

Information Technology Research for National Priorities Reviewer Guidelines
Revised: March 23, 2004

As with all NSF proposals, your ITR review should consider the two NSF review criteria:

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?

The standard NSF review form describes these criteria in more detail and reviewers are urged to read about and understand these criteria before writing reviews. The purpose of these guidelines is to explain how these criteria apply to this year's ITR solicitation -- Information Technology Research (ITR) for National Priorities. The review criteria are outlined in Section VI.A of the current ITR solicitation which can be found at: <http://www.nsf.gov/pubs/2004/nsf04012/nsf04012.htm>.

Constructive reviewer feedback is valuable to the PI in preparing possible future submissions. Reviewers should provide a rigorous review and present their remarks in a form that is helpful to both NSF program officers and the project personnel. Terse comments presented without adequate support or explanation should be avoided.

Criterion #1 Issues:

ITR proposals should include IT in a nontrivial way and be at the frontiers of their respective scientific and engineering disciplines. Successful ITR proposals will be those that either advance basic research in IT and other disciplines, or capitalize on and extend recent IT advances to develop new capabilities and to advance new concepts. A successful ITR proposal will likely go beyond the IT component found commonly in proposals submitted to standard research programs. Proposals focused on routine uses of IT, such as equipment requests to run standard programs, are not responsive to the ITR program.

ITR emphasizes the importance of innovative, high-risk, and high-impact research. Is the proposal highly innovative, rather than an incremental improvement on standard ideas? This year, we have encouraged our research communities to focus their innovative ideas on areas of National Priority. How strong is the potential contribution, however risky, to the selected National Priority or Priorities?

ITR is an activity that includes all NSF Directorates and programmatic Offices. The ITR solicitation encouraged proposers to target one or more (of three) National Priorities and to work over more than one technical focus area. The solicitation states, "New knowledge is needed to improve the design, use, behavior, and stability of these widely distributed systems. A better understanding of this historical shift towards increasing connections and interdependencies among heterogeneous systems and how to harness their potential in service to society is necessary." The ITR Program places particular emphasis on interdisciplinary research and education projects that have the potential to be groundbreaking, innovative and enable real progress in areas of National Priority.

Criterion #2: Issues

It is important that all reviewers comment on the broader impacts of the proposals, particularly the integration of research and education, and the integration of diversity into research activities. More details on these dimensions are given below:

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.

A summary or justification of how the project will impact the identified National Priority Area(s) must be included in the broader impacts paragraph(s) with an expansion of these issues throughout the project description.

All proposals should strive for high impact on society, whether by advancing IT itself, by advancing science and engineering, or by indirectly enabling such advances. This impact may be either short-term (e.g. by supplying software or tools for immediate use) or long-term (e.g. by providing training of a new generation of scientists and engineers in IT). Broad impacts of particular relevance to ITR include expanding the pool of workers trained in IT-related subjects, increasing the diversity of the IT-using population, providing access to IT to previously disenfranchised groups, and extending the range of applications of IT to new areas of science and engineering.