sharing of research results.

See Chapter II.C.2.j of the PAPPG for full policy implementation.

For additional information on the Dissemination and Sharing of Research Results, see: <https://www.nsf.gov/bfa/dias/policy/dmp.jsp>.

For specific guidance for Data Management Plans submitted to the Directorate for Computer and Information Science and Engineering (CISE) see: https://www.nsf.gov/cise/cise_dmp.jsp.

(4) Cloud Computing Resources (if applicable):

If requesting cloud computing resources, include a description of the request (not to exceed two pages) as a Supplementary Document that includes the: (1) title of the proposal; (2) institution name; (3) anticipated total cost of computing resources, with yearly breakdown; (4) specific cloud computing providers that will be used; and (5) technical description and justification of the request, along with how the cost was estimated. The NSF Budget should not include any costs for accessing cloud computing resources via CloudBank. The total cost of the project, including this cloud computing resource request, may not exceed the budget limits for the chosen project class, as described in this solicitation. Proposers should include "CloudAccess" (one word without space) as a keyword on the Project Summary page, at the end of the Overview section (before the section on Intellectual Merit).

(5) Departmental Letter: To demonstrate the department's support of the research of the PI(s), proposals must include one (and only one) letter from the lead PI's department head (or equivalent organizational official). In cases where the PI is the department head, a letter from the PI's associate dean or dean should be included. The letter, which will be included as part of the consideration and commitment of the overall merits of the proposal, should demonstrate an understanding of, and a commitment to, building departmental and/or organizational research capacity to enable the proposed work as indicated in the proposal submission. The Departmental Letter should be no more than 1 page in length and include the department head's (or equivalent organizational official's) name and title below the signature.

If a proposal does not include a Departmental Letter of up to 1 page, that proposal will be returned without review.

(6) Certification of MSI Eligibility:

A Certification of MSI Eligibility, **following the format below and executed by an Authorized Organizational Representative (or higher institutional leader)**, must be included with all lead proposals. A current, signed Certification, included on organizational letterhead, should be scanned and included as a PDF file.

Certification of MSI Eligibility

By submission of this proposal, the organization hereby certifies that the originating and managing organization is an accredited college or university and is, in fact, a HBCU, HSI, or TCU as defined in the CISE-MSI program solicitation. Further, the institution has not received an NSF/CISE award from any of the programs listed in Section II. Program Description in the past 5 years.

Authorized Organizational Representative/Institutional Leader

Typed Name and Title

Signature

Date

If a proposal does not include the Certification of MSI Eligibility for the lead institution, that proposal will be returned without review.

B. Budgetary Information

Cost Sharing:

Inclusion of voluntary committed cost sharing is prohibited.

C. Due Dates

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

February 11, 2022

Second Friday in February, Annually Thereafter

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/ProposalPreparationandSubmission.html. For Research.gov user support, call the Research.gov Help Desk at 1-800-673-6188 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 the NSF FastLane system for further processing.

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 *Building the Future: Investing in Discovery and Innovation - NSF Strategic Plan for Fiscal Years (FY) 2018 – 2022*. These strategies are integrated in the program planning and implementation process, of which proposal review is one part. NSF's mission is particularly well-implemented through the integration of research and education and broadening participation in NSF programs, projects, and activities.

One of the strategic objectives in support of NSF's mission is to foster integration of research and education through the programs, projects, and activities it supports at academic and research institutions. These institutions must recruit, train, and prepare a diverse STEM workforce to advance the frontiers of science and participate in the U.S. technology-based economy. NSF's contribution to the national innovation ecosystem is to provide cutting-edge research under the guidance of the Nation's most creative scientists and engineers. NSF also supports development of a strong science, technology, engineering, and mathematics (STEM) workforce by investing in building the knowledge that informs improvements in STEM teaching and learning.

NSF's mission calls for the broadening of opportunities and expanding participation of groups, institutions, and geographic regions that are underrepresented in STEM disciplines, which is essential to the health and vitality of science and engineering. NSF is committed to this principle of diversity and deems it central to the programs, projects, and activities it considers and supports.

A. Merit Review Principles and Criteria

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

1. Merit Review Principles

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

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

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

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

2. Merit Review Criteria

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

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

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

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

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

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

Broader impacts may be accomplished through the research itself, through the activities that are directly related to specific research projects, or through activities that are supported by, but are complementary to, the project. NSF values the advancement of scientific knowledge and activities that contribute to achievement of societally relevant outcomes. Such outcomes include, but are not limited to: full participation of women, persons with disabilities, and 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

All RPEP (Thread-3) proposals will also be evaluated based on:

Collaborative partnerships

Proposals funded by this solicitation must demonstrate collaborative partnerships across MSI departments/units, across MSIs, and/or between one or more MSIs and other research-intensive organizations.

MSI student research involvement

Projects should involve MSI undergraduate and/or graduate students depending on the thread selected and foster fundamental contributions to computing and information disciplines as defined by the CISE directorate.

Multi-disciplinary efforts

The collaboration plan should demonstrate active participation of multi-disciplinary groups, which includes, but is not limited to: computing and information science researchers; computer and other engineering; physical, biological science; social scientists; and other necessary research expertise. The collaboration plan should demonstrate the extent to which the group is integrated, has a common focus and the quality of the plan for management and collaboration.

The Collaboration Plan included as a Supplementary Document should demonstrate the extent to which the research team is integrated, has a common focus, and has a plan for continuing that integration and focus. The Collaboration Plan should also include evidence of collaborative partnership(s) and MSI student research involvement.

For RPEP proposals, reviewers will be asked to evaluate the likelihood that a given proposal will result in a transformative impact in the participating organizations. Program Description, and the potential for such partnerships to be sustained beyond the duration of the RPEP.

RCBP (Thread-1) and DP (Thread-2) projects will NOT be evaluated based on the *Collaborative partnerships and MSI student research involvement*. Multi-disciplinary groups are not a requirement for RCBP (Thread-1) and DP (Thread-2) projects, but are not discouraged.

B. Review and Selection Process

Proposals submitted in response to this program solicitation will be reviewed by Ad hoc Review and/or Panel Review.

Reviewers will be asked to evaluate proposals using two National Science Board approved merit review criteria and, if applicable, additional program specific criteria. A summary rating and accompanying narrative will generally be completed and submitted by each reviewer and/or panel. The Program Officer assigned to manage the proposal's review will consider the advice of reviewers and will formulate a recommendation.

After scientific, technical and programmatic review and consideration of appropriate factors, the NSF Program Officer recommends to the cognizant Division Director whether the proposal should be declined or recommended for award. NSF strives to be able to tell applicants whether their proposals have been declined or recommended for funding within six months. Large or particularly complex proposals or proposals from new awardees may require additional review and processing time. The time interval begins on the deadline or target date, or receipt date, whichever is later. The interval ends when the Division Director acts upon the Program Officer's recommendation.

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

Once an award or declination decision has been made, Principal Investigators are provided feedback about their proposals. In all cases, reviews are treated as confidential documents. Verbatim copies of reviews, excluding the names of the reviewers or any reviewer-identifying information, are sent to the Principal Investigator/Project Director by the Program Officer. In addition, the proposer will receive an explanation of the decision to award or decline funding.

VII. AWARD ADMINISTRATION INFORMATION

A. Notification of the Award

Notification of the award is made to *the submitting organization* by a Grants Officer in the Division of Grants and Agreements. Organizations whose proposals are declined will be advised as promptly as possible by the cognizant NSF Program administering the program. Verbatim copies of reviews, not including the identity of the reviewer, will be provided automatically to the Principal Investigator. (See Section VI.B. for additional information on the review process.)

B. Award Conditions

An NSF award consists of: (1) the award notice, which includes any special provisions applicable to the award and any numbered amendments thereto; (2) the budget, which indicates the amounts, by categories of expense, on which NSF has based its support (or otherwise communicates any specific approvals or disapprovals of proposed expenditures); (3) the proposal referenced in the award notice; (4) the applicable award conditions, such as Grant General Conditions (GC-1)*; or Research Terms and Conditions* and (5) any announcement or other NSF issuance that may be incorporated by reference in the award notice. Cooperative agreements also are administered in accordance with NSF Cooperative Agreement Financial and Administrative Terms and Conditions (CA-FATC) and the applicable Programmatic Terms and Conditions. NSF awards are electronically signed by an NSF Grants and Agreements Officer and transmitted electronically to the organization via e-mail.

*These documents may be accessed electronically on NSF's Website at https://www.nsf.gov/awards/managing/award_conditions.jsp?org=NSF. Paper copies may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-8134 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

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.

C. Reporting Requirements

For all multi-year grants (including both standard and continuing grants), the Principal Investigator must submit an annual project report to the cognizant Program Officer no later than 90 days prior to the end of the current budget period. (Some programs or awards require submission of more frequent project reports). No later than 120 days following expiration of a grant, the PI also is required to submit a final project report, and a project outcomes report for the general public.

Failure to provide the required annual or final project reports, or the project outcomes report, will delay NSF review and processing of any future funding increments as well as any pending proposals for all identified PIs and co-PIs on a given award. PIs should examine the formats of the required reports in advance to assure availability of required data.

PIs are required to use NSF's electronic project-reporting system, available through Research.gov, for preparation and submission of annual and final project reports. Such reports provide information on accomplishments, project participants (individual and organizational), publications, and other specific products and impacts of the project. Submission of the report via Research.gov constitutes certification by the PI that the contents of the report are accurate and complete. The project outcomes report also must be prepared and submitted using Research.gov. This report serves as a brief summary, prepared specifically for the public, of the nature and outcomes of the project. This report will be posted on the NSF website exactly as it is submitted by the PI.

More comprehensive information on NSF Reporting Requirements and other important information on the administration of NSF awards is contained in the *NSF Proposal & Award Policies & Procedures Guide* (PAPPG) Chapter VII, available electronically on the NSF Website at https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg.

VIII. AGENCY CONTACTS

Please note that the program contact information is current at the time of publishing. See program website for any updates to the points of contact.

General inquiries regarding this program should be made to:

- Subrata Acharya, Lead, Program Director, CISE/CNS, telephone: (703) 292-2451, email: acharyas@nsf.gov
- Michelle L. Rogers, Program Director, CISE/CNS, telephone: (703) 292-7786, email: mlrogers@nsf.gov
- Ephraim P. Glinert, Program Director, CISE/IIS, telephone: (703) 292-4341, email: eglinert@nsf.gov
- James E. Fowler, Program Director, CISE/CCF, telephone: (703) 292-8910, email: jafowler@nsf.gov
- Deepankar Medhi, Program Director, CISE/CNS, telephone: (703) 292-2935, email: dcosley@nsf.gov
- Juan J. Li, Program Director, CISE/OAC, telephone: (703) 292-2625, email: jjli@nsf.gov

For questions related to the use of FastLane or Research.gov, contact:

- FastLane and Research.gov Help Desk: 1-800-673-6188
- FastLane Help Desk e-mail: fastlane@nsf.gov
- 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 (FASSED) provide funding for special assistance or equipment to enable persons with disabilities to work on NSF-supported projects. See the *NSF Proposal & Award Policies & Procedures Guide* Chapter II.E.6 for instructions regarding preparation of these types of proposals.

The National Science Foundation has Telephonic Device for the Deaf (TDD) and Federal Information Relay Service (FIRS) capabilities that enable individuals with hearing impairments to communicate with the Foundation about NSF programs, employment or general information. TDD may be accessed at (703) 292-5090 and (800) 281-8749, FIRS at (800) 877-8339.

The National Science Foundation Information Center may be reached at (703) 292-5111.

The National Science Foundation promotes and advances scientific progress in the United States by competitively awarding grants and cooperative agreements for research and education in the sciences, mathematics, and engineering.

To get the latest information about program deadlines, to download copies of NSF publications, and to access abstracts of awards, visit the NSF Website at <https://www.nsf.gov>

- **Location:** 2415 Eisenhower Avenue, Alexandria, VA 22314
- **For General Information** (NSF Information Center): (703) 292-5111
- **TDD (for the hearing-impaired):** (703) 292-5090
- **To Order Publications or Forms:**
 - Send an e-mail to: nsfpubs@nsf.gov
 - or telephone: (703) 292-8134
- **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 awardees will be used for program evaluation and reporting within the Executive Branch and to Congress. The information requested may be disclosed to qualified reviewers and staff assistants as part of the proposal review process; to proposer institutions/grantees to provide or obtain data regarding the proposal review process, award decisions, or the administration of awards; to government contractors, experts, volunteers and researchers and educators as necessary to complete assigned work; to other government agencies or other entities needing information regarding applicants or nominees as part of a joint application review process, or in order to coordinate programs or policy; and to another Federal agency, court, or party in a court or Federal administrative proceeding if the government is a party. Information about Principal Investigators may be added to the Reviewer file and used to select potential candidates to serve as peer reviewers or advisory committee members. See [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

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Tel: (703) 292-5111, FIRS: (800) 877-8339 | TDD: (703) 292-5090 or (800) 281-8749

[Text Only](#)

