Integrated Data Systems & Services (IDSS)

NSF 25-544 Program Webinar

Program Contacts:

Andrey V. Kanaev, idss@nsf.gov
Kevin L. Thompson idss@nsf.gov
Marlon Pierce idss@nsf.gov

Office of Advanced Cyberinfrastructure (OAC)

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Webinar Goals

- Orient potential proposers on IDSS program

- Describe the current solicitation (NSF 25-544)

- Answer questions from attendees
  - **Send Webinar Questions to us via Q&A function in Zoom.**

- Slides, audio, and transcript from this webinar will be available on the event page website

IDSS Program Overview

- Requests proposals for operations-level national-scale cyberinfrastructure systems and services that broadly advance and facilitate open, data-intensive and artificial intelligence-driven science and engineering research and education.

- Successful awardees will:
  - ✓ define expectations for design, development and operational performance of data systems
  - ✓ enable research and education communities to maximize the value, use, and reuse of research data
  - ✓ provide stable and easily usable services addressing full scientific data lifecycle
  - ✓ develop the capable data infrastructure workforce

Categories of Awards

- Category I. Development, deployment, and operation of novel national-scale integrated data systems and services interfacing with or leveraging other existing capabilities, systems and services

- Category II. Transition of established smaller scale, regional or pilot data-focused systems and services to national-scale production/operational quality/level (may include expansion of existing national-scale data-focused operational systems and services)

- Category III. Planning grants for future potential development/deployment or transition/enhancement IDSS projects.

NSF 25-544 Proposal Deadlines

- December 4, 2025 – Category I, II, and III Submissions considered

- July 28, 2026 and every Fourth Tuesday in July, Annually Thereafter Category I, II, and III Submissions

Category I

Between $10 million to $30 million for up to 5 years; potentially renewable.

"... intended to result in deployment and operation of novel national-scale data-focused systems and services to support a broad range of data-intensive and AI-driven research use cases."

Proposals that are effectively continuations of existing data infrastructure projects with minimal changes are not supported and may be returned without review.

Category I (continued)

- Requirements:
  - ✓ Motivation by identified AI and/or other **use cases representing the broad disciplinary and geographically diverse research and education communities**
  - ✓ Analysis of current and future demand for associated data usage and utilization patterns
  - ✓ Leverage and interconnect with other existing operational cyberinfrastructure systems and services and other data and relevant facilities, whether supported by NSF or by other entities, as appropriate to project objectives
  - ✓ Exploration of novel models for future dynamic national cyberinfrastructure federation

Category II

Up to $9 million for up to 3 years. Potentially renewable.

"... similar expectations as Category I projects and are intended to result in similar outcomes as Category I projects."

- Projects are expected to build upon an established existing performant project with defined capabilities, systems and services.

- Project may include pilots that are demonstrably successful at serving an array of users at a smaller-than-national scale and which seeks to scale up to a national operational infrastructure.

- Category II projects may also include targeted enhancements and expansions of existing national-scale data-focused operational systems and services.

Category III

"...intended as planning grants to develop plans and prepare for proposing future Category I or Category II IDSS proposals."

- Proposals cannot include any technical development or operational activities.

- Activities to engage targeted research/user communities are supported and encouraged as part of a planning effort.

Eligibility Information (1/2)

- Who May Submit:
  - Institutions of Higher Education (IHEs)

  - Non-profit, non-academic organizations

  - Other Federal Agencies and Federally Funded Research and Development Centers (FFRDCs): Contact the appropriate program before preparing a proposal for submission.

- Who may serve as PI: no restrictions

Eligibility Information (2/2)

- Limit on Number of Proposals per organization: 1
  - An institution may submit one proposal to Category I and one proposal to Category II per deadline but may be a subawardee on other proposals responding to this solicitation. This restriction does not apply to Category III proposals.
  - Collaborative projects may only be submitted as a single proposal
- Limit on Number of Proposals per PI or co-PI: 1
  - An individual may participate as PI, co-PI, or other Senior Personnel on at most one proposal across Categories I and II. This restriction does not apply to Category III proposals.
- **NOTE:** Eligibility Information is independently associated with each competition and each due date

Proposal Preparation Guidance for Categories I and II

- The project description page limit is **20** pages.

- In addition to those described in PAPPG, the Project Description must include the following sections:
    1. Vision, goals, and driving requirements
    2. Project definition and specification
    3. Concept of operations
    4. Performance objectives and measures
    5. Project management
    6. Budget estimation

Proposal Preparation Guidance for Categories I and II (Continued)

1. <u>Vision, goals, and driving requirements</u> must include specific reference research, innovation and/or education use cases and evidence of need for the proposed systems and services

2. <u>Project definition and specification</u> must contain
   - ✓ the types or categories of intended users
   - ✓ end-to-end scientific data lifecycle model
   - ✓ connections to existing operational cyberinfrastructure data sources, software systems, and other facilities and platforms
   - ✓ potential synergies with other deployed cyberinfrastructure systems

Proposal Preparation Guidance for Categories I and II (Continued)

3. <u>Concept of operations</u> must include
  - ✓ functionalities and modes of operation as well as utilization and associated activities;
  - ✓ activities related to user engagement, onboarding, robust support and training
  - ✓ number, types and anticipated qualifications of the project personnel that will be involved;
  - ✓ the plan for apportionment, allocation, and access
  - ✓ the plan for early user access for early operations and testing phase(s)
  - ✓ the strategy for anticipated technology refreshes, upgrades, and innovations

4. Performance objectives and measures must define a comprehensive set of objectives and targets such as end-to-end performance, user wait times, interactivity and system responsiveness, growth in user community, stability, reliability, or usability targets.

Proposal Preparation Guidance for Categories I and II (Continued)

5. Project management must describe:
- ✓ Project leadership team and their experience
- ✓ Project organization and timeline
- ✓ Outsourcing
- ✓ Software
- ✓ Risk management
- ✓ Security and trustworthiness

6. Budget estimation should summarize the cost estimate at a high level.

Proposal Preparation Guidance for Category III

- The project description page limit is **10 pages.**

- The planning grants are intended to support preparation for submission of an IDSS Category I or Category II proposal.
- Proposals must describe the specific cyberinfrastructure project concept focused on the planning activities, the vision, goals, and impact for that eventual project.
- Planning projects are strongly encouraged to include significant community engagement to determine and confirm community needs, priorities, and support for the eventual infrastructure.

Required Supplementary Documents

- In addition to those specified in PAPPG, the following Supplementary Documents are required:
    - ✓ Detailed cost estimate for all planned activities and costs across the duration of the award (Categories I and II only)
    - ✓ Letters of Collaboration (All Categories)
    - ✓ Project Personnel and Partner Organizations (All Categories)

- Please review section V of the solicitation for detailed preparation and submission instructions

IDSS Does Not Support

- **Projects that aim to primarily benefit a single science discipline, domain, project, or application are not supported.**

- **The IDSS program does not support costs for permanent long-term hosting, storage, archival, and curation of the research data itself.**

- **Projects that have the goal of cyberinfrastructure innovation without operations expectations and plans are not supported.**

NSF Review Criteria

- All proposals will be evaluated 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 will be considered for both criteria:
  - What do the proposers want to do?
  - Why do they want to do it?
  - How do they plan to do it?
  - How do they will know if they succeed?
  - What benefits would accrue if the project is successful?

Solicitation Specific Review Criteria

- In addition, reviewers will be asked to assess the adequacy of the descriptions provided in the required sections of the proposal

- See Section VI. NSF Proposal Processing and Review Procedures, for more information

Solicitation Specific Review Criteria (Categories I and II)

- **An evidence that the project is needed** to advance data-intensive and AI-driven science and engineering research and education for an appropriately broad array of use cases
- A definition of the proposed systems and services including the technical specifications at an appropriate level of detail
- A plan for transitioning the project to full operations by the end of the first award year
- A Concept of operations to describe including provision of continuous operations to the intended users while ensuring security and trustworthiness
- Comprehensive performance objectives and appropriate targets for the proposed system or services
- Appropriateness and clarity of management plan, risk management plan, and budget

Solicitation Specific Review Criteria (Category III)

- Evidence that the envisaged eventual Category I or Category II project be of a stature and impact to advance the goals of the IDSS program "to support **national-scale operational** data cyberinfrastructure"

- An evidence that the eventual Category I or Category II project would address transdisciplinary data cyberinfrastructure needs of data-intensive workflows and data integration in AI-driven research

- A planning process and set of activities as well as engagement of the relevant communities to inform sound designs and project plans

Award Administration Information

- Additional reporting requirements will be negotiated with the recipient prior to award and will be incorporated into the special terms and conditions of the award. Such requirements may include, for example, monthly and quarterly reports reverse-/site visits, and other requirements to enable NSF oversight of the award. The level of oversight will be appropriate to the complexity of the award.

Contacting IDSS Team

- PIs interested in submitting proposals under this solicitation are encouraged to contact IDSS Team by email.

- PIs are encouraged to send a short summary (1 page) for determination of their idea fitness for the IDSS program.

- The summary should explain how PI's proposal idea addresses the goals of the solicitation in the intellectual merit-broader impacts format and list team members, institutions, category, and budget estimate.

Summary

- Upcoming Deadline: December 4, 2025

- Future deadlines correspond to independently run competitions (i.e., in terms of submission limits)

- Additional sections required in submissions

- The program includes Solicitation Specific Review Criteria

Frequently Asked Questions

You may ask questions using the Q&A function

Eligibility information

- Q: If my organization applies within the submission limits of the December 4, 2025 deadline, is my organization eligible to apply for other deadlines?

- A: Yes, Eligibility Information is independently associated with each competition and each due date.

Question & Answer Session

- Please use the Q&A function to ask your question

- Upcoming Deadline: December 4, 2025

- This presentation and recording will be available at: TBD

- Contact information for Cognizant Program Directors:

  - Andrey Kanaev, email: idss@nsf.gov
  - Kevin L. Thompson, email: idss@nsf.gov
  - Marlon Pierce, email: idss@nsf.gov