INTERNATIONAL DIGITAL LIBRARIES
COLLABORATIVE RESEARCH AND
APPLICATIONS TESTBEDS

Program Solicitation

NSF-02-085

DIRECTORATE FOR COMPUTER AND INFORMATION SCIENCE AND ENGINEERING
DIVISION OF INFORMATION AND INTELLIGENT SYSTEMS

LETTER OF INTENT DUE DATE(S) (optional): March 15 of each year except FY 2002.
For FY 2002: April 27.

FULL PROPOSAL TARGET DATE(S): April 15 of each year except FY 2002.
For FY 2002: June 3.

NATIONAL SCIENCE FOUNDATION
Revisions and Updates

International Digital Libraries Collaborative Research And Applications Testbeds

Effective May 24, 2002, the following changes were made to this program announcement:

(1) The deadline for full proposals is being extended to Monday, June 3, 2002. This new deadline appears on the Cover Page and in the text of this program solicitation.

(2) Under "Additional Review Criteria," Criterion # 10 has been deleted ["Criteria unique to specific...] There is only 9 special criteria.

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GENERAL INFORMATION

Program Title: INTERNATIONAL DIGITAL LIBRARIES COLLABORATIVE RESEARCH AND APPLICATIONS TESTBEDS

Synopsis of Program: This activity is supported by the Division of Information and Intelligent Systems in the Directorate for Computer and Information Science and Engineering. It builds on and extends prior Foundation efforts in international collaborative digital libraries research and applications.

Cognizant Program Officer(s):

- Stephen M. Griffin, Program Manager, CISE/IIS, Information and Intelligent Systems, 1115, telephone: 703-292-8930, e-mail: sgriffin@nsf.gov.

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

- 47.070 --- Computer and Information Science and Engineering

ELIGIBILITY INFORMATION

- Organization Limit: see Eligibility Description
- PI Eligibility Limit: None
- Limit on Number of Proposals: None

AWARD INFORMATION

- Anticipated Type of Award: Standard or Continuing Grant
- Estimated Number of Awards: Up to 10 per year
- Anticipated Funding Amount: Up to $10,000,000 in FY2002 pending the availability of funds.

PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

- Letters of Intent: Submission of Letters of Intent is optional. Please see the full program announcement/solicitation for further information.

- Full Proposals: Supplemental Preparation Guidelines

  - The program announcement/solicitation contains supplements to the standard Grant Proposal Guide (GPG) proposal preparation guidelines. Please see the full program announcement/solicitation for further information.
B. Budgetary Information

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

C. Deadline/Target Dates

- **Letters of Intent (optional):** March 15 of each year except FY 2002. For FY 2002: April 27.
- **Preliminary Proposals (optional):** None
- **Full Proposal Target Date(s):** April 15 of each year except FY 2002. For FY 2002: June 3.

D. FastLane Requirements

- **FastLane Submission:** Required
- **FastLane Contact(s):**
  - Michele R. Johnson, Senior Program Assistant, CISE/IIS, Information and Intelligent Systems, 1115, telephone: (703) 292-8930, e-mail: mrjohnso@nsf.gov.

PROPOSAL REVIEW INFORMATION

- **Merit Review Criteria:** National Science Board approved criteria. Additional merit review considerations apply. Please see the full program announcement/solicitation for further information.

AWARD ADMINISTRATION INFORMATION

- **Award Conditions:** Standard NSF award conditions apply.
- **Reporting Requirements:** Standard NSF reporting requirements apply.
I. INTRODUCTION

This activity is supported by the Division of Information and Intelligent Systems in the Directorate for Computer and Information Science and Engineering. It builds on and extends prior Foundation efforts in digital libraries research and applications.

International digital libraries research is intended to contribute to the fundamental knowledge required to create information systems that can operate in multiple languages, formats, media, and social and organizational contexts. International collaborative research can bring complementary approaches, resources and perspectives to bear on common needs and information technology research challenges.

International digital libraries applications testbeds are intended to build operational prototypes for globally distributed, internet-based resources, and to implement these in a variety of applications contexts. The testbeds are expected to advance technologies across the digital libraries lifecycle, focus collective work on organizing domain-specific content, and engage researchers, scholars, students and teachers in enhancing research and knowledge resources in a variety of subject domains.

The program’s goal is to advance the creation and access to internet-based digital content, regardless of location, information content or form, and thus enable broad use for research, education, commerce and other societal purposes. Developing global information environments requires international collaborative efforts in many areas:

* identifying collections of information which is not accessible or usable because of technical barriers, distance, size, system fragmentation or other limits;

* creating interoperable technologies for federation and retrieval of many kinds of information;

* understanding and developing new technologies to make it possible for such information to be organized and delivered to and/or exploited by a distributed sets of users in collaborative settings;

* building testbeds to evaluate new technology in international contexts and to measure the benefits gained along various dimensions;

* resolving intellectual property issues in complex global marketplaces;

* developing linked, compatible databases with inherently regional information, such as databases of geographic, botanic, agricultural, demographic or economic data;

* reaching agreement on methods and standards for ensuring long-term sustainability and interoperability among distributed and separately administered databases; and,

* implementing preservation and archiving practices for domain-specific and other content.

While there are now uncoordinated efforts in many countries to build digital libraries, cooperative research and testbed activities can help avoid duplication of effort, prevent the development of non-interoperable digital systems, and encourage productive interchange of scientific knowledge and scholarly data around the world.
This NSF effort will fund the U.S. portion of collaborative digital library projects among investigators from different countries to foster long-term, sustainable relationships between U.S. and non-U.S. researchers and research organizations. Cooperating groups in supported projects are expected to be balanced in terms of level of effort and expertise, and demonstrate the benefits obtainable from complementary international research. The research strengths and unique resources of organizations in different countries should be combined to facilitate work on complex multi-faceted problems relating to the access and use of internationally distributed, multilingual and multimedia content.

II. PROGRAM DESCRIPTION

The new program seeks to fund projects that demonstrate how modern information and communications technologies can fundamentally change the way in which topical material is represented and delivered to diverse communities of users. Projects are expected to disseminate findings widely and serve as exemplars for the international digital libraries community.

Proposals should have the overall goals of advancing digital libraries research and infrastructure needs and enable users to access and exploit information in new and productive ways. Research issues include information structure, organization, access, scalability and security techniques for worldwide data systems, and tools to search, store, and deliver information in different media or languages.

Specific research areas in this program are:

* creation of multi-national digital libraries which include text, sound, scientific data, images, multimedia, software tools, and other kinds of content,
* multi-lingual information systems, cross-language retrieval systems, language translation, and language teaching software,
* interoperability and scalability technology to permit extremely large world-wide collections,
* metadata techniques and tools and data structuring approaches and consensus building,
* geospatial, environmental, biological, historical and other information systems in which location is highly relevant, including novel organizations for such systems,
* preservation and archiving of digital scholarly information, including technology and procedures for long-term information asset management and systems sustainability,
* utilization of digital libraries in educational technology at all levels of instruction,
* economic and copyright issues: authentication, payment, rights formalism, trust and fair use,
* electronic publishing and scholarly communication technology, including collaboratories, online repositories, and new methods of organizing scientific knowledge distribution, and
* measurement of effectiveness of resource deployment in applications contexts and broader social, cultural and economic impacts.

This topic list is not intended to be entirely inclusive, but to illustrate and encourage research which opens exciting new areas, and gives promise of user benefits from coordinated international research and testbed activities.
III. ELIGIBILITY INFORMATION

Multi-country, multi-team projects are required, and proposals to this program must involve at least one team in the United States and one in another country. A project should submit a single, jointly developed proposal indicating workplans of each major partner. Each team is responsible for obtaining support for its part of the project. NSF will not support the non-U.S. portion of a project. NSF will not support U.S. portions of a project in which the non-U.S. partners fail to receive support from the foreign funding agencies involved. The NSF proposal must contain, in addition to budget(s) for the U.S. team(s), information indicating the level of investments and efforts for each foreign team. Where desirable, NSF may choose to coordinate review with a foreign funding agency and make joint decisions.

Institutions eligible to apply to the NSF supported portion of this program are U.S. universities and U.S. non-profit research institutions. NSF support for a project will not exceed five years duration with a maximum yearly cost of $1,000,000. NSF funding for this program will vary according to funding availability and opportunities for co-sponsorship.

IV. AWARD INFORMATION

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

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

Letters of Intent: Optional: Due One Month Prior to Proposal Submission

Letters of Intent are encouraged to assist the program in administrative and review preparation. Organizations or persons considering submission of a proposal should send an electronic mail message with the following statement: "I am interested in submitting a proposal to the International Digital Libraries Program," and include the title and brief abstract of the proposed work, as much as is known of the list of participants, including the foreign participants, and the source of funds anticipated for the foreign partners. Letters of intent will not be refereed or evaluated but should contain sufficient information about the topic to help in the selection of reviewers.

Submit the letter of intent as an electronic mail message to:

idli2@nsf.gov

Full Proposal:

Proposals submitted in response to this program announcement/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 Web Site at: http://www.nsf.gov/cgi-bin/getpub?gpg. Paper copies of the GPG may be obtained from the NSF Publications Clearinghouse, telephone (301) 947-2722 or by e-mail from pubs@nsf.gov.
Proposals submitted in response to this program announcement/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 Web Site at: http://www.nsf.gov/cgi-bin/getpub?gpg. Paper copies of the GPG may be obtained from the NSF Publications Clearinghouse, telephone (301) 947-2722 or by e-mail from pubs@nsf.gov.

Proposers are reminded to identify the program solicitation number (Not Specified) in the program announcement/solicitation block on the 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.

GPG guidelines should be augmented with the following additions.

Up to 5 additional pages are allowed to describe the plan of work and management plan. This section should be clearly labeled "Plan of Work and Management Plan" and should be included as Supplementary Documentation in Fastlane. It will not be included in the project description page count. It should include the following information:

Plan of work:
* what the primary research questions are,
* what information resource is to be used in the project,
* what area will be investigated,
* who is likely to use the information and for what purposes,and
* what benefits are expected to flow from the project, and how these might be assessed and measured.

Management plan:
* details of how cooperation is to be carried out and coordinated,
* description of and justification for the partitioning of the research activities,
* processes to be used for coordinating and evaluating progress, and
* strategy for long-term maintenance and sustainability.

Biographical information should be provided for all investigators in the collaborative effort, both U.S. and non-U.S., in the Biographical Sketches form in Fastlane.

Citations to participant publications which appeared in printed and electronic journals after July 1, 1998 are encouraged to be given. A letter of endorsement from the foreign counterparts, which identifies the source of support for the non-US activities, is required and should also be provided as Supplementary Documentation in Fastlane.

Proposers are reminded to identify the program solicitation number (NSF-02-085) in the program announcement/solicitation block on the proposal Cover Sheet. Compliance with this requirement is critical to determining the relevant proposal processing guidelines. Failure to submit this information may delay processing.

**B. Budgetary Information**

Cost sharing is not required in proposals submitted under this Program Solicitation.
C. Deadline/Target Dates

Proposals must be submitted by the following date(s):

**Letters of Intent (optional):** March 15 of each year except FY 2002
   For FY 2002: April 27
**Full Proposals:** April 15 of each year except FY 2002.
   For FY 2002: June 3.

Program is active each year until cancelled

D. FastLane Requirements

Proposers are required to prepare and submit all proposals for this Program Solicitation through the FastLane system. Detailed instructions for proposal preparation and submission via FastLane are available at: [http://www.fastlane.nsf.gov/a1/newstan.htm](http://www.fastlane.nsf.gov/a1/newstan.htm). For FastLane user support, call 1-800-673-6188 or e-mail fastlane@nsf.gov.

**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 certifications within five working days following the electronic submission of the proposal. Further instructions regarding this process are available on the FastLane website at: [http://www.fastlane.nsf.gov](http://www.fastlane.nsf.gov).

VI. PROPOSAL REVIEW INFORMATION

A. NSF Proposal Review Process

Reviews of proposals submitted to NSF are solicited from peers with expertise in the substantive area of the proposed research or education project. These reviewers are selected by Program Officers charged with the oversight of the review process. NSF invites the proposer to suggest, at the time of submission, the names of appropriate or inappropriate reviewers. Care is taken to ensure that reviewers have no conflicts with the proposer. Special efforts are made to recruit reviewers from non-academic institutions, minority-serving institutions, or adjacent disciplines to that principally addressed in the proposal.

The two 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 he/she 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
Special Criteria used for this Program:

1. Does the proposal represent new research in the area of digital libraries, and does it contain new scientific ideas and methods?

2. Does the project demonstrate the need for and advantages of shared international activities, and exploit, as appropriate, new communications methods to link its teams?

3. Are the research groups interacting as true collaborators, displaying complementary and comparable levels of professional expertise?

4. Does the management plan provide mechanisms for effective communication, coordination, progress assessment, and flexibility?

5. Should the research be successful, how many people will benefit from the new technology created?

6. Should the research be successful, how will the content be made available to communities of users?

7. Do the previous efforts of the research teams demonstrate their competence and support their likelihood of achieving the goals of the project?

8. If the work is successful at creating a new information service, does the proposal include a plan by which that service will be continued after the research funding ends, and how credible is that plan?
9. How effective is the project plan to disseminate results, share resources and enable others to draw upon the products of the project effort?

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 identities of reviewers, are sent to the Principal Investigator/Project Director by the Program Director. In addition, the proposer will receive an explanation of the decision to award or decline funding.

B. Review Protocol and Associated Customer Service Standard

All proposals are carefully reviewed by at least three other persons outside NSF who are experts in the particular field represented by the proposal. Proposals submitted in response to this announcement/solicitation will be reviewed by Mail 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.

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 closing date of an announcement/solicitation or the date of proposal receipt (whichever is later). The interval ends when the Division Director accepts the Program Officer's recommendation.

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 one's 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 Division 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.A. 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 (NSF-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 agreement awards also are administered in accordance with NSF Cooperative Agreement Terms and Conditions (CA-1). Electronic mail notification is the preferred way to transmit NSF awards to organizations that have electronic mail capabilities and have requested such notification from the Division of Grants and Agreements.

*These documents may be accessed electronically on NSF's Web site at http://www.nsf.gov/home/grants/grants_gac.htm. Paper copies may be obtained from the NSF Publications Clearinghouse, telephone (301) 947-2722 or by e-mail from pubs@nsf.gov.


C. Reporting Requirements

For all multi-year grants (including both standard and continuing grants), the PI must submit an annual project report to the cognizant Program Officer at least 90 days before the end of the current budget period.

Within 90 days after the expiration of an award, the PI also is required to submit a final project report. Approximately 30 days before expiration, NSF will send a notice to remind the PI of the requirement to file the final project report. Failure to provide final technical reports delays NSF review and processing of pending proposals for that PI. PIs should examine the formats of the required reports in advance to assure availability of required data.

NSF has implemented an electronic project reporting system, available through FastLane. This system permits electronic submission and updating of project reports, including information on project participants (individual and organizational), activities and findings, 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.

VIII. CONTACTS FOR ADDITIONAL INFORMATION

General inquiries regarding INTERNATIONAL DIGITAL LIBRARIES COLLABORATIVE RESEARCH AND APPLICATIONS TESTBEDS should be made to:

- Stephen M. Griffin, Program Manager, CISE/IIS, Information and Intelligent Systems, 1115, telephone: 703-292-8930, e-mail: sgriffin@nsf.gov.
For questions related to the use of FastLane, contact:

- Michele R. Johnson, Senior Program Assistant, CISE/IIS, Information and Intelligent Systems, 1115, telephone: (703) 292-8930, e-mail: mrjohnso@nsf.gov.

IX. OTHER PROGRAMS OF INTEREST

The NSF Guide to Programs is a compilation of funding for research and education in science, mathematics, and engineering. The NSF Guide to Programs is available electronically at http://www.nsf.gov/cgi-bin/getpub?gp. General descriptions of NSF programs, research areas, and eligibility information for proposal submission are provided in each chapter.

Many NSF programs offer announcements or solicitations concerning specific proposal requirements. To obtain additional information about these requirements, contact the appropriate NSF program offices. Any changes in NSF's fiscal year programs occurring after press time for the Guide to Programs will be announced in the NSF E-Bulletin, which is updated daily on the NSF web site at http://www.nsf.gov/home/ebulletin, and in individual program announcements/solicitations. Subscribers can also sign up for NSF's Custom News Service (http://www.nsf.gov/home/cns/start.htm) to be notified of new funding opportunities that become available.
ABOUT THE NATIONAL SCIENCE FOUNDATION

The National Science Foundation (NSF) funds research and education in most fields of science and engineering. Awardees are wholly responsible for conducting their project activities and preparing the results for publication. Thus, the Foundation does not assume responsibility for such findings or their interpretation.

NSF welcomes proposals from all qualified scientists, engineers and educators. The Foundation strongly encourages women, minorities and persons with disabilities to compete fully in its programs. In accordance with Federal statutes, regulations and NSF policies, no person on grounds of race, color, age, sex, national origin or disability shall be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving financial assistance from NSF (unless otherwise specified in the eligibility requirements for a particular program).

Facilitation Awards for Scientists and Engineers with Disabilities (FASED) provide funding for special assistance or equipment to enable persons with disabilities (investigators and other staff, including student research assistants) to work on NSF-supported projects. See the program announcement/solicitation for further information.

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, FIRS at 1-800-877-8339.

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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; 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 applicant 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 needing information as part of the review process or in order to coordinate programs; 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," 63 Federal Register 267 (January 5, 1998), and NSF-51, "Reviewer/Proposal File and Associated Records," 63 Federal Register 268 (January 5, 1998). Submission of the information is voluntary. Failure to provide full and complete information, however, may reduce the possibility of receiving an award.

Pursuant to 5 CFR 1320.5(b), an agency may not conduct or sponsor, and a person is not required to respond to an information collection unless it displays a valid 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 this burden estimate and any other aspect of this collection of information, including suggestions for reducing this burden, to: Suzanne Plimpton, Reports Clearance Officer, Division of Administrative Services, National Science Foundation, Arlington, VA 22230, or to Office of Information and Regulatory Affairs of OMB, Attention: Desk Officer for National Science Foundation (3145-0058), 725 17th Street, N.W. Room 10235, Washington, D.C. 20503.

OMB control number: 3145-0058.