

Harnessing the Data Revolution (HDR): Data Science Corps (DSC)

Building Capacity for HDR

PROGRAM SOLICITATION

NSF 21-523

REPLACES DOCUMENT(S):

NSF 19-518



National Science Foundation

Submission Window Date(s) (due by 5 p.m. submitter's local time):

January 26, 2021 - February 12, 2021

IMPORTANT INFORMATION AND REVISION NOTES

This is a revision of [NSF 19-518](#), the solicitation for Harnessing the Data Revolution (HDR): Data Science Corps (DSC) Building Capacity for HDR. As part of this revision, proposers are encouraged to pay particular attention to the following:

- Typical award size has been revised.
- The solicitation expands the pipeline to include undergraduate and Master's degree students.
- The roles of lead versus collaborating organizations have been clarified.
- Solicitation-specific criteria have been revised.
- Pls are prompted to prepare for a hybrid platform that combines in-person and remote learning for at least the first two years of the award.

Any proposal submitted in response to this solicitation should be submitted in accordance with the revised *NSF Proposal & Award Policies & Procedures Guide* (PAPPG) ([NSF 20-1](#)), which is effective for proposals submitted, or due, on or after June 1, 2020.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Harnessing the Data Revolution (HDR): Data Science Corps (DSC)
Building Capacity for HDR

Synopsis of Program:

In 2016, the National Science Foundation (NSF) unveiled a set of "Big Ideas," ten bold, long-term research and process ideas that identify areas for future investment at the frontiers of science and engineering (see https://www.nsf.gov/news/special_reports/big_ideas/index.jsp). The Big Ideas represent unique opportunities to position our Nation at the cutting edge of global science and engineering by bringing together diverse disciplinary perspectives to support convergence research. When responding to this solicitation, even though proposals must be submitted through the **Directorate for Computer and Information Science and Engineering, Division of Information and Intelligent Systems (CISE/IIS)**, once received, the proposals will be managed by a cross-disciplinary team of NSF Program Directors.

NSF's *Harnessing the Data Revolution (HDR) Big Idea* is a national-scale activity to enable new modes of data-driven discovery that will allow fundamental questions to be asked and answered at the frontiers of science and engineering. In 2019, the HDR Big Idea launched three parallel efforts in pursuit of these aims: Institutes for Data-Intensive Research in Science and Engineering (I-DIRSE), HDR: Transdisciplinary Research In Principles Of Data Science Phase I (HDR TRIPODS Phase I), and Data Science Corps (DSC).

The *Data Science Corps* is one of the components of the HDR ecosystem enabling education and workforce development by focusing on building capacity for harnessing the data revolution at the local, state, and national levels to help unleash the power of data in the service of science and society. The *Data Science Corps* will provide practical experiences, teach new skills, and offer learning opportunities in different settings. This solicitation prompts the community to envision creative educational pathways that will transform data science education and expand the data science talent pool by enabling the participation of undergraduate and Master's degree students with diverse backgrounds, experiences, skills, and technical maturity in the *Data Science Corps*. These activities are envisioned to be inherently collaborative, with a lead organization and one or more collaborating organizations.

Contact Information:

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

- General inquiries may be addressed to HDR-DSC@nsf.gov.

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.

- Amarda Shehu, Program Director, CISE/IIS, telephone: (703) 292-8191, email: ashehu@nsf.gov
- Sylvia Spengler, Program Director, CISE/IIS, telephone: (703) 292-7347, email: sspengle@nsf.gov
- Christopher Stark, Program Director, MPS/DMS, telephone: (703) 292-4869, email: cstark@nsf.gov
- Paul Tymann, Program Director, EHR/DUE, telephone: (703) 292-2832, email: ptymann@nsf.gov
- Cheryl L. Eavey, Program Director, SBE/SES, telephone: (703) 292-7269, email: ceavey@nsf.gov
- Kevin Chou, Program Director, ENG/CMMI, telephone: (703) 292-8360, email: [ychou@nsf.gov](mailto:yhou@nsf.gov)
- Colleen Strawhacker, Program Director, GEO/OPP, telephone: (703) 292-7432, email: colstraw@nsf.gov

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

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

Award Information

Anticipated Type of Award:

Standard Grant or Continuing Grant

Estimated Number of Awards: 8 to 10

Eight to ten *Data Science Corps* project awards are anticipated, for three years each, subject to the availability of funds.

Anticipated Funding Amount: \$12,000,000

Up to \$12,000,000 is expected to be available for eight to ten awards, for three years each, subject to availability of funds. Awards will typically be in the range of \$1,200,000 to \$1,500,000, for three years.

Eligibility Information

Who May Submit Proposals:

Proposals may only be submitted by the following:

- Institutions of Higher Education (IHEs) - Two- and four-year IHEs (including community colleges) accredited in, and having a campus located in the US, acting on behalf of their faculty members. Special Instructions for International Branch Campuses of US IHEs: If the proposal includes funding to be provided to an international branch campus of a US institution of higher education (including through use of subawards and consultant arrangements), the proposer must explain the benefit(s) to the project of performance at the international branch campus, and justify why the project activities cannot be performed at the US campus.
- Non-profit, non-academic organizations: Independent museums, observatories, research labs, professional societies and similar organizations in the U.S. associated with educational or research activities.

Who May Serve as PI:

There are no restrictions or limits.

Limit on Number of Proposals per Organization:

There are no restrictions or limits.

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

An individual may participate in only one proposal as Principal Investigator, co-Principal Investigator, or Senior Personnel of a lead

organization. This eligibility constraint will be strictly enforced to treat everyone fairly and consistently. In the event that an individual exceeds this limit, any proposal submitted after the first proposal is received at NSF 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 FastLane: *NSF Proposal and Award Policies and Procedures Guide* (PAPPG) guidelines apply. The complete text of the PAPPG is available electronically on the NSF website at: https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg.
 - Full Proposals submitted via 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

- **Submission Window Date(s)** (due by 5 p.m. submitter's local time):

January 26, 2021 - February 12, 2021

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:

Standard NSF reporting requirements apply.

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I. INTRODUCTION

Effective data analytics has become a significant new competitive advantage across all sectors of society. Some of the most advanced enterprises in the world are analyzing terabytes to petabytes of data and using machine learning and predictive analytics to gain insights, offer more efficient services, anticipate user needs, and provide “intelligent” services/assistants. Proficiency in data analysis and data-driven decision making is increasingly becoming a critical skill for everyone. Furthermore, advanced economies are increasingly characterized by their ability to provide access to *open data*, and the ability to exploit such data for the benefit of society, industry, government, and science. Yet, the benefits of data science are unevenly distributed across different communities. Although several of the world’s most valuable organizations are known for their ability to exploit data assets, there are many cases in which data may be collected but are not used to full potential, or not used at all. Sometimes, the data that are collected are simply unusable, or the data analytics skills needed to use the data are unavailable. In other cases, even the most rudimentary approaches to data collection have not yet begun, though the data could produce improvements and innovations.

The objective of the *Data Science Corps* is to help build a strong, national data science infrastructure and workforce. The *Data Science Corps* aims to engage data science students and professionals in real-world data science implementation projects. This engagement will help bridge the data-to-knowledge gap in organizations and communities at all levels, including local, state, and national. These projects will empower better use of data assets for more effective decision making. *Data Science Corps* participants will be able to sharpen their skills in data science by working on real-world projects focused on specific community needs, including rural communities, urban communities, academia, industry, or government. These efforts may also include providing hands-on training and assistance to help community members implement best practices in data collection, data management, data analysis, and data-driven decision making. The interactions between data scientists and communities will be mutually beneficial. As a result, the interactions will support transfer of data science knowledge, skills, and outcomes to local communities, while providing insights and practical experience to participating data scientists and data science students. This partnership between communities and data scientists can serve the nation by helping produce a better workforce-ready cohort of data scientists, who have experience with data science in action in “real-world” settings.

II. PROGRAM DESCRIPTION

This solicitation focuses on providing data science training to undergraduate and Master’s degree students. Such training is envisioned via flexible educational pathways with multiple points of entry to support varied educational backgrounds and experiences, skill level, and technical maturity among undergraduate and Master’s degree students interested in data science. Effective pathways provide students with data science expertise in a tiered manner in support of building a diverse workforce trained in data management, data analytics, and data-driven decision-making.

Effective pathways additionally include mechanisms via which students engage with stakeholder communities and obtain immersive educational experiences via hands-on training on real-world problems and data generated by and of importance to communities at all levels, thus expanding the supply of data science talent in support of local, regional, and national economies and society at large. Such immersive educational experiences should additionally establish the central role of ethics in data science training. Competitive proposals are expected to pay careful attention to ethics and include mechanisms for instilling and cultivating ethics across the proposed educational experiences.

Projects responding to this solicitation should address the inherent interdisciplinarity of data science and expose students to a variety of disciplinary approaches to data management, analytics, and decision-making in their training. In addition, PIs are encouraged to consider their role in the broader HDR ecosystem. One way of doing so can be by engaging HDR institutes, which can provide interdisciplinary expertise, community-driven problems, and diverse datasets. NSF also welcomes proposals that provide data science training to drive student enquiry and innovation in diverse scientific and engineering disciplines.

To support development of a diverse STEM workforce, prospective PIs are encouraged to expand the participation of diverse students in the *Data Science Corps* and broaden opportunities to groups, institutions, and geographic regions that are not yet fully represented in STEM disciplines. Projects should also support diversity among participating organizations, including collaborations across different types of Institutes of Higher Education (e.g., research universities, two- and four-year colleges, and Minority-Serving Institutions). These efforts should be described in the Management and Coordination Plan to be submitted as a Supplementary Document.

Projects responding to this solicitation are expected to bring together diverse organizations that engage in a tight and meaningful collaboration activity, with one organization designated as the lead organization and the others designated as collaborating organizations. Participating organizations may participate in a project via sub-awards or as part of a set of separately-submitted collaborative proposals.

Program Structure

As part of the HDR ecosystem, all *Data Science Corps* awards are expected to coordinate with the larger HDR community. Such coordination will be facilitated by a nationwide HDR Coordination Hub, [HDR Central](#), which is being funded under a separate program solicitation ([NSF20-600](#)). The overarching purpose of HDR Central will be to increase the impact of the HDR Big Idea by coordinating communication and resource sharing among all HDR projects, including sharing the HDR efforts with the public. One or more award participants, including the project PI, will be expected to attend the annual HDR meeting to exchange effective practices, curricula, assessment strategies, as well as challenges.

All proposed projects should include plans for activities that can be carried out in hybrid platforms that combine virtual with in-person participation or fully virtual platforms, for at least the first two years of the award. The proposal should clearly demonstrate that the planned activities can be carried out effectively, should

public health guidelines limit in-person meetings. PIs are additionally encouraged to include mitigation strategies to ensure equitable participation of all students.

Project Structure

Proposed projects must include a lead organization and one or more collaborating organizations. *Proposals involving collaborations with Minority-Serving Institutions and focusing on underserved communities/organizations are especially encouraged.*

Where available, projects are encouraged to consult their institutional office of community engagement. Additional resources that may be useful to PIs preparing to respond to this solicitation include:

- The recent National Academies of Sciences, Engineering, and Medicine “Envisioning the Data Science Discipline: The Undergraduate Perspective: Interim Report” (<https://www.nap.edu/catalog/24886/envisioning-the-data-science-discipline-the-undergraduate-perspective-interim-report>). The report offers perspectives on the current state of data science education, poses important questions that may shape the way data science education evolves in the future, and sets forth a vision for the emerging discipline of data science at the undergraduate level.
- The National Academies of Sciences, Engineering, and Medicine “Data Science for Undergraduates: Opportunities and Options” Consensus Study Report (<https://www.nap.edu/catalog/25104/data-science-for-undergraduates-opportunities-and-options>). The report additionally outlines some considerations and approaches for academic institutions and others in the broader data sciences communities to transform data science education at the undergraduate level and expand the supply of data science talent.
- The Committee on STEM Education of the National Science and Technology Council’s five-year strategic plan, “Charting a Course for Success: America’s Strategy for STEM Education” (<https://www.whitehouse.gov/wp-content/uploads/2018/12/STEM-Education-Strategic-Plan-2018.pdf>). The report is one of many resources available to prospective PIs to situate their activities within and building upon the scientific knowledge base of effective STEM education practices.
- Additional references can be obtained from searches of scholarly literature for publications on service-learning, community-based learning, data science education, and diversity, equity, and inclusion in STEM. The publications and other resources that provide the project’s educational context should be included in the references.

It is expected that the lead organization and the collaborating organizations will work together on the overall *Data Science Corps* award, including the details of introducing *Data Science Corps* into existing courses and adjusting existing course curricula accordingly, identifying suitable activities for hands-on student training, as well as developing a common set of criteria for recruiting and incentivizing the participation of students at the various organizations.

A specific *Data Science Corps* activity for hands-on student training could be included in multiple data science (or related) courses within a given organization. For example, the project may be introduced in an introductory course and then extended in an advanced course, thus providing multiple learning experiences that develop students’ increasing expertise in data-to-knowledge-to-discovery in a real-world context. Similarly, a *Data Science Corps* project could also be included in courses at multiple organizations or in multiple academic programs across an institution, including both graduate and undergraduate courses.

The lead organization and the collaborating organizations are expected to work closely with one another on designing effective practices for preparing participants who have different levels of skill and technical expertise, as well as on effective practices for development of *Data Science Corps* projects. These collaborating activities should be described in the Management and Coordination Plan. This plan should also describe how the undertaken activities ensure broad representation across diverse groups and institutions underrepresented in STEM.

Additional responsibilities of lead organization. The lead PI’s organization will undertake additional responsibilities related to coordination, monitoring, and evaluation of the award. In particular, the lead organization should:

- Coordinate the award and provide necessary faculty professional development and mentoring:
 - Work closely with the collaborating organization(s) to execute the overall award and develop criteria for recruiting and incentivizing the participation of students at the various organizations; and
 - As necessary, organize and coordinate faculty professional development and mentoring to help them prepare their students for community engagement and technical components of the project.
- Curate and publish information to the *Data Science Corps* community:
 - Disseminate information about specific projects and project organizations that can potentially serve as sources of *Data Science Corps* projects. A growing knowledge base of effective practices would increase the effectiveness of the NSF *Data Science Corps* program in accomplishing its overall mission and objectives. Projects and project organizations could additionally use this information to accommodate *Data Science Corps* students/participants at various skill levels in *Data Science Corps* projects more effectively.

Role of one or more collaborating organization(s). Each project must include at least one collaborating organization, which will implement *Data Science Corps* in one or more of its data science (or related) courses. As described previously, these courses may range from introductory to advanced courses, including capstone courses and associated projects. The collaborating organization(s) should:

- Prepare students/participants for participation in the *Data Science Corps* projects, as well as mentor student participants while they are in the program and working on projects;
- Contribute to the curation and publication of information by the lead organization, as described above.

Assessment of Student Learning and Program Evaluation

Data Science Corps awards must assess student learning and other outcomes, as well as evaluate overall project effectiveness. (Please see <https://www.purdue.edu/research/docs/pdf/2010NSFuser-friendlyhandbookforprojectevaluation.pdf> for more information about program evaluation.)

Student assessment should aim to answer the following types of questions:

- What is the impact of the *Data Science Corps* experience on student gains in data science knowledge?
- What is the impact of the *Data Science Corps* experience on student gains in areas such as teamwork, entrepreneurship, critical thinking, communication, collaboration, creativity, and ethics?
- Has the *Data Science Corps* increased student persistence, including employment prospects and furthering education, in a Science, Technology, Engineering, and Mathematics (STEM) related career path?

Award evaluation efforts should address issues related to the overall impact of the *Data Science Corps*. Examples of relevant questions include:

- Did the award reach its goals? Why or why not?
- Has the award been effective at developing models for communication and engagement among disciplines at the student level and among faculty?

III. AWARD INFORMATION

Up to \$12,000,000 is expected to be available for eight to ten awards, for three years each, subject to availability of funds. Awards will typically be in the range of \$1,200,000 to \$1,500,000, for three years.

IV. ELIGIBILITY INFORMATION

Who May Submit Proposals:

Proposals may only be submitted by the following:

- Institutions of Higher Education (IHEs) - Two- and four-year IHEs (including community colleges) accredited in, and having a campus located in the US, acting on behalf of their faculty members. Special Instructions for International Branch Campuses of US IHEs: If the proposal includes funding to be provided to an international branch campus of a US institution of higher education (including through use of subawards and consultant arrangements), the proposer must explain the benefit(s) to the project of performance at the international branch campus, and justify why the project activities cannot be performed at the US campus.
- Non-profit, non-academic organizations: Independent museums, observatories, research labs, professional societies and similar organizations in the U.S. associated with educational or research activities.

Who May Serve as PI:

There are no restrictions or limits.

Limit on Number of Proposals per Organization:

There are no restrictions or limits.

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

An individual may participate in only one proposal as Principal Investigator, co-Principal Investigator, or Senior Personnel of a lead organization. This eligibility constraint will be strictly enforced to treat everyone fairly and consistently. In the event that an individual exceeds this limit, any proposal submitted after the first proposal is received at NSF will be returned without review. No exceptions will be made.

Additional Eligibility Info:

Proposals from Minority Serving Institutions are particularly welcome.

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 FastLane, Research.gov, or Grants.gov.

- Full proposals submitted via FastLane: Proposals submitted in response to this program solicitation should be prepared and submitted in accordance with the general guidelines contained in the *NSF Proposal & Award Policies & Procedures Guide* (PAPPG). The complete text of the PAPPG is available electronically on the NSF website at: https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg. Paper copies of the PAPPG may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-8134 or by e-mail from nsfpubs@nsf.gov. Proposers are reminded to identify this program solicitation number in the program solicitation block on the NSF Cover Sheet For Proposal to the National Science Foundation. Compliance with this requirement is critical to determining the relevant proposal processing guidelines. Failure to submit this information may delay processing.
- Full Proposals submitted via 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.

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 FastLane or 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.

Special instructions for submitting to this Big Idea solicitation

FastLane Users: Proposers are reminded to identify the program solicitation number (located on the first page of this document) in the first block on the NSF Cover Sheet. Compliance with this requirement is critical to determining the relevant proposal processing guidelines. Please note that even though proposals must be submitted to **CISE/IIS**, once received the proposals will be managed by a cross-disciplinary team of NSF Program Directors.

Research.gov Users: The Prepare New Proposal setup will prompt you for the program solicitation number (located on the first page of this document). Compliance with this requirement is critical to determining the relevant proposal processing guidelines. As stated previously, even though proposals must be submitted to **CISE/IIS**, once received the proposals will be managed by a cross-disciplinary team of NSF Program Directors.

Grants.gov Users: The program solicitation number will be pre-populated by Grants.gov on the NSF Grant Application Cover Page, however you will need to locate the Division Code, Program Code, Division Name, and Program Name for the specific solicitation you are applying to by visiting <https://www.fastlane.nsf.gov/pgmannounce.jsp>. As stated previously, even though proposals must be submitted to **CISE/IIS**, once received the proposals will be managed by a cross-disciplinary team of NSF Program Directors.

1. **Proposal Title.** Proposal titles should begin with "HDR DSC" followed with a colon, then the title of the project, i.e., "**HDR DSC:Title**".

Titles of collaborative proposals should begin with "**Collaborative Research:**" followed by, "**HDR DSC: Title**", i.e., "**Collaborative Research: HDR DSC: Title**".

2. **Proposal Budget**

Budget for participating organizations. Student participation costs should be budgeted under the Participant Support line of the budget. All other costs should be in the appropriate budget category.

3. **Supplementary Documents**

- a. **Management and Coordination Plan (page limit: two pages).** Every proposal must contain a clearly labeled "Management and Coordination Plan" that describes in detail the timeline of activities, how the project will be managed across organizations, the specific roles of the PI, co-PIs, and other senior personnel at all participating organizations, and coordination mechanisms that convey a tight and meaningful collaboration between all participating organizations. Proposals missing the Management and Coordination Plan will be returned without review.

PIs are strongly encouraged to plan for hybrid environments of teleconference and in-person meetings among the personnel of participating organizations. Specifically, they need to convey how activities can be effectively carried out over the three-year period if restricted largely to remote, virtual participation, at least for the first two years of the award.

- b. **Documentation of collaborative arrangements of significance to the proposal through Letters of Collaboration.** Letters of collaboration must be limited to stating the intent to collaborate and should not contain endorsements or evaluation of the proposed project. These letters must be in the format set forth in the PAPPG, Chapter II.C.2.j.
- c. **Data Management Plan (page limit: two pages).** Proposals must include a Supplementary Document of no more than two pages, labeled "Data Management Plan" and provided by the lead organization. This Supplementary Document should describe how the proposal conforms to the NSF policy on dissemination and sharing of research results. In particular, the document should describe how projects will make available for broad dissemination products of their *Data Science Corps* activity to ensure reproducibility of this activity.

Full policy implementation can be found in PAPPG Chapter II.C.2.j.

For additional information, see: <https://www.nsf.gov/bfa/dias/policy/dmp.jsp>

- d. **Human Subjects and Vertebrate Animals research.** Documentation regarding research involving the use of human subjects, hazardous materials, vertebrate animals, or endangered species should be included where applicable. (See PAPPG Chapter II.D.4 and II.D.5.)
- e. **Postdoctoral mentoring plan (page limit: 1 page).** This one-page supplementary document, describing how postdoctoral researchers will be mentored, is required of all proposals that include funding for postdoctoral researchers. The lead institution provides this mentoring plan for the entire project. Reviewers will be asked to review the mentoring plan, as appropriate.
- f. **A list of Project Personnel and Partner Organizations (Note: In separately-submitted collaborative proposals, in which each institution submits a separate proposal, only the lead institution should collect and provide this information).** Provide current, accurate information for all personnel and organizations involved in the project. NSF staff will use this information in the merit review process to manage reviewer selection. The list must include all PIs, co-PIs, Senior Personnel, paid/unpaid Consultants or Collaborators, Subawardees, Postdoctoral Researchers, and project-level advisory committee members. This list should be numbered and included (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:

1. Mary Smith; XYZ University; PI
2. John Jones; University of PQR; Senior Personnel
3. Jane Brown; XYZ University; Postdoctoral Researcher
4. Bob Adams; ABC Inc.; Paid Consultant
5. Mary White; Welldone Institution; Unpaid Collaborator
6. Tim Green; ZZZ University; Subawardee

4. **Single Copy Documents:**

Collaborators and Other Affiliations Information:

Proposers should follow the guidance specified in Chapter II.C.1.e of the NSF PAPPG.

Note the distinction to item (f) under Supplementary Documents above: the listing of all project participants is collected by the project lead and entered as a Supplementary Document, which is then automatically included with all proposals in a project. The Collaborators and Other Affiliations are entered for each participant within each proposal and, as Single Copy Documents, are available only to NSF staff.

Collaborators and Other Affiliations information for personnel listed on item (f) under Supplementary Documents above who are not PIs, co-PIs, or Senior Personnel can be uploaded under Additional Single Copy Documents.

B. Budgetary Information

Cost Sharing:

Inclusion of voluntary committed cost sharing is prohibited.

Budget Preparation Instructions:

Budgets for all projects must include funding for one or more designated award representative(s) (PI/co-PI/Senior Personnel or NSF-approved replacement) to attend the annual *Data Science Corps* meeting during the proposed lifetime of the award (per Schedule of Activities above). For budget preparation purposes, PIs should assume these meetings will be held each year in the Washington, DC area.

C. Due Dates

- **Submission Window Date(s)** (due by 5 p.m. submitter's local time):

January 26, 2021 - February 12, 2021

D. FastLane/Research.gov/Grants.gov Requirements

For Proposals Submitted Via FastLane or Research.gov:

To prepare and submit a proposal via FastLane, see detailed technical instructions available at: <https://www.fastlane.nsf.gov/a1/newstan.htm>. 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 FastLane or Research.gov user support, call the FastLane and Research.gov Help Desk at 1-800-673-6188 or e-mail fastlane@nsf.gov or rgov@nsf.gov. The FastLane and Research.gov Help Desk answers general technical questions related to the use of the FastLane and Research.gov systems. 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 FastLane or 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

underrepresented minorities in science, technology, engineering, and mathematics (STEM); improved STEM education and educator development at any level; increased public scientific literacy and public engagement with science and technology; improved well-being of individuals in society; development of a diverse, globally competitive STEM workforce; increased partnerships between academia, industry, and others; improved national security; increased economic competitiveness of the United States; and enhanced infrastructure for research and education.

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

Additional Solicitation Specific Review Criteria

The proposals will also be evaluated using the following additional criteria:

- *Organizational diversity.* Whether the proposal has ensured diversity among partnering organizations, e.g., by including different types of Institutes of Higher Education, such as two- and four-year colleges, Minority-Serving Institutions, and research universities.
- *Current/prior experience in data science projects and education.* Whether the proposing team has a demonstrated track record and prior experience with implementing data science projects and educational activities in academia, industry, government, non-profit, and/or other relevant stakeholders, and the ability to clearly identify specific projects in such settings.
- *Coordinated collaboration activities.* Whether the proposal describes mechanisms that promote effective collaborations among all participating organizations.

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.

Special Award Conditions:

Grantees will be required to include appropriate acknowledgment of NSF support under the HDR Big Idea in any publication (including World Wide Web pages) of any material based on or developed under the project, in the following terms:

"This material is based upon work supported by the National Science Foundation Harnessing the Data Revolution Big Idea under Grant No." (Grantee enters NSF grant number.)

Grantees also will be required to orally acknowledge NSF support using the language specified above during all news media interviews, including popular media such as radio, television and news magazines.

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:

- Amarda Shehu, Program Director, CISE/IIS, telephone: (703) 292-8191, email: ashehu@nsf.gov
- Sylvia Spengler, Program Director, CISE/IIS, telephone: (703) 292-7347, email: sspengle@nsf.gov
- Christopher Stark, Program Director, MPS/DMS, telephone: (703) 292-4869, email: cstark@nsf.gov
- Paul Tymann, Program Director, EHR/DUE, telephone: (703) 292-2832, email: ptymann@nsf.gov
- Cheryl L. Eavey, Program Director, SBE/SES, telephone: (703) 292-7269, email: ceavey@nsf.gov
- Kevin Chou, Program Director, ENG/CMMI, telephone: (703) 292-8360, email: [ychou@nsf.gov](mailto:yhou@nsf.gov)
- Colleen Strawhacker, Program Director, GEO/OPP, telephone: (703) 292-7432, email: colstraw@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
Office of the General Counsel
National Science Foundation
Alexandria, VA 22314

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