

# NSF 23-506: Expanding AI Innovation through Capacity Building and Partnerships (ExpandAI)

Broadening and diversifying the research community in collaboration with National AI Research Institutes

## Program Solicitation

### Document Information

#### Document History

- **Posted:** October 17, 2022

**Public comment:** Please refer to [NSF 23-061](#) for Frequently Asked Questions (FAQs) related to this program solicitation.

[View the program page](#)



National Science Foundation



Department of Homeland Security, Science & Technology Directorate



National Institute of Food and Agriculture



National Institute of Standards and Technology



Department of Defense



Office of the Under Secretary of Defense for Research and Engineering

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

January 09, 2023 - March 13, 2023

March 14, 2023 - June 26, 2023

June 27, 2023 - October 20, 2023

January 08, 2024 - March 11, 2024

March 12, 2024 - June 24, 2024

June 25, 2024 - October 18, 2024

January 06, 2025 - March 10, 2025

March 11, 2025 - June 23, 2025

June 24, 2025 - October 17, 2025

Eligible MSIs can submit a Concept Outline at any time. Those that have been invited to submit a full proposal can submit a proposal based on that Concept Outline at any time during one of the submission windows listed above (up to one year).



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## Important Information And Revision Notes

This solicitation is a funding opportunity for Minority-Serving Institutions (MSIs).

**All proposers must receive an official invitation via the Concept Outline process to submit a full proposal to this solicitation.** The Concept Outline gives NSF the ability to review for appropriateness to the program objectives prior to the full proposal submission process, ensuring that proposers do not expend time or resources preparing full proposals that do not have strong potential to be responsive to the program objectives as found in solicitation-specific review criteria. Details regarding this process as well as how to submit a Concept Outline can be found in section V.A of this document.

The ExpandAI program has **recurring submission windows**. Unlike deadlines, submission windows allow proposers the flexibility to submit a full proposal at any time during the specific dates listed at the top of this document. On each submission window closing date, the proposal submission system will shut down at 5:00 p.m. submitting organization's local time. The system will then reopen for new submissions the morning of the next window, with the exception of the final submission window.

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

## **Summary Of Program Requirements**

### **General Information**

#### **Program Title:**

Expanding AI Innovation through Capacity Building and Partnerships (ExpandAI)

#### **Synopsis of Program:**

The National Science Foundation and its partners support the continued growth of a broad and diverse interdisciplinary research community for the advancement of AI and AI-powered innovation, providing a unique opportunity to broadly promote the NSF vision and core values, especially inclusion and collaboration. The Expanding AI Innovation through Capacity Building and Partnerships (ExpandAI) program aims to significantly broaden participation in AI research, education, and workforce development through capacity development projects and through partnerships within the National AI Research Institutes ecosystem.

#### **Cognizant Program Officer(s):**

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

- ExpandAI Program Team, telephone: (703) 292-5111, email: [ExpandAIProgram@nsf.gov](mailto:ExpandAIProgram@nsf.gov)

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

- 10.310 --- USDA-NIFA Agriculture and Food Research Initiative
- 47.041 --- Engineering
- 47.049 --- Mathematical and Physical Sciences
- 47.050 --- Geosciences
- 47.070 --- Computer and Information Science and Engineering
- 47.075 --- Social Behavioral and Economic Sciences
- 47.076 --- STEM Education

- 47.084 --- NSF Technology, Innovation and Partnerships
- 97.108 --- Department of Homeland Security, Science & Technology Directorate

**Award Information**

**Anticipated Type of Award:** Standard Grant or Continuing Grant

**Estimated Number of Awards:** 15 to 25

This is the anticipated awards and available funding in the first year and an estimate of capacity in future years.

10-15 Capacity Building Pilots (CAP) awards are anticipated in FY 2023.

5-10 ExpandAI Partnership (PARTNER) awards are anticipated in FY 2023.

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

**Anticipated Funding Amount:** \$10,000,000 to \$17,000,000

Each CAP award is anticipated to be a standard grant up to \$400,000 total budget over two years

Each PARTNER award is anticipated to be a continuing award in the range of \$300,000 to \$700,000/year for up to 4 years.

**Eligibility Information**

**Who May Submit Proposals:**

Proposals may only be submitted by the following:

- Proposals may be submitted only by a minority-serving college or university meeting the criteria listed under 'Eligible Institutions of Higher Education' in this program solicitation.
- Only eligible organizations that have received an official Program Officer Concurrence Email inviting a full proposal may submit a full proposal. To receive the invitation, potential proposers must submit a Concept Outline document and receive an official response (via email) from a cognizant Program Director. *Please see section V.A for details.*

**Who May Serve as PI:**

The Principal Investigator must hold a full-time faculty appointment or be a senior administrator at an eligible Institution as defined in the 'Eligible Institutions of Higher Education' section.

In PARTNER proposals only, a co-PI must be identified to represent each partnering AI Institute. That co-PI must be verified by the Institute Director in the Institute Integration Plan as being among the senior/key personnel of the institute.

**Limit on Number of Proposals per Organization:**

An organization may submit one proposal per submission window. An organization must wait for a determination from NSF (e.g., Award, Decline, or Returned Without Review) on the pending proposal before submitting a new proposal in the next window. Declined proposals require a new invitation to submit (via the Concept Outline process) and significant revision, while proposals Returned Without Review may be submitted using the same invited Concept Outline (assuming that the proposal is received within one year of the original Concept Outline invitation).

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

There are no restrictions or limits.

## 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](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](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. submitting organization's local time):

January 09, 2023 - March 13, 2023

March 14, 2023 - June 26, 2023

June 27, 2023 - October 20, 2023

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Eligible MSIs can submit a Concept Outline at any time. Those that have been invited to submit a full proposal can submit a proposal based on that Concept Outline at any time during one of the submission windows listed above (up to one year).

## 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.

**I. Introduction**

The National Science Foundation and its partners support the continued growth of a broad and diverse interdisciplinary research community for the advancement of Artificial Intelligence (AI) and AI-powered innovation, providing a unique opportunity to broadly promote the NSF vision and core values, especially inclusion and collaboration. The National Artificial Intelligence Research Institutes program has established a national network of multisector flagship centers of AI research and workforce development that address a wide range of society's grand challenges through AI-powered innovation.

AI Institutes are national activities for large-scale, long-term AI research, each pursuing use-inspired innovation in sectors of national importance. Each AI Institute is committed to contributing to the development of a diverse, well-trained national AI workforce. In their role as nexus points for collaborative efforts, AI Institutes are well-positioned to facilitate continuing growth of that workforce by engaging diverse talent pools and perspectives.

Minority-serving institutions (MSIs) are a source of untapped talent that will be critical to future AI innovation. Diverse participants in AI research will be critical to advancing the field, conducting responsible AI research through more inclusive participatory design, and promoting positive societal outcomes of AI innovation. Where MSIs are not yet significantly engaged in AI research and education there is enormous untapped potential to increase talent development and collaboration through federally supported AI research. This program promotes capacity development for new AI programs at MSIs, as well as partnerships between MSIs and AI Institutes. These activities are intended to be a driving force for strengthening and diversifying U.S. research and education pathways, and providing historically marginalized communities new opportunities in STEM careers. Historically underrepresented communities in AI include persons with disabilities, African Americans/Blacks, Hispanic Americans, American Indians, Alaska Natives, Native Hawaiians, and Native Pacific Islanders.

**II. Program Description**

The Expanding AI Innovation through Capacity Building and Partnerships (ExpandAI) program is a multi-year program that aims to significantly diversify participation in AI research, education, and workforce development through capacity development and partnerships within the National AI Research Institutes ecosystem.

**PROGRAM TRACKS**

This program solicitation offers two Tracks corresponding to stages of readiness for partnerships in AI Institutes. These are "ExpandAI Capacity Building Pilots" and "ExpandAI Partnerships" as described below.

**Track 1: ExpandAI Capacity Building Pilots**

Capacity Building Pilots (CAP) are planning and growth efforts focused on the establishment of AI activities at the funded MSI and the early exploration of future synergistic partnerships that have the potential to be part of prospective ExpandAI Partnerships. Successful pilots will result in establishing new AI research capacity, education/workforce development in

AI, and/or AI infrastructure capacity at the proposing institution and, potentially, a basis for future AI partnerships. CAP activities should plan for engaging appropriate communities to test the feasibility of partnerships as well as developing plans for continuing capacity development. Plans should consider required research infrastructure, plans to leverage established groups in related research areas, and inclusion of faculty training and research experiences that emphasize the diversification of investigators.

Proposals must articulate a clear vision motivating the capacity building activities, with a focus on long-term benefits to the MSI such as enhanced faculty capacity for foundational and/or use-inspired AI research or new effective models for increased education and career pathways in AI. Proposals to this track must include a strong *Institutional Need and Support Statement* (see proposal preparation instructions) containing an assessment of the current AI research and instructional capacity and infrastructure, a demonstration of institutional need for capacity building in AI, and a statement of the commitment of institutional support for the proposed activities. Proposals that substantiate a strong case in this need and support statement are likely to be most compelling for the funding opportunity. Further guidance for this supporting document can be found in Proposal Preparation Instructions.

Successful proposals will feature a *Capacity Building Plan* that features clear and measurable outcomes/benefits of capacity building. Suitable activities for such a plan are:

- establishment or significant enhancement of foundational or use-inspired AI research, marked by increased faculty research output;
- design of academic pathways or innovative models for teaching and learning in AI, incorporating how students learn effectively in AI activities, and bringing AI disciplinary advances into the undergraduate and graduate experience;
- establishment or significant expansion of AI career pathways for students resulting from new AI activities;
- enhanced AI research infrastructure;
- significant increase in the participation of investigators and students who have been traditionally underserved and underrepresented in AI; and
- a plan for objective process evaluation in support of the proposed efforts.

Note that this list is representative of suitable activities and outcomes for this track. CAP activities need not be limited to this list, and proposals do not have to include every type of outcome represented in that list. Proposers are encouraged to select and integrate the activities most appropriate for their institutional context and their vision for capacity building toward partnerships.

Early partnership development between the proposing MSI and one or more AI Institutes is neither required nor encouraged in a CAP proposal.

## **Track 2: ExpandAI Partnerships**

The ExpandAI Partnership (PARTNER) track is an opportunity for MSIs to scale up already-established AI research and/or education programs and to initiate/leverage new collaborations with AI Institutes. These partnerships will be multi-organization collaborations submitted by an MSI and will include a subaward to an AI Institute. PARTNER projects are centered around shared, complementary goals. Proposals will be submitted as single-organizational collaborative proposals. PARTNER proposals may only be submitted by a qualifying MSI as indicated in *Eligible Institutions* in this solicitation.

PARTNER proposals should scale up and make fully productive an appropriate existing capacity in AI research, education/workforce development, and/or infrastructure capacity. The proposing MSI in this track is not required to have previously been awarded a CAP project under this program. PARTNER proposals must constitute a significant new partnership that has the clear potential to build on the institution's current AI capacity as well as leverage the intrinsic strengths and talents of the MSI for mutual benefit in collaborative AI activities.

MSIs applying for this track must demonstrate readiness to leverage external expertise and financial resources to focus on medium- and long-range plans to leverage this funding opportunity and new partnerships to develop AI capacity within the MSI, including but not limited to further development of the MSI's envisioned methodological thrusts, use cases, educational and/or workforce development activities, and the potential for the MSI to expand and scale these efforts through formal, mutually beneficial partnerships. Proposals should include at least one (and if appropriate, more) established AI Institutes in developing a roadmap for collaborative work in some unifying theme or focus.

PARTNER proposals must feature a compelling *Partnership Roadmap* for collaborative work in some unifying theme or focus. Roadmaps are the beginning of a joint strategy between organizations for collaborative work. These roadmaps may also include community building activities (e.g., workshops) to further develop common interests, objectives, and goals for the growth of collaborative activities. Effective roadmaps are both depicted visually (e.g., conceptual diagram, logic model, table, etc.) and fully explained by a descriptive narrative. The roadmap should address all proposed projects involving research, education/workforce development, infrastructure, and any other types that are applicable to the collaboration. Roadmaps might address:

- enhancement of existing projects by virtue of new collaboration;
- initiation of new projects made possible by the collaboration;
- community building activities (e.g., workshops) to further develop common interests, objectives, and further growth of the partnership;
- potential and plans for scaling nascent programs;
- an evaluation plan for measuring the growth and mutual benefit of activities in all projects.

Note that this list is representative of suitable features of a Partnership Roadmap. Proposers may adapt this list and depict the roadmap in the way that best suits the unique vision of the PARTNER proposal.

Proposals to this track must include a strong *Institutional Need and Support Statement* from the proposing MSI (see proposal preparation instructions) containing an assessment of the current AI research and instructional capacity and infrastructure, progress in AI capacity development and how that relates to the outlook for partnership development, and a demonstration of the commitment of institutional support for the proposed activities. In addition, each proposal to this track must include an *Institute Integration Plan* submitted by the collaborating institute demonstrating thoughtful and well-resourced commitment to coordination mechanisms that will bring together the various participants of the project. Further guidance for these supporting documents can be found in Proposal Preparation Instructions.

## **ACCESS TO EXPERIMENTAL RESEARCH CYBERINFRASTRUCTURE**

(considerations for all proposals)

PIs are encouraged to consider utilizing NSF-supported research infrastructure (such as the [Platforms for Advanced Wireless Research](#) [🔗](#), [FABRIC](#) [🔗](#), [Chameleon](#) [🔗](#), [CloudLab](#) [🔗](#), and CISE [Community Research Infrastructure projects](#)) when formulating their research plans and submitting proposals. Descriptions of the capabilities of each system and their availability can be found on their websites.

For projects requiring access to high-performance computing resources, data infrastructure, or advanced visualization resources at scales beyond what is available locally, PIs are encouraged to consider production scale and testbed advanced research cyberinfrastructure, such as those supported by the [ACSS Program](#), the [Frontera Leadership-class system](#) [🔗](#), the [Partnership to Advance Throughput Computing \(PATH\)](#) [🔗](#), and others. Access to the broadening array of advanced cyberinfrastructure systems is coordinated through the [ACCESS program](#) [🔗](#). Descriptions of such infrastructure can be found on their websites.

More information about high-performance computing resources available to NSF PIs can be found in the PAPPG Chapter II.D.7.

## **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](#). 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.

Proposers should describe this request in a Supplementary Document (as described in proposal preparation instructions below). 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.

For example, a proposal submitted to the CAP track has a total proposal budget limit of \$400,000. If a PI wishes to request \$20,000 in cloud computing resources through CloudBank, then the proposal budget should not exceed \$380,000. The remaining \$20,000 for cloud computing resources should be specified in the Supplementary Document.

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:** Standard Grant or Continuing Grant

**Estimated Number of Awards:** 15 to 25

This is the anticipated awards and available funding in the first year and an estimate of capacity in future years.

10-15 Capacity Building Pilots (CAP) awards are anticipated in FY 2023.

5-10 ExpandAI Partnership (PARTNER) awards are anticipated in FY 2023.

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

**Anticipated Funding Amount:** \$10,000,000 to \$17,000,000

Each CAP award is anticipated to be a standard grant up to \$400,000 total budget over two years

Each PARTNER award is anticipated to be a continuing award in the range of \$300,000 to \$700,000/year for up to 4 years.

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

### **IV. Eligibility Information**

#### **Who May Submit Proposals:**

Proposals may only be submitted by the following:

- Proposals may be submitted only by a minority-serving college or university meeting the criteria listed under 'Eligible Institutions of Higher Education' in this program solicitation.
- Only eligible organizations that have received an official Program Officer Concurrence Email inviting a full proposal may submit a full proposal. To receive the invitation, potential proposers

must submit a Concept Outline document and receive an official response (via email) from a cognizant Program Director. *Please see section V.A for details.*

**Who May Serve as PI:**

The Principal Investigator must hold a full-time faculty appointment or be a senior administrator at an eligible Institution as defined in the 'Eligible Institutions of Higher Education' section.

In PARTNER proposals only, a co-PI must be identified to represent each partnering AI Institute. That co-PI must be verified by the Institute Director in the Institute Integration Plan as being among the senior/key personnel of the institute.

**Limit on Number of Proposals per Organization:**

An organization may submit one proposal per submission window. An organization must wait for a determination from NSF (e.g., Award, Decline, or Returned Without Review) on the pending proposal before submitting a new proposal in the next window. Declined proposals require a new invitation to submit (via the Concept Outline process) and significant revision, while proposals Returned Without Review may be submitted using the same invited Concept Outline (assuming that the proposal is received within one year of the original Concept Outline invitation).

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

There are no restrictions or limits.

**Additional Eligibility Info:**

***Eligible Institutions of Higher Education***

ExpandAI proposals may be submitted only by accredited Institutions of Higher Education (IHEs) that belong to at least one of the following classifications as Minority-Serving Institutions (MSI):

1. Alaska Native Serving Institutions (ANSI) - Accredited IHEs that award bachelor level degrees that have a 20 percent or greater enrollment of Alaska Native undergraduate students.
2. Hispanic Serving Institutions (HSI) - Accredited IHEs that award bachelor level degrees that have a 25 percent or greater full-time equivalent enrollment of Hispanic undergraduate students.
3. Historically Black Colleges and Universities (HBCU) - Identified in the Higher Education Act of 1965, as amended, as any accredited historically black college or university that was established prior to 1964, whose principal mission was, and is, the education of Black Americans.
4. Predominantly Black Institutions as [defined by the Department of Education](#) and that award bachelor level degrees.
5. Native Hawaiian Serving Institutions (NHSI) - Accredited IHEs that award bachelor level degrees that have a 10 percent or greater enrollment of Native Hawaiian undergraduate students.
6. Native American-serving, non-Tribal Institutions and Tribal Colleges and Universities (TCU) – The definition of Native American-Serving, Nontribal Institutions can be found in Section 319 (b) (2) of the Higher Education Act of 1965, 20 U.S.C. 1059 (f). TCUs are accredited IHEs that are formally controlled, or have been formally sanctioned or chartered by the governing body of a Federally recognized Native American tribe or tribes. Specifically, TCUs are those institutions cited in section 532 of the Equity in Educational Land-Grant Status Act of 1994 (7 U.S.C. 301 note), any other institution that qualifies for funding under the Tribally Controlled Community College Assistance Act of 1978 (25 U.S.C. 1801 et seq.), and Dine' College, authorized in the Navajo Community College Assistance Act of 1978, Public Law 95- 471, title II (25 U.S.C. 640a note).
7. Other Minority-Serving Institutions (MSI) - Accredited IHEs that award bachelor level degrees that have an aggregate undergraduate enrollment of African Americans/Blacks, Hispanic Americans,

American Indians, Alaska Natives, Native Hawaiians, and Native Pacific Islanders exceeding 50 percent of total undergraduate enrollment.


Eligibility as a minority-serving institution may be determined by reference to the Integrated Postsecondary Education Data System (IPEDS) of the US Department of Education National Center for Education Statistics (<http://nces.ed.gov/ipeds/>).

### **Organizations eligible as AI Institutes subawardees in PARTNER submissions**

PARTNER track submissions must be submitted by an organization meeting the criteria listed under Eligible Institutions of Higher Education, above, and in partnership with at least one AI Institute funded by NSF or its partners under the National AI Research Institutes Program. The proposal

- 1) must include collaboration with one or more AI Institutes, and
- 2) such collaboration may be with any of the collaborative organizations directly funded under an AI Institute award, and
- 3) the collaboration(s) must be proposed in the form of subaward(s) under the lead institution on the PARTNER proposal.

The subaward(s) may therefore be made to the AI Institute lead organization or any of the subawardee organizations in that Institute's award budget. Any category of organization (see PAPPG Chapter I.E) may be proposed in this subawardee role, as long as that organization otherwise qualifies as described here.

**Current AI Institutes:** A listing of Institutes and links to their web sites can be found at the [AI Institutes Virtual Organization \(AIVO\)](#) .

## **V. Proposal Preparation And Submission Instructions**

### **A. Proposal Preparation Instructions**

**Full Proposal Preparation Instructions:** Proposers may opt to submit proposals in response to this Program Solicitation via Research.gov or Grants.gov.

- Full Proposals submitted via Research.gov: Proposals submitted in response to this program solicitation should be prepared and submitted in accordance with the general guidelines contained in the *NSF Proposal and Award Policies and Procedures Guide* (PAPPG). The complete text of the PAPPG is available electronically on the NSF website at: [https://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=pappg](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](mailto: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](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](mailto:nsfpubs@nsf.gov).

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

### **CONCEPT OUTLINES (REQUIRED FOR BOTH TRACKS):**

Organizations must receive an invitation to submit a full proposal in the form of a Program Officer Concurrence Email. Concept Outlines may be submitted by an eligible PI in the organization. NSF will review Concept Outlines on an ongoing basis.

- Submitting organizations (“proposers”) are encouraged to submit their first Concept Outline at any time, regardless of the solicitation windows.
- NSF will review the submitted Concept Outline and officially respond via email. NSF may ask for more information before making a final decision.
- If the proposed project is determined to have strong potential to be responsive to the program objectives as found in solicitation-specific review criteria, the program will respond to the submitter with a Program Officer Concurrence Email as invitation to submit a full proposal. This invitation entitles the recipient to submit a full proposal to the corresponding track in this program and is valid for 12 months from the date of the email. The invitation email must be uploaded in the Supplementary Documents of the full proposal.
- If the Concept Outline is determined not to have strong potential to be responsive to the program objectives the potential proposer will receive a notice stating that the proposing organization is not invited to submit a proposal.
- Proposers who are not invited to submit a full proposal in response to a Concept Outline may submit a new Concept Outline after the start of the next submission window (sooner, by exception, if specifically invited by the program).
- A proposer that has received an invitation to submit a full proposal must wait for that proposal to be submitted and resolved before submitting another Concept Outline. If the organization decides not to pursue that project and wishes to submit another, different Concept Outline, they should reach out to [ExpandAIProgram@nsf.gov](mailto:ExpandAIProgram@nsf.gov) to request that their existing invitation be withdrawn.
- Potential proposers who do not receive an invitation to submit a proposal are not eligible to apply for ExpandAI funding. Proposals submitted without a Program Officer Concurrence Email will be Returned Without Review.

**Concept Outline Format and Preparation**

Concept Outlines may be up to two pages and must contain the required section headings indicated below. Please do not include other headings. Word length for each section below is provided as a guideline, not as a strict limit. Please follow the "Proposal Font, Spacing and Margin Requirements" found in the proposal preparation instructions section of the PAPPG.

Address the following aspects of the concept under the following headings.

**TITLE:** [CAP or PARTNER]: Concise, descriptive title of project

**PIs/Co-PIs** (using this format, list up to five prospective PIs and co-PIs in a full proposal. For PARTNER concepts, include the prospective co-PI from the relevant AI Institute here and on the email submission, below).

First Name	Last Name	Email	Organization	Role
Mary	Smith	msmith@xyz.edu	XYZ University;	PI
John	Jones	jj@pqr.edu	University of PQR	co-PI <i>etc. up to 5</i>

**MSI STATUS** (all concept outlines): Describe the lead institution’s MSI status and address the relevant requirements for Eligible Institutions of Higher Education in this solicitation.

**CURRENT AI CAPACITY** (all concept outlines, up to 250 words): Briefly describe the lead institution’s AI capacity in research, instruction, and infrastructure as it relates to the proposed concept. For concepts targeting Track 1 CAP, demonstrate a

compelling institutional need for capacity building in AI. For concepts targeting Track 2 PARTNER, describe a suitable foundation for success in the collaboration described in *Partnership Goals*.

**CAPACITY BUILDING GOALS** (*required for CAP, optional for PARTNER, up to 500 words*). Describe the outcomes and benefits of capacity building that will be featured in a Full proposal. Outline the goals and any preliminary plans that might be fully described in the Full proposal's *Capacity Building Plan* (see Program Description, CAP track).

**PARTNERSHIP GOALS** (*required for PARTNER, up to 500 words. Not to be included in CAP*). Identify the organizations and their prospective collaborative work in some unifying theme or focus. Outline the shared goals of the organizations and identify any prospective projects and collaborative arrangements that might be fully described in the Full proposal's *Partnership Roadmap* (see Program Description, PARTNER track). Also describe in this section any initial commitments to participate obtained from the relevant AI Institute Director (lead PI).

#### **Concept Outline Submission:**

Send the Concept Outline as a **PDF attachment** in an email *TO: [ExpandAIProgram@nsf.gov](mailto:ExpandAIProgram@nsf.gov)*. For PARTNER concepts, *CC: one co-PI for each AI Institute*. Please format the *SUBJECT: "CO: [Title as appears in Concept Outline]"*. (e.g., "*CO: CAP: AI Capacity Building in XYZ University*").

#### **FULL PROPOSALS:**

**Full Proposal Preparation Instructions:** Proposers are strongly encouraged to submit proposals in response to this Program Solicitation via [Research.gov](https://www.research.gov). Proposers may also submit via [Grants.gov](https://www.grants.gov).

**Full proposals will be accepted only if they are "invited" based on a Concept Outline submitted to this program.**

**Multi-organization submissions must be submitted as a single, integrated proposal by the lead organization, with proposed subawards to the other partner organizations. Separately submitted collaborative proposals from multiple organizations will be returned without review.**

#### **SECTIONS OF THE PROPOSAL**

**1. Title:** The title of the proposal must be preceded by "CAP: " or "PARTNER: ". The title should describe the project in concise, informative language.

**2. Project Summary** (1-page limit): The Project Summary consists of an overview, a statement on the intellectual merit of the proposed activity and a statement on the broader impacts of the proposed activity. Proposals may incorporate a Keywords section as the last line of the Overview section (before the section on Intellectual Merit) of the Project Summary page. If cloud computing resources are being requested from CloudBank, then the keyword "CloudAccess" (one word without space) should be included as a keyword. If the proposer wishes to call attention to plans of relevance to an agency other than NSF, that agency may be identified in the keywords section, e.g., "USDA-NIFA".

**3. Project Description:** Must follow the requirements of the PAPPG except where this solicitation deviates. The standard PAPPG page limit applies (15 pages).

The project description must use the sections below for the applicable track. Name the sections as indicated below, in capital letters. You may add other sections and order sections as you see fit.

#### Track 1: CAP

- **NEED AND POTENTIAL:** Describe the need and potential in your institution for capacity building in AI, addressing activities as appropriate for research, instruction, and infrastructure.
- **CAPACITY BUILDING PLAN:** Describe the *Capacity Building Plan* as described in the Program Description, and demonstrate how these outcomes will significantly enhance AI research and instructional capacity in your institution.

- **BROADER IMPACTS:** As required in the PAPPG. Because much of the proposal will address broader impacts of many kinds, it is recommended that this section be devoted to describing the benefits of the proposed activities taken together, such as in their value as an integrated whole or in the potential longer-term growth that these activities will enable.
- **PERSONNEL:** Describe the senior/key personnel and prospective organization for the planned efforts. Describe how the involvement of senior/key personnel can itself contribute to the diversification of AI researchers and educators.

Track 2: PARTNER

- **AI CAPACITY:** Review the existing capacity in AI at the proposing institution and the suitability of this as a basis for a mutually beneficial AI collaboration with AI Institutes.
- **COLLABORATION PLAN:** Describe the plans, and partners, and benefits for the collaborative activities. Include in this section the *Partnership Roadmap* as described in the Program Description.
- **BENEFITS TO AI CAPACITY:** Show how the proposed collaboration will enhance the AI research, instructional capacity, or infrastructure as appropriate in the proposing institution.
- **BROADER IMPACTS:** As required in the PAPPG. Because much of the proposal will address broader impacts of many kinds, it is recommended that this section be devoted to tying those together and extending the reach of impacts beyond the initial institutional scope, such as disseminating outcomes and processes resulting from this partnership out to the broader community.
- **PERSONNEL:** Describe the senior/key personnel and prospective organization for the planned efforts. Be sure to describe the features of the personnel and organization that will facilitate successful collaborative efforts. Describe how the involvement of senior/key personnel can itself contribute to the diversification of AI researchers and educators.

Deviations from the PAPPG:

- Omit from the Project description the section, "Results from Prior NSF Support". You must submit the PAPPG-required Results from Prior NSF Support (as applicable) in a supplementary document. Complete guidance below, under "Other Supplementary Documents".

**4. References Cited:** List only references cited in the Project Description or supplementary documents of the proposal.

**5. Budget and Budget Justification:** Provide a budget for each year of the proposed project. Consult the PAPPG for guidance on the preparation and inclusion of subaward budgets. Research.gov will automatically provide a cumulative budget. The proposed budget should be consistent with the needs and complexity of the proposed activity.

Distinct activities such as research, education/workforce development, AI research infrastructure, and increasing the participation of diverse investigators must be discernible.

Proposers are reminded to follow the policy on Participant Support Costs found in the PAPPG.

Funds should be included under travel for attendance of one or two senior/key personnel at annual PI meetings. PARTNER proposals should include additional provision for participation in collaboration-oriented exchanges, site visits, etc. as appropriate to the partnership.

The total budget of the project, *including any cloud computing resource requested 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).

**6. Facilities, Equipment and Other Resources:** Provide a description of organizational resources that will be available to the project (e.g., dedicated space, access to facilities and instrumentation, faculty and staff positions, access to programs that assist with curriculum development or broadening participation, or other organizational programs that could provide

support to the project). In order for NSF and its partners to assess the scope of a proposed project, all resources (including those from collaborating organizations) available to the project, must be described in this section. Note that inclusion of voluntary committed cost sharing is prohibited. The description should be narrative in nature and must not include any quantifiable financial information.

#### **7. Senior/Key Personnel Documents:**

- **Biographical Sketches**
- **Current and Pending (Other) Support**
- **Collaborators and Other Affiliations Information**
- **Synergistic Activities**

**8. Data Management and Sharing Plan** (required, up to two pages). In addition to the general elements of the data management and sharing plan described in the PAPPG, proposals should address their plans for data-sharing across the team. For PARTNER proposals, address the role of data management in the project's integration into a greater whole, and the data considerations for external engagement.

**9. Mentoring Plan.** As applicable, per PAPPG requirements. In addition to the general elements of the mentoring plan described in the PAPPG, address how the activities of the proposed project(s) will especially enhance the professional development of scholars or graduate students (e.g. by virtue of access to multiple projects and organizations).

#### **10. Other Supplementary Documents:**

- *Institutional Need and Support Statement (up to 3 pages).* This statement must be signed by a university provost or college/school dean as applicable. This letter should include
  - assessment of the institution's current AI research and instructional capacity and infrastructure;
  - (in Track 1 CAP submissions) a demonstration of institutional need for capacity building in AI,
  - (in Track 2 PARTNER submissions) a demonstration of readiness for partnership development; and
  - a statement of commitment of institutional support for the proposed activities.
- *Institute Integration Plan (PARTNER proposals only, up to 3 pages for each AI Institute).* The Director (lead PI) of any collaborating AI Institute participating in a PARTNER proposal must provide a plan demonstrating how this collaboration will be integrated with the Institute's Strategic and Implementation Plan (SIP). This should include thoughtful and well-resourced commitment to coordination mechanisms that will bring together the various participants of the project. This Institute-level statement of commitment and collaboration plans will be provided by the Institute Director for inclusion in the proposal regardless of the institutions listed as subawardees and providing co-PI(s). The plan must (briefly) identify the Institute organizations and individuals proposed in the PARTNER submission. The remainder of the Institute Integration Plan may include any additional detail about the prospective collaboration commensurate with the complexity of the proposed project. Where appropriate, this plan might include: 1) the specific roles of the project participants in all organizations involved; 2) details on how the project will be integrated into the Institute's SIP; 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.
- *Results from Prior NSF Support.* If applicable, you must submit the PAPPG-required Results from Prior NSF Support as a supplementary document, rather than as part of your Project Description. This allows you to maximize the use of the page allowance to describe the proposed activities. The other guidelines for the preparation of this section listed in the PAPPG apply to this document, including what must be reported, how those results should be described, and page limits. This document may also contain results of support from other funding agencies listed

in this solicitation following the same content guidelines as given for the NSF requirement.

- *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 title of the proposal and the institution name followed by the following information: (a) specific cloud computing providers that will be used; (b) anticipated annual and total costs for accessing the desired cloud computing resources, along with a description of how the cost is estimated; and (c) a technical description of, and justification for, the requested cloud computing resources.
  - 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).
  
- *Letters of Collaboration.* All Institutes submitting as collaborators on PARTNER proposals should submit only the required "Institute Integration Plan", above. Letters from other organizations that document additional collaborative arrangements of significance to the proposal should be included, and MUST stay within the PAPPG requirement to state only the intent to collaborate. They should not contain endorsements or evaluation of the proposed project. Letters of Collaboration will be provided in the Supplementary Documents section of the proposal and should follow the format instructions specified in the NSF PAPPG. Note that letters of collaboration are not necessary for subawardee organizations, whose commitment is explicit in the proposal. **Letters of Support are not permitted.**
  
- *Project Personnel and Partner Organizations (required).* 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/Key Personnel, funded/unfunded 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/Key Personnel
- Jane Brown; XYZ University; Postdoc
- Bob Adams; ABC Inc.; Funded Consultant
- Mary White; Welldone Institution; Unfunded Collaborator
- Tim Green; ZZZ University; Subawardee

#### **11. Single Copy Documents:**

Required:

- *Program Officer Concurrence Email.* Upload as a Single-Copy Document the email you received inviting a full proposal.

Optional:

- *List of suggested reviewers or reviewers not to include* (with a brief explanation or justification for why the reviewer should be excluded).



- *Identification of proprietary or privileged information.* Proposers may wish to include proprietary or privileged information as part of their proposals. Per the PAPPG, NSF defines such information as "patentable ideas, trade secrets, privileged or confidential commercial or financial information, disclosure of which may harm the proposer." While providing this information is not required, a proposer to this program who wishes to include proprietary or privileged information **must provide any and all such information as a Single-Copy Document** in the proposal. That is, **this information shall not appear in other parts of the proposal.** In keeping with NSF's practice, the Single Copy Document will not be shared with reviewers or with funding partners. In the case that a proposal is transferred to another agency for funding, this document may be included in the proposal transferred.

While NSF will make every effort to prevent unauthorized access to such material, the Foundation is not responsible or in any way liable for the release of such material.

Note: Because proprietary or privileged information may only be specified in the Single Copy Document, **PIs should not check the "Proprietary or Privileged Information" box on the Cover Sheet;** that box applies only to such content appearing in the body of a proposal.

## **B. Budgetary Information**

### **Cost Sharing:**

Inclusion of voluntary committed cost sharing is prohibited.

## **C. Due Dates**

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

January 09, 2023 - March 13, 2023

March 14, 2023 - June 26, 2023

June 27, 2023 - October 20, 2023

January 08, 2024 - March 11, 2024

March 12, 2024 - June 24, 2024

June 25, 2024 - October 18, 2024

January 06, 2025 - March 10, 2025

March 11, 2025 - June 23, 2025

June 24, 2025 - October 17, 2025

Eligible MSIs can submit a Concept Outline at any time. Those that have been invited to submit a full proposal can submit a proposal based on that Concept Outline at any time during one of the submission windows listed above (up to one year).

## **D. Research.gov/Grants.gov Requirements**

### **For Proposals Submitted Via Research.gov:**

To prepare and submit a proposal via Research.gov, see detailed technical instructions available at:

[https://www.research.gov/research-portal/appmanager/base/desktop?](https://www.research.gov/research-portal/appmanager/base/desktop?_nfpb=true&_pageLabel=research_node_display&_nodePath=/researchGov/Service/Desktop/ProposalPreparationanc)

[\\_nfpb=true&\\_pageLabel=research\\_node\\_display&\\_nodePath=/researchGov/Service/Desktop/ProposalPreparationanc](https://www.research.gov/research-portal/appmanager/base/desktop?_nfpb=true&_pageLabel=research_node_display&_nodePath=/researchGov/Service/Desktop/ProposalPreparationanc)

For Research.gov user support, call the Research.gov Help Desk at 1-800-381-1532 or e-mail [rgov@nsf.gov](mailto: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](mailto:support@grants.gov). The Grants.gov Contact Center answers general technical questions related to the use of Grants.gov. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this solicitation.

**Submitting the Proposal:** Once all documents have been completed, the Authorized Organizational Representative (AOR) must submit the application to Grants.gov and verify the desired funding opportunity and agency to which the application is submitted. The AOR must then sign and submit the application to Grants.gov. The completed application will be transferred to Research.gov for further processing.

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

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

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

## **VI. NSF Proposal Processing And Review Procedures**

Proposals received by NSF are assigned to the appropriate NSF program for acknowledgement and, if they meet NSF requirements, for review. All proposals are carefully reviewed by a scientist, engineer, or educator serving as an NSF Program Officer, and usually by three to ten other persons outside NSF either as *ad hoc* reviewers, panelists, or both, who are experts in the particular fields represented by the proposal. These reviewers are selected by Program Officers charged with oversight of the review process. Proposers are invited to suggest names of persons they believe are especially well qualified to review the proposal and/or persons they would prefer not review the proposal. These suggestions may serve as one source in the reviewer selection process at the Program Officer's discretion. Submission of such names, however, is optional. Care is taken to ensure that reviewers have no conflicts of interest with the proposal. In addition, Program Officers may obtain comments from site visits before recommending final action on proposals. Senior NSF staff further review recommendations for awards. A flowchart that depicts the entire NSF proposal and award process (and associated timeline) is included in PAPPG Exhibit III-1.

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

Proposers should also be aware of core strategies that are essential to the fulfillment of NSF's mission, as articulated in *Leading the World in Discovery and Innovation, STEM Talent Development and the Delivery of Benefits from Research - NSF Strategic Plan for Fiscal Years (FY) 2022 - 2026*. These strategies are integrated in the program planning and implementation process, of which proposal review is one part. NSF's mission is particularly well-implemented through the integration of research and education and broadening participation in NSF programs, projects, and activities.

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

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

## **A. Merit Review Principles and Criteria**

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

### **1. Merit Review Principles**

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

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

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

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

## 2. Merit Review Criteria

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

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

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

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

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

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

Broader impacts may be accomplished through the research itself, through the activities that are directly related to specific research projects, or through activities that are supported by, but are complementary to, the project. NSF values the advancement of scientific knowledge and activities that contribute to achievement of societally relevant outcomes. Such outcomes include, but are not limited to: full participation of women, persons with disabilities, and other underrepresented groups in science, technology, engineering, and mathematics (STEM); improved STEM education and educator development at any level; increased public scientific literacy and public engagement with science and technology; improved well-being of individuals in society; development of a diverse, globally competitive STEM workforce; increased partnerships between academia, industry, and others; improved national security; increased economic competitiveness of the United States; and enhanced infrastructure for research and education.

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

### Additional Solicitation Specific Review Criteria

#### Track 1: CAP

1. Is there a clear and compelling need and potential for capacity building in AI research and instructional capacity and infrastructure, described in the project description and backed by compelling commitment of institutional support for the proposed activities?
2. Will the identified "outcomes/benefits of capacity building" promote new AI programs at an MSI not yet significantly engaged in AI research and education?

#### Track 2: PARTNER

1. Does the proposing MSI have suitable existing capacity in AI for a mutually beneficial AI collaboration with AI Institutes?
2. Are there compelling plans and partners for specific collaborative activities with AI Institutes, and are these collaborations backed by clear and meaningful commitments in the Institute Integration Plan?
3. Will the proposed collaboration significantly enhance the AI research, instructional capacity, and/or infrastructure in the MSI?

### **B. Review and Selection Process**

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

Ad hoc Review and/or Panel Review, Internal NSF Review, or Reverse Site Review.

#### **CAP Proposal Review Process:**

CAP proposals will be reviewed by Ad hoc Review and/or Panel Review.

#### **PARTNER Proposal Review Process:**

Partner proposals will normally be reviewed by a Review Panel augmented as necessary with *ad hoc* reviews, and possibly followed by a reverse site visit, following the *NSF Selection Process* described below. **Some proposals may be selected for a Reverse Site Visit (RSV) prior to final selection of PARTNER projects.** If your proposal is selected, you will be asked to choose key project personnel and make them available to participate in this RSV via video teleconference.

Final selection of new ExpandAI PARTNER awards will be conducted by NSF in consultation with relevant funding partners named in this solicitation. The Agency funding partners may act as observers in the review process. Proposals, unattributed reviews, and panel summaries may be shared securely with funding partners.

#### **Federal Agency Partners Process:**

- USDA-NIFA: Following the *NSF Selection Process*, proposals will be selected for funding by NIFA based on the results of the NSF peer review process and local agency priorities and funding availability. Proposals selected for funding by NIFA will be forwarded to the NIFA Awards Management Division for award processing in accordance with the NIFA procedures. These awards are made and managed at NIFA.

#### **NSF Selection Process:**

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

After scientific, technical and programmatic review and consideration of appropriate factors, the NSF Program Officer recommends to the cognizant Division Director whether the proposal should be declined or recommended for award. NSF strives to be able to tell proposers whether their proposals have been declined or recommended for funding within six months. Large or particularly complex proposals or proposals from new recipients may require additional review and

processing time. The time interval begins on the deadline or target date, or receipt date, whichever is later. The interval ends when the Division Director acts upon the Program Officer's recommendation.

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

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

## **VII. Award Administration Information**

### **A. Notification of the Award**

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

### **B. Award Conditions**

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

\*These documents may be accessed electronically on NSF's Website at [https://www.nsf.gov/awards/managing/award\\_conditions.jsp?org=NSF](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](mailto: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](https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg).

### **Administrative and National Policy Requirements**

#### **Build America, Buy America**

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

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

#### **Special Award Conditions:**

#### **Acknowledgement of Support**

Recipients will be required to include appropriate acknowledgment of NSF and partner support in reports and/or publications on work performed under an award. An example of such an acknowledgment would be: "This material is based upon work supported by the AI Research Institutes ExpandAI program supported by NSF [and any other agencies specified in award letter] under Award Title and No. [Recipient enters project title and awards number(s)]."

#### **Role of Partner Agencies in Research**

Agency employees may not be included as personnel or collaborators in proposals, and may not receive funding through proposals. (For the purpose of proposals submitted for consideration by USDA-NIFA, this does not apply to USDA ARS or other USDA agencies. Any other inquiries should be directed to the relevant program contacts). Once awarded, at the request of a recipient, or of the funding agency with the recipient's consent, agencies may separately fund their own personnel to participate in research, part-time or full-time, with organizations awarded under the AI Research Institutes program.

#### **USDA-NIFA Award Administration and Conditions:**

Within the limit of funds available for such purpose, the USDA-NIFA awarding official shall make grants to those responsible, eligible applicants whose applications are judged most meritorious under the procedures set forth in this solicitation. The date specified by the USDA-NIFA awarding official as the effective date of the grant shall be no later than September 30 of the federal fiscal year in which the project is approved for support and funds are appropriated for such purpose, unless otherwise permitted by law. The project need not be initiated on the grant effective date, but as soon thereafter as practical so that project goals may be attained within the funded project period. All funds granted by USDA-NIFA under this solicitation may be used only for the purpose for which they are granted in accordance with the approved application and budget, regulations, terms and conditions of the award, applicable federal cost principles, USDA assistance regulations, and USDA-NIFA General Awards Administration Provisions at 7 CFR part 3430, subparts A through E.

#### **Responsible and Ethical Conduct of Research**

In accordance with 2 CFR 422.2, 2 CFR 422.3, and 2 CFR 422.8, institutions that conduct USDA-funded extramural research must foster an atmosphere conducive to research integrity, bear primary responsibility for prevention and detection of research misconduct, and maintain and effectively communicate and train their staff regarding policies and procedures. In the event an application to USDA-NIFA results in an award, the Authorized Representative (AR) assures, through acceptance of the award that the institution will comply with the above requirements. Award recipients shall, upon request, make available to USDA-NIFA the policies, procedures, and documentation to support the conduct of the training.

For information about USDA-NIFA's implementation of Responsible and Ethical Conduct of Research requirements, see <https://nifa.usda.gov/responsible-and-ethical-conduct-research>.

#### **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 annual project report, and a project outcomes report for the general public.

Failure to provide the required annual or final annual 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](https://www.research.gov), for preparation and submission of annual and final annual 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](https://www.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](https://www.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](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:

- ExpandAI Program Team, telephone: (703) 292-5111, email: [ExpandAIProgram@nsf.gov](mailto:ExpandAIProgram@nsf.gov)

For questions related to the use NSF systems, contact:

- NSF Help Desk: 1-800-381-1532
- Research.gov Help Desk e-mail: [rgov@nsf.gov](mailto: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](mailto:support@grants.gov).

**For all inquiries, you can email the entire program team at:**

- [ExpandAIProgram@nsf.gov](mailto:ExpandAIProgram@nsf.gov)

### Primary Contacts

- James Donlon, CISE/IIS, Program co-lead
- Abby Ilumoka, EDU/DUE, Program co-lead
- Dillon Watring, CISE/IIS, AAAS Science & Technology Policy Fellow

### Additional Program Contacts

- Subrata Acharya, CISE/CNS
- Rebecca Shearman, TIP/ITE
- Amy Baylor, EDU/DRL
- Jody Chase, EDU/EES
- Matthew Verleger, ENG/EEC



- Aranya Chakraborty, ENG/ECCS
- Shahab Shojaei-Zadeh, ENG/CBET
- Stacey Levine, MPS/DMS
- Andreas Berlind, MPS/AST

## IX. Other Information

The NSF website provides the most comprehensive source of information on NSF Directorates (including contact information), programs and funding opportunities. Use of this website by potential proposers is strongly encouraged. In addition, "NSF Update" is an information-delivery system designed to keep potential proposers and other interested parties apprised of new NSF funding opportunities and publications, important changes in proposal and award policies and procedures, and upcoming NSF [Grants Conferences](#). Subscribers are informed through e-mail or the user's Web browser each time new publications are issued that match their identified interests. "NSF Update" also is available on [NSF's website](#).

Grants.gov provides an additional electronic capability to search for Federal government-wide grant opportunities. NSF funding opportunities may be accessed via this mechanism. Further information on Grants.gov may be obtained at <https://www.grants.gov>.

## About The National Science Foundation

The National Science Foundation (NSF) is an independent Federal agency created by the National Science Foundation Act of 1950, as amended (42 USC 1861-75). The Act states the purpose of the NSF is "to promote the progress of science; [and] to advance the national health, prosperity, and welfare by supporting research and education in all fields of science and engineering."

NSF funds research and education in most fields of science and engineering. It does this through grants and cooperative agreements to more than 2,000 colleges, universities, K-12 school systems, businesses, informal science organizations and other research organizations throughout the US. The Foundation accounts for about one-fourth of Federal support to academic institutions for basic research.

NSF receives approximately 55,000 proposals each year for research, education and training projects, of which approximately 11,000 are funded. In addition, the Foundation receives several thousand applications for graduate and postdoctoral fellowships. The agency operates no laboratories itself but does support National Research Centers, user facilities, certain oceanographic vessels and Arctic and Antarctic research stations. The Foundation also supports cooperative research between universities and industry, US participation in international scientific and engineering efforts, and educational activities at every academic level.

*Facilitation Awards for Scientists and Engineers with Disabilities (FASED)* provide funding for special assistance or equipment to enable persons with disabilities to work on NSF-supported projects. See the *NSF Proposal & Award Policies & Procedures Guide* Chapter II.F.7 for instructions regarding preparation of these types of proposals.

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

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

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

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

- **Location:** 2415 Eisenhower Avenue, Alexandria, VA 22314
- **For General Information** (NSF Information Center): (703) 292-5111
- **TDD (for the hearing-impaired):** (703) 292-5090
- **To Order Publications or Forms:**
  - Send an e-mail to: [nsfpubs@nsf.gov](mailto:nsfpubs@nsf.gov)
  - or telephone: (703) 292-8134
- **To Locate NSF Employees:** (703) 292-5111

## Privacy Act And Public Burden Statements

The information requested on proposal forms and project reports is solicited under the authority of the National Science Foundation Act of 1950, as amended. The information on proposal forms will be used in connection with the selection of qualified proposals; and project reports submitted by proposers will be used for program evaluation and reporting within the Executive Branch and to Congress. The information requested may be disclosed to qualified reviewers and staff assistants as part of the proposal review process; to proposer institutions/grantees to provide or obtain data regarding the proposal review process, award decisions, or the administration of awards; to government contractors, experts, volunteers and researchers and educators as necessary to complete assigned work; to other government agencies or other entities needing information regarding proposers or nominees as part of a joint application review process, or in order to coordinate programs or policy; and to another Federal agency, court, or party in a court or Federal administrative proceeding if the government is a party. Information about Principal Investigators may be added to the Reviewer file and used to select potential candidates to serve as peer reviewers or advisory committee members. See [System of Record Notices](#), NSF-50, "Principal Investigator/Proposal File and Associated Records," and NSF-51, "Reviewer/Proposal File and Associated Records." Submission of the information is voluntary. Failure to provide full and complete information, however, may reduce the possibility of receiving an award.

An agency may not conduct or sponsor, and a person is not required to respond to, an information collection unless it displays a valid Office of Management and Budget (OMB) control number. The OMB control number for this collection is 3145-0058. Public reporting burden for this collection of information is estimated to average 120 hours per response, including the time for reviewing instructions. Send comments regarding the burden estimate and any other aspect of this collection of information, including suggestions for reducing this burden, to:

Suzanne H. Plimpton  
Reports Clearance Officer  
Policy Office, Division of Institution and Award Support  
Office of Budget, Finance, and Award Management  
National Science Foundation  
Alexandria, VA 22314

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