Community-based Data Interoperability Networks (INTEROP)

Program Solicitation

NSF 07-565

National Science Foundation

Directorate for Biological Sciences

Directorate for Computer & Information Science & Engineering

Directorate for Education & Human Resources

Directorate for Engineering

Directorate for Mathematical & Physical Sciences

Directorate for Social, Behavioral & Economic Sciences

Office of Cyberinfrastructure

Office of International Science and Engineering

Office of Polar Programs

Full Proposal Target Date(s):

August 23, 2007

July 23, 2008

July 23, Annually Thereafter through 2009

REVISION NOTES

In furtherance of the President's Management Agenda, NSF has identified programs that will offer proposers the option to utilize Grants.gov to prepare and submit proposals, or will require that proposers utilize Grants.gov to prepare and submit proposals. Grants.gov provides a single Government-wide portal for finding and applying for Federal grants online.

In response to this program solicitation, proposers may opt to submit proposals via Grants.gov or via the NSF FastLane system.

Eligible organizations are as specified in the Grant Proposal Guide (GPG). Although the Data Interoperability Networks are expected to be multi-organizational, a single organization must serve as the lead with all other organizations as subawardees. Proposals to this program may not be submitted as collaboratives.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Community-based Data Interoperability Networks (INTEROP)

Synopsis of Program:

Digital data are increasingly both the products of research and the starting point for new research and education activities. The ability to re-purpose data – to use it in innovative ways and combinations not envisioned by those who created the data – requires that it be possible to find and understand data of many types and from many sources. Interoperability (the ability of two or more systems or components to exchange information and to use the information that has been exchanged) is fundamental to meeting this requirement. This NSF crosscutting program supports community efforts to provide for broad interoperability through the development of mechanisms such as robust data and metadata conventions, ontologies, and taxonomies. Support is provided for Data Interoperability Networks that will be responsible for consensus-building activities and for providing the expertise necessary to turn the consensus into technical standards with associated implementation tools and resources. Examples of the former are community workshops, web resources such as community interaction sites, and task groups. Examples of the latter are information sciences, software development, and ontology and taxonomy design and implementation.

Cognizant Program Officer(s):

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

- 47.041 --- Engineering
- 47.049 --- Mathematical and Physical Sciences
- 47.070 --- Computer and Information Science and Engineering
- 47.074 --- Biological Sciences
- 47.075 --- Social Behavioral and Economic Sciences
- 47.076 --- Education and Human Resources
- 47.078 --- Office of Polar Programs
- 47.079 --- Office of International Science and Engineering
- 47.080 --- Office of Cyberinfrastructure

Award Information

Anticipated Type of Award: Standard Grant or Continuing Grant

Estimated Number of Awards: 10 - Approximately 10 awards in each of the fiscal years 2008, 2009, and 2010 subject to the quality of proposals received and pending the availability of funds

Anticipated Funding Amount: $250,000 - Awards may be up to $250,000 total costs per year for three to five years.

Eligibility Information

Organization Limit:

None Specified

PI Limit:

None Specified

Limit on Number of Proposals per Organization:

None Specified

Limit on Number of Proposals per PI:

None Specified

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

- **Letters of Intent:** Not Applicable
- **Full Proposals:**
  - Full Proposals submitted via FastLane: Grant Proposal Guide (GPG) Guidelines apply. The complete text of the GPG is available electronically on the NSF website at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg.
  - 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: http://www.nsf.gov/bfa/dias/policy/docs/grantsgovguide.pdf/)

B. Budgetary Information

- **Cost Sharing Requirements:** Cost Sharing is not required by NSF.
- **Indirect Cost (F&A) Limitations:** Not Applicable
- **Other Budgetary Limitations:** Not Applicable

C. Due Dates

- **Full Proposal Target Date(s):**

  August 23, 2007

  July 23, 2008

July 23, Annually Thereafter through 2009

Proposal Review Information Criteria

Merit Review Criteria: National Science Board approved criteria. Additional merit review considerations apply. Please see the full text of this solicitation for further information.

Award Administration Information

Award Conditions: Standard NSF award conditions apply

Reporting Requirements: Standard NSF reporting requirements apply

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I. INTRODUCTION

The increasing use of digital means for gathering and storing the products of research presents a significant opportunity to catalyze progress through re-use and re-purposing of data. Providing remote access to digital products of research, via the Internet for example, can overcome the barriers of time and place that previously limited who can participate in the research enterprise and how individuals may interact and collaborate. If properly documented, such digital products can be the starting point for new research by those other than the data authors for creative purposes that might not have been envisioned when the data were gathered. Using digital information from a variety of fields and disciplines, individuals and collaborative teams can achieve new insights and take on many of the grand challenges in science that are refractory to any single, disciplinary approach. The digital products of research are also rich resources for science-based learning and for outreach programs to engage and inform the general public.

Realizing the full potential of re-use and re-purposing of the digital products of research requires that it be possible to find and understand digital data produced by others. This is a central goal of the Community-based Data Interoperability Networks (INTEROP) program. A key means to achieve this goal is through the development of mechanisms for interoperability (the ability of two or more systems or components to exchange information and to use the information that has been exchanged) such as conventions for data and metadata content and format, taxonomies, and ontologies (controlled vocabularies describing objects and the relationships between them).

Interoperability frameworks are defined for the purposes of this solicitation as agreed frameworks to provide for consistency or commonality of design for data acquisition, management, preservation, sharing, dissemination, etc. This includes data and metadata format and content conventions, standardized constructs or protocols, taxonomies, or ontologies. The development of interoperability frameworks through community-based mechanisms provides a means for ensuring that existing conventions and practices are appropriately recognized and integrated, that implementation is made realistic and feasible, and, most importantly, that the real needs of the community are identified and met.

II. PROGRAM DESCRIPTION

This NSF crosscutting program supports community efforts to provide for broad interoperability with the goal of enhancing interaction and information sharing across all of the areas of science and engineering research and education represented at the National Science Foundation. The program supports the formation of community-based Data Interoperability Networks (hereafter, 'Networks'), groups that enable communities to work together in the development of effective data interoperability strategies.

Responsibilities of the Networks: Each Network holds dual responsibilities for: (1) enabling broad community engagement in the development of consensus and agreement on strategies, priorities, and best approaches for achieving broad interoperability; and (2) providing the technical expertise necessary to turn consensus and agreement into robust interoperability frameworks along with the appropriate tools and resources for their broad use and implementation. Proposals for activities not based on significant community engagement and consensus-building activities are not responsive to this solicitation and will be returned without review.

Communities: All communities whose science and engineering research and education activities are supported by the National Science Foundation (NSF) are encouraged to participate in this program. Networks that provide for broad interoperability across a wide variety of disciplinary domains, topic areas, and/or data types and sources are especially encouraged. The proposal should describe how the proposed Network will engage all of the stakeholders in the relevant community(ies) including individuals, professional societies and organizations, community database and information resource managers, etc.

Principal Investigator (PI): Although the Networks are expected to involve individuals from multiple sites, a single organization must serve as the lead for each proposal with all other organizations that are requesting support participating as subawardees. The PI is the designated contact person for the Network and is expected to provide leadership in fully coordinating and integrating the activities of the group.

Network members: The size of a network is expected to vary depending on the scope of the interoperability goals. It is expected that networks will involve investigators at diverse organizations and that efforts will be made to increase the participation of underrepresented groups. The inclusion of new researchers, post-docs, graduate students, and undergraduates in relevant activities of the network is encouraged. While an initial core group of participants may be identified in the proposal, an immediate goal should be to expand participation in the Network and to become an organization that is fully embraced by the relevant community(ies). Credible mechanisms for achieving this goal, maintaining openness, ensuring access, and actively promoting broad participation should be explicitly described in the proposal.

International Participation: Achieving interoperability at the global level is among the goals of this program and it is anticipated that Networks will include international participants. However, it is expected that the activities of the international partners outside the U.S. will be supported by funds from their own sources and programs.

Network Management: The proposal should include a clearly defined management plan. The plan should describe: (1) the specific roles and responsibilities of the PI and the other members of the Network; (2) mechanisms for orderly change and adaptation to accommodate changes in technologies and the changing needs of the relevant community(ies); (3) means for effective communication and engagement with the relevant community(ies) and stakeholders; and (4) mechanisms for assessing overall progress, including the effectiveness of the Network in achieving community engagement and increased interoperability.

Investigators are encouraged to contact the program with questions about appropriateness for this program before sending in a proposal.

III. AWARD INFORMATION

Approximately 10 awards may be made in each of the fiscal years 2008, 2009, and 2010 subject to the quality of proposals and pending the availability of funds. Awards may be up to $250,000 total costs per year for three to five years.

IV. ELIGIBILITY INFORMATION

The categories of proposers eligible to submit proposals to the National Science Foundation are identified in the Grant Proposal Guide, Chapter I, Section E.

Organization Limit:

None Specified

PI Limit:

None Specified

Limit on Number of Proposals per Organization:

None Specified

Limit on Number of Proposals per PI:

None Specified

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 Grants.gov or via the NSF FastLane system.

- Full proposals submitted via FastLane: Proposals submitted in response to this program solicitation should be prepared and submitted in accordance with the general guidelines contained in the NSF Grant Proposal Guide (GPG). The complete text of the GPG is available electronically on the NSF website at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg. Paper copies of the GPG may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from pubs@nsf.gov. Proposers are reminded to identify this program solicitation number in the program solicitation block on the NSF Cover Sheet For Proposal to the National Science Foundation. Compliance with this requirement is critical to determining the relevant proposal processing guidelines. Failure to submit this information may delay processing.

- Full proposals submitted via 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: (http://www.nsf.gov/bfa/dias/policy/docs/grantsgovguide.pdf). 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) 292-7827 or by e-mail from pubs@nsf.gov.

The following exceptions and additions apply to proposals submitted to this Program:

Cover Sheet:

- FastLane Users: Select this program solicitation number from the pull down list. Entries on the FastLane Cover Sheet are limited to the principal investigator/project director (PI) and a maximum of 4 co-principal investigators/ project directors (co-PIs). Additional members of the leadership team should be listed on the Project Summary page and entered into FastLane as Senior Investigators (this latter provision allows their biographical sketches to be included in the FastLane proposal). For more FastLane instructions see section D below.
- Grants.Gov Users: The program solicitation number will be pre-populated by Grants.gov on the NSF Grant Application Cover Page. NSF allows one principal investigator/project director (PI) and a maximum of 4 co-principal investigators/project directors (co-PIs) to be identified on a proposal. Instructions for adding additional senior project participants are provided in Section V.5 of the NSF Grants.gov Application Guide.

Title: The title of the proposal must begin with "INTEROP:"

Project Summary (1 page): The summary must consist of three parts: (1) At the top of the page, a list providing the title of the project, the name of the PI and the lead organization, and the names of co-PIs and other senior project personnel along with their organizational affiliations; (2) a succinct summary of the intellectual merit of the proposed project including the scope of the proposed Network (e.g. community(ies) and data types to be involved, range of interoperability mechanisms to be considered, etc), major networking activities and mechanisms for promoting participation by all interested parties, and a description of the technical expertise available to the Network; and (3) a description of the broader impacts of the proposed work including the potential impact of enhanced interoperability, plans to provide for diverse participation, and the educational, training, and outreach goals of the Network.. Proposals that do not separately address both intellectual merit and broader impacts will be returned without review.

Project Description (maximum 15 pages): The following exceptions and additions to the Project Description requirements of the GPG apply to this program:

- Results from Prior Support – Describe only prior research of the PI and co-PIs supported by NSF that is directly relevant to this Network proposal. Research that is not directly relevant to this proposal need not be described in the Project Description but should be included in the “Current Activities” component of the Special Information and Supplementary Documentation section as described below.
- Vision and Rationale for the Network – Describe the overall vision and rationale for the Network including the needs and opportunities it is intended to address and the basis for the choice of communities, data types, and interoperability mechanisms to be included in the Network. Networks that provide for broad interoperability across a wide variety of disciplinary domains, topic areas, and/or data types and sources are especially encouraged. Proposals should describe any relevant, existing interoperability frameworks or resources and must justify why the proposed activities are needed as enhancements to or replacements for any existing elements. A vision for the future of the framework, including how it will continue to be responsive to evolving community needs and technologies beyond the end of NSF funding, should be described.
- Responsibilities of the Network – Describe how the Network will meet its dual responsibilities for engaging the community in developing consensus and agreement and providing the expertise required for turning consensus into technical standards, tools, and resources. Proposals for activities not based on significant community engagement and consensus-building activities are not responsive to this solicitation and will be returned without review. Software developed with support from this program must be open source and available under an appropriate open-source license.
- Broader Impacts – Describe plans for enhancing the broader impacts of the Network including the potential impact of enhanced interoperability, plans to provide for diverse participation, and the educational, training, and outreach goals of the Network.
- Management Plan – Provide a detailed management plan describing key leadership positions, reporting relationships, means of communication and interaction among the members of the group and the community and relevant stakeholders, oversight and accountability mechanisms, external advisory committees, etc. If an external advisory committee is to be used, do not list individual names, but list the number of members and describe the criteria to be used to select the members and balance the committee. Describe how the management plan will allow the Network to be flexible in adapting to changing technologies and to the evolving needs of the relevant communities.

References Cited – Indicate with an asterisk any cited publications from prior research funded by NSF for the PI or co-PIs when following the guidelines for all references cited.

Biographical Sketches – Provide biographical sketches for the PI, co-PIs and Senior Personnel listed on the Project Summary page.

Current and Pending Support – Provide this information for the PI, co-PIs and Senior Personnel listed on the Project Summary page. Address any potential overlap between the federally funded projects that are listed and the proposed Network activities.

Budget - Follow the instructions in the GPG or NSF Grants.gov Application Guide for preparing the budget. Multi-institutional proposals must be submitted through the lead organization with a single budget including all other participating organizations as subawardees (see GPG guidelines, Chapter II.D.3). Proposals in response to this solicitation may not be submitted as collaboratives. Provide a detailed budget justification separately for the lead organization (up to three pages) and for each subawardee budget (up to three pages each).

Most awards anticipated under this solicitation are expected to be for three years. Requests for longer award periods (up to five years) must describe the exceptional circumstances (e.g. exceptionally broad scope or unusual technical challenges) that would justify such a request.

Funds may be requested to support networking activities such as workshops, establishment of a public web site, Network retreats, etc. Note that funds requested to support activities of the Network participants; such as participants' travel expenses and the costs of materials and supplies for Network retreats, should be included under Line F "Participant Support." Under this solicitation, indirect costs (F&A) are not allowed on participant support costs.

The PIs of the Network awards will be asked to attend a meeting of the Network leaders to be held at the National Science Foundation facility in Arlington, Virginia every two years beginning in FY2009. The necessary travel costs for attendance at the meeting must be included in the proposed budget.

Funds for facility construction or renovation may not be requested. Funds from this program may not be used to support independent, individual research projects of the participants.

Special Information and Supplementary Documentation: In addition to the applicable items described in the Grant Proposal Guide (http://www.nsf.gov/cgi-bin/getpub?gpg), include the following appendix information, clearly labeled, in the Supplementary Docs section of the FastLane Form Preparation system. For Grants.gov users, supplementary documents should be attached to Field 11 of the SF 424 R&R Other Project Information Form **(No other appendix material will be allowed.):**

- Key Personnel (maximum three pages): Provide a list of PI, Co-PI, and Senior Personnel with a brief description of what each person brings to the Network.
- Current Activities: Provide a description of the current activities and results under prior NSF support for the PI, co-PIs, and senior personnel listed on the Project Summary page (maximum one page per investigator). This section replaces the "Results of Prior Support" section normally found in NSF proposals.
- Letters of Collaboration: Letters of collaboration from individuals or entities with a direct, integral, and essential role in the Network may be included. Such letters should document willingness to participate in or contribute to Network activities. General letters of endorsement may not be included.

Single Copy Documents – The following information is required in addition to that covered by the provisions of the GPG or the NSF Grants.gov Application Guide:

Conflicts of Interest list: Provide a list, in a single alphabetized table, with the full names of all people with conflicts of interest for the PI, co-PIs and Senior Personnel listed on the project summary page. Conflicts to be identified are (1) PhD thesis advisors or advisees, (2) collaborators or co-authors, including post-docs, for the past 48 months, and (3) any other individuals or organizations with which the investigator has financial ties (please specify the type of conflict for each listing in the table).

B. Budgetary Information

Cost Sharing: Cost sharing is not required by NSF in proposals submitted to the National Science Foundation.

C. Due Dates

- **Full Proposal Target Date(s):**

August 23, 2007

July 23, 2008

July 23, Annually Thereafter through 2009

D. FastLane / Grants.gov Requirements

- **For Proposals Submitted Via FastLane:**

Detailed technical instructions regarding the technical aspects of preparation and submission via FastLane are available at: https://www.fastlane.nsf.gov/a1/newstan.htm. For FastLane user support, call the FastLane Help Desk at 1-800-673-6188 or e-mail fastlane@nsf.gov. The FastLane Help Desk answers general technical questions related to the use of the FastLane 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.

Submission of Electronically Signed Cover Sheets. The Authorized Organizational Representative (AOR) must electronically sign the proposal Cover Sheet to submit the required proposal certifications (see Chapter II, Section C of the Grant Proposal Guide for a listing of the certifications). The AOR must provide the required electronic certifications within five working days following the electronic submission of the proposal. Further instructions regarding this process are available on the FastLane Website at: https://www.fastlane.nsf.gov/fastlane.jsp.

- **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. The Grants.gov's Grant Community User Guide is a comprehensive reference document that provides technical information about Grants.gov. Proposers can download the User Guide as a Microsoft Word document or as a PDF document. The Grants.gov User Guide is available at: http://www.grants.gov/CustomerSupport. In addition, the NSF Grants.gov Application Guide provides additional technical guidance regarding preparation of proposals via Grants.gov. For Grants.gov user support, contact the Grants.gov Contact Center at 1-800-518-4726 or by email: support@grants.gov. The Grants.gov Contact Center answers general technical questions related to the use of Grants.gov. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this solicitation.

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

VI. NSF PROPOSAL PROCESSING AND REVIEW PROCEDURES

Proposals received by NSF are assigned to the appropriate NSF program and, if they meet NSF proposal preparation 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 who are experts in the particular fields represented by the proposal. These reviewers are selected by Program Officers charged with the 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 with the proposer.

A. NSF Merit Review Criteria

All NSF proposals are evaluated through use of the two National Science Board (NSB)-approved merit review criteria: intellectual merit and the broader impacts of the proposed effort. In some instances, however, NSF will employ additional criteria as required to highlight the specific objectives of certain programs and activities.

The two NSB-approved merit review criteria are listed below. The criteria include considerations that help define them. These considerations are suggestions and not all will apply to any given proposal. While proposers must address both merit review criteria, reviewers will be asked to address only those considerations that are relevant to the proposal being considered and for which the reviewer is qualified to make judgements.

What is the intellectual merit of the proposed activity?
How important is the proposed activity to advancing knowledge and understanding within its own field or across different fields? How well qualified is the proposer (individual or team) to conduct the project? (If appropriate, the reviewer will comment on the quality of the prior work.) To what extent does the proposed activity suggest and explore creative and original concepts? How well conceived and organized is the proposed activity? Is there sufficient access to resources?

What are the broader impacts of the proposed activity?
How well does the activity advance discovery and understanding while promoting teaching, training, and learning? How well does the proposed activity broaden the participation of underrepresented groups (e.g., gender, ethnicity, disability, geographic, etc.)? To what extent will it enhance the infrastructure for research and education, such as facilities, instrumentation, networks, and partnerships? Will the results be disseminated broadly to enhance scientific and technological understanding? What may be the benefits of the proposed activity to society?

NSF staff will give careful consideration to the following in making funding decisions:

Integration of Research and Education
One of the principal strategies in support of NSF's goals is to foster integration of research and education through the programs, projects, and activities it supports at academic and research institutions. These institutions provide abundant opportunities where individuals may concurrently assume responsibilities as researchers, educators, and students and where all can engage in joint efforts that infuse education with the excitement of discovery and enrich research through the diversity of learning perspectives.

Integrating Diversity into NSF Programs, Projects, and Activities
Broadening opportunities and enabling the participation of all citizens -- women and men, underrepresented minorities, and persons with disabilities -- 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.

Additional Review Criteria:

- Does the proposal provide a vision and rationale that justifies the need for the Network and supports the choices of communities, data types, and interoperability mechanisms?
- Does the proposal describe a plan that will enable the Network to meet its dual responsibilities for engaging the community in developing consensus and agreement and providing the expertise required for turning consensus into technical standards, tools and resources?
- Does the proposal provide a management plan that will be effective in providing leadership and accountability for the network, close communication and interaction with the relevant community(ies) and stakeholders, and the flexibility to respond to changes in technologies and in the needs of the relevant community(ies)?

B. Review and Selection Process

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

Reviewers will be asked to formulate a recommendation to either support or decline each proposal. 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 is striving to be able to tell applicants whether their proposals have been declined or recommended for funding within six months. The time interval begins on the date of receipt. The interval ends when the Division Director accepts the Program Officer's recommendation.

A summary rating and accompanying narrative will be completed and submitted by each reviewer. In all cases, reviews are treated as confidential documents. Verbatim copies of reviews, excluding the names of the reviewers, 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.

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

VII. AWARD ADMINISTRATION INFORMATION

A. Notification of the Award

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

B. Award Conditions

An NSF award consists of: (1) the award letter, 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 letter; (4) the applicable award conditions, such as Grant General Conditions (GC-1); * or Federal Demonstration Partnership (FDP) Terms and Conditions * and (5) any announcement or other NSF issuance that may be incorporated by reference in the award letter. 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 http://www.nsf.gov/awards/managing/general_conditions.jsp?org=NSF. Paper copies may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from pubs@nsf.gov.

More comprehensive information on NSF Award Conditions and other important information on the administration of NSF awards is contained in the NSF *Grant Policy Manual* (GPM) Chapter II, available electronically on the NSF Website at http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpm.

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 at least 90 days before the end of the current budget period. (Some programs or awards require more frequent project reports). Within 90 days after expiration of a grant, the PI also is required to submit a final project report.

Failure to provide the required annual or final project reports will delay NSF review and processing of any future funding increments as well as any pending proposals for that PI. 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 FastLane, for preparation and submission of annual and final project reports. Such reports provide information on activities and findings, project participants (individual and organizational) publications; and, other specific products and contributions. PIs will not be required to re-enter information previously provided, either with a proposal or in earlier updates using the electronic system. Submission of the report via FastLane constitutes certification by the PI that the contents of the report are accurate and complete.

VIII. AGENCY CONTACTS

General inquiries regarding this program should be made to:

- Christopher Greer, OD/OCI, 1145S, telephone: (703) 292-8970, fax: (703)292-9060, email: cgreer@nsf.gov
- Maria Burka, ENG/CBET ENG/EFRI, 525N, telephone: (703) 292-7030, email: mburka@nsf.gov
- D. Terence Langendoen, SBE/BCS, OD/OCI, 1145S, telephone: (703) 292-5088, email: dlangend@nsf.gov
- Daniel Newlon, SBE/SES, 995N, telephone: (703) 292-7276, email: dnewlon@nsf.gov
- Wayne Patterson, OD/OISE, 940S, telephone: (703) 292-8189, email: wpatters@nsf.gov
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- Sylvia Spengler, CISE/IIS, 1125S, telephone: (703) 292-8930, email: sspengle@nsf.gov
- William Wiseman, OD/OPP, 740S, telephone: (703) 292-4750, email: wwiseman@nsf.gov
- Manfred Zorn, BIO/DBI, 615N, telephone: (703) 292-8470, email: mzorn@nsf.gov
- John Cherniavsky, telephone: (703) 292-5136, email: jchernia@nsf.gov

For questions related to the use of FastLane, contact:

- FastLane Help Desk, telephone: 1-800-673-6188; e-mail: fastlane@nsf.gov.
- Priscilla Bezdek, OD/OCI, 1145S, telephone: (703) 292-4537, fax: (703) 292-9060, email: pbezdek@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.

Investigators are encouraged to contact the program with questions about appropriateness for this solicitation before submitting a proposal.

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, MyNSF (formerly the Custom News Service)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 Regional 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. MyNSF also is available on NSF's Website at http://www.nsf.gov/mynsf/.

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

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 40,000 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 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 provide funding for special assistance or equipment to enable persons with disabilities to work on NSF-supported projects. See Grant Proposal Guide Chapter II, Section D.2 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.

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- **Location:** 4201 Wilson Blvd. Arlington, VA 22230
- **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: pubs@nsf.gov

  or telephone: (703) 292-7827
- **To Locate NSF Employees:** (703) 292-5111

PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

The information requested on proposal forms and project reports is solicited under the authority of the National Science Foundation Act of 1950, as amended. The information on proposal forms will be used in connection with the selection of qualified proposals; and project reports submitted by awardees will be used for program evaluation and reporting within the Executive Branch and to Congress. The information requested may be disclosed to qualified reviewers and staff assistants as part of the proposal review process; to proposer institutions/grantees to provide or obtain data regarding the proposal review process, award decisions, or the administration of awards; to government contractors, experts, volunteers and researchers and educators as necessary to complete assigned work; to other government agencies or other entities needing information regarding applicants or nominees as part of a joint application review process, or in order to coordinate programs or policy; and to another Federal agency, court, or party in a court or Federal administrative proceeding if the government is a party. Information about Principal Investigators may be added to the Reviewer file and used to select potential candidates to serve as peer reviewers or advisory committee members. See Systems of Records, NSF-50, "Principal Investigator/Proposal File and Associated Records," 69 Federal Register 26410 (May 12, 2004), and NSF-51, "Reviewer/Proposal File and Associated Records, " 69 Federal Register 26410 (May 12, 2004). 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:

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