NATIONAL SCIENCE FOUNDATION

PART ASSESSMENTS[1]

[1] For each program that has been assessed using the PART, this document contains details of the most recent assessment. These details are presented in their original form; some programs have revised performance targets and developed or replaced performance measures since the original assessment. The PART summaries published with the 2006 Budget (in February 2005) provide current information on follow-up to recommendations and other updates.

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Agency: National Science Foundation

Bureau:

	Section Scores			Rating
1	2	3	4	Effective
100%	100%	100%	89%	

Type(s): Research and Development   Competitive Grant

1.1   **Is the program purpose clear?**   Answer: YES   Question Weight 20%

Explanation: The Biocomplexity in the Environment (BE) priority area is a multidisciplinary effort with the purpose of synthesizing knowledge across disciplines; improving science-based forecasting for complex environmental systems; and advancing a broad range of methods, tools, and infrastructure to support interdisciplinary activities. This statement of purpose is derived directly from the statutes that govern the Foundation. The National Science Board recommended that environmental research, education and scientific assessment be one of NSF's highest priorities "with significant new investments in research critical to understanding biocomplexity" (NSB 00-22). NSF invests in priority areas that "hold exceptional promise for accelerating S&E [Science and Engineering] progress, advancing the frontiers of knowledge, and addressing national interests." (NSF Strategic Plan FY 2003-2008).

Evidence: Relevant information can be found in the NSF Strategic Plan FY 2003-2008, (pages 9-11, 23, http://www.nsf.gov/od/gpra/Strategic_Plan/FY2003-2008.pdf); Environmental Science and Engineering for the 21st Century/ The Role of the National Science Foundation (page 45, http://www.nsf.gov/pubsys/ods/getpub.cfm?nsb0022); and the National Science Foundation Act of 1950, 42 USC 1861 et. seq.

1.2   **Does the program address a specific and existing problem, interest or need?**   Answer: YES   Question Weight 20%

Explanation: The Biocomplexity in the Environment (BE) program specifically responds to the demand for new, interdisciplinary approaches for investigating the interactivity of the environment and both human and non-human biota (NSF FY 2005 Budget Request to Congress). BE program activities address the need for new training, organizations and funding to bring together multidisciplinary research teams as identified by the National Research Council. BE also includes activities of national importance such as the study of the Ecology of Infectious Disease. The National Science Board recommended that environmental research, education and scientific assessment be one of NSF's highest priorities "with significant new investments in research critical to understanding biocomplexity" (NSB 00-22).

Evidence: The national imperative for NSF's investments in Biocomplexity in the Environment (BE) is addressed in Paragraph 4 of Section 2, (Findings) of the NSF Authorization Act of 2002, P.L. 107-378: "The research and education activities of the National Science Foundation promote the discovery, integration, dissemination, and application of new knowledge in service to society." Other relevant information can be found in the NSF FY 2005 Budget Request to Congress; Grand Challenges in Environmental Sciences, National Research Council, 2001 (pages 74-76); and Countering Agricultural Bioterrorism, National Research Council Committee on Biological Threats to Agricultural Plants and Animals, 2002.

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Type(s): Research and Development   Competitive Grant

1.3 **Is the program designed so that it is not redundant or duplicative of any other Federal, state, local or private effort?**   Answer: YES   Question Weight 20%

Explanation: NSF's activities through its investments in BE address unique interdisciplinary research questions (e.g., Assembling the Tree of Life) and needs for multidisciplinary research teams that are not under the purview of mission-oriented federal, state or local agencies. NSF is the only federal agency charged with promoting the progress of science and engineering research and education in all fields and disciplines. NSF partners with other agencies to avoid duplication (e.g., the Microbial Genome Sequencing activity is administered jointly with USDA and other agencies, the Ecology of Infectious Diseases activity is with NIH, and research activities at the William R. Wiley Environmental Molecular Sciences Laboratory with DOE). NSF also participates in Climate Change Science Program Interagency Working Groups. NSF has specific, statutory authority to evaluate the status and needs of the various sciences and engineering and to consider the results of this evaluation in correlating its research and educational programs with other Federal and non-Federal programs.

Evidence: Relevant information can be found in Grand Challenges in Environmental Sciences, National Research Council, 2001; the Interagency Report on the Federal Investment in Microbial Genomics, NSTC Biotechnology Working Group, 2001, page 23 (http://www.ostp.gov/html/microbial/2000microbial/start.htm); The Microbe Project, Advisory Committee for BIO 2001 (http://www.nsf.gov/pubs/2002/nsf01208/start.htm); Assembling the Tree of Life, Summary Workshop Report 2001 (http://ucjeps.berkeley.edu/tol.pdf); Oceans and Human Health Roundtable Report, NIEHS/NSF, 2001 (http://www.niehs.nih.gov/translat/OHH-fin.pdf); NSF-DOE/PNNL Interaction in Environmental Molecular Sciences FY 04 Management Plan; Strategic Plan for the U.S. Climate Change Program, 2003 (http://www.climatescience.gov/Library/stratplan2003/final/ccspstratplan2003-all.pdf).

1.4 **Is the program design free of major flaws that would limit the program's effectiveness or efficiency?**   Answer: YES   Question Weight 20%

Explanation: NSF's investments in Biocomplexity in the Environment rely upon the competitive merit review process, NSF program officers, and Committees of Visitors (COV) to ensure program effectiveness and efficiency. Merit review by peers has been recognized as a best practice for administering R&D programs. Independent reviews by COVs and other external groups (e.g., Advisory Committees, National Science Board, National Academy of Sciences/National Research Council) provide additional scrutiny of the portfolio and program goals and results. This follows the guidance provided in the R&D Criteria, as outlined in the OMB/OSTP Guidance Memo.

Evidence: Relevant information may be found in the FY 2003 Performance and Accountability Report, pages II-59-60 (http://www.nsf.gov/pubsys/ods/getpub.cfm?par); the FY 2003 Report on NSF Merit Review System (page 4, http://www.nsf.gov/nsb/documents/reports.htm); and the 2004 Committee of Visitors Report for the Biocomplexity in the Environment Competition (2001-2003) (http://www.nsf.gov/geo/ere/ereweb/advisory.cfm).

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1.5 **Is the program effectively targeted, so that resources will reach intended beneficiaries and/or otherwise address the program's purpose directly?**

Answer: YES   Question Weight 20%

Explanation: The Biocomplexity in the Environment solicitation contains a clear statement of purpose that was developed according to the recommendations of the Advisory Committee for Environmental Research and Education (AC/ERE) as documented in Advisory Committee meeting minutes (e.g., October 11-12, 2000) and the 2003 AC/ERE report. The merit review process ensures that funding is awarded to proposals that best address the program's purpose. Due to the interdisciplinary nature of BE proposals, teams of program officers representing multiple directorates work together to create multidisciplinary panels with collective expertise to ensure scrutiny of all aspects of the proposed research.

Evidence: Key areas of emphasis include Microbial Genome Sequencing (http://www.nsf.gov/pubs/2003/nsf03603/nsf03603.htm); Ecology of Infectious Disease (http://www.nsf.gov/pubs/2003/nsf03507/nsf03507.html); Biocomplexity and the Environment: Dynamics of Coupled Natural and Human Systems, Coupled Biogeochemical Cycles, Genome-Enabled Environmental Sciences and Engineering, Instrumentation Development for Environmental Activities, Materials Use: Science, Engineering and Society (http://www.nsf.gov/pubs/2003/nsf03597/nsf03597.htm). Additional relevant information may be found in the FY 2003 Report on NSF Merit Review System (http://www.nsf.gov/nsb/documents/2004/MRreport_2003_final.pdf).

2.1 **Does the program have a limited number of specific long-term performance measures that focus on outcomes and meaningfully reflect the purpose of the program?**

Answer: YES   Question Weight: 9%

Explanation: Specific long-term performance measures for NSF's investments in Biocomplexity in the Environment are listed in the 'Measures' tab. These are drawn from the objectives set forth in the NSF Strategic Plan FY 2003-2008, and they encompass NSF's commitment to promoting interdisciplinary research to enhance scientific understanding of complex environmental systems and processes for the benefit of society.

Evidence: Performance measures can be found in the Measures tab. Additional information about the assessment of performance may be found in the NSF Strategic Plan FY 2003-2008, pages 27-29 (http://www.nsf.gov/od/gpra/Strategic_Plan/FY2003-2008.pdf).

2.2 **Does the program have ambitious targets and timeframes for its long-term measures?**

Answer: YES   Question Weight: 9%

Explanation: The long-term measures and targets for NSF's investments in Biocomplexity in the Environment (BE) are based upon the recommendations of the National Science Board (NSB 2000).   These targets are ambitious because they require a reorganization of the scientific community into interdisciplinary teams and a redistributions of resources at NSF from directorates into the BE priority area.

Evidence: The targets and timeframes for the Biocomplexity program may be found in Environmental Science and Engineering for the 21st Century/ The Role of the National Science Foundation (http://www.nsf.gov/pubsys/ods/getpub.cfm?nsb0022)

2.3 **Does the program have a limited number of specific annual performance measures that can demonstrate progress toward achieving the program's long-term goals?**

Answer: YES   Question Weight: 9%

Explanation: The program has identified a number of quantitative annual measures, shown in the 'Measures' tab, that relate directly to the agency's strategic goals.

Evidence: Performance measures can be found in the Measures tab.

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2.4 **Does the program have baselines and ambitious targets for its annual measures?**   Answer: YES   Question Weight: 9%

Explanation: Baselines are obtained from internal NSF sources. Ambitious targets are set under the 'Measures' tab.

Evidence: Performance measures can be found in the Measures tab. Additional information regarding baselines and targets may be found in NSF's Enterprise Information System (EIS) and the 2004 Committee of Visitors Report for the Biocomplexity in the Environment Competition (2001-2003), pages 20, 21, and 23 (http://www.nsf.gov/geo/ere/ereweb/advisory.cfm).

2.5 **Do all partners (including grantees, sub-grantees, contractors, cost-sharing partners, and other government partners) commit to and work toward the annual and/or long-term goals of the program?**   Answer: YES   Question Weight: 9%

Explanation: The key partners for NSF's investments in Biocomplexity in the Environment (BE) both commit to and work toward the goals of the program. The commitment is ensured through the mechanisms described in the response to Q1.5 -- namely the combination of the program purpose being expressed in program solicitations and the selection of awards through the merit review process. NSF then ensures that its partners are working toward the goals of the program via the following mechanisms: 1) continuing support is based upon annual progress reports submitted by Principal Investigators and reviewed by NSF program officers; 2) to receive subsequent awards, all applicants are required to report on the results of previous NSF support, which is then considered in the merit review process. Additionally, Principal Investigators are required to include travel funds in their budgets for attending a BE program workshop or meeting.

Evidence: Relevant information may be found in annual and final project reports; grant conditions and contract agreements; the Biocomplexity in the Environment solicitation (http://www.nsf.gov/pubs/2002/nsf02167/nsf02167.htm); the Biocomplexity in the Environment Awardees Meeting Report, September 2003; and the FY 2003 Report on NSF Merit Review System (http://www.nsf.gov/nsb/documents/2004/MRreport_2003_final.pdf).

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2.6 **Are independent evaluations of sufficient scope and quality conducted on a regular basis or as needed to support program improvements and evaluate effectiveness and relevance to the problem, interest, or need?**

Answer: YES   Question Weight:18%

Explanation: The Advisory Committee for Environmental Research and Education (AC/ERE) reviews and oversees the BE program. The AC/ERE meets semi-annually to evaluate program activities and progress and make recommendations that direct program planning and effect program improvements. The AC/ERE also authors reports and occasional papers to provide program guidance. Futhermore, each activity at NSF is reviewed once every three years by a Committee of Visitors. The first BE COV was held in February 2003. Other Advisory Committees and COVs also review components of the BE program. NSF's approach to evaluation was recently highlighted by GAO as an "evaluation culture--a commitment to self-examination, data quality, analytic expertise, and collaborative partnerships." NSF-funded workshops, Principal Investigator meetings, and reviews by other external entities (e.g., NRC) further add to BE program evaluation and contribute to development of plans for the program. NOTE: The weight of this question reflects the importance NSF places on independent evaluations.

Evidence: Independent evaluations are critical to NSF performance assessment as evidenced by the GAO report Program Evaluation: An Evaluation Culture and Collaborative Partnerships Help Build Agency Capacity, GAO-03-454 May 2, 2003. Examples of independent evaluations for the Biocomplexity program include the 2004 Committee of Visitors Report for the Biocomplexity in the Environment Competition (2001-2003) and NSF response (http://www.nsf.gov/geo/ere/ereweb/advisory.cfm); Advisory Committee reports, including the Complex Environmental Systems: Synthesis for Earth, Life, and Society in the 21st Century, Advisory Committee for Environmental Research and Education (AC/ERE) 2003 (http://www.nsf.gov/geo/ere/ereweb/ac-re/acere_synthesis_rpt_full.pdf); the Report of the Committee of Visitors Division of Chemistry February 3-5, 2004; Integrating Research and Education: Biocomplexity Investigators Explore the Possibilities, NRC 2003; the EMSI Site Visit Report, June 2001; and the Site Visit Committee Report of EMSI Ohio State University, June 2003.

2.7 **Are Budget requests explicitly tied to accomplishment of the annual and long-term performance goals, and are the resource needs presented in a complete and transparent manner in the program's budget?**

Answer: YES   Question Weight: 9%

Explanation: Performance information is used by managers to make informed decisions and is incorporated into NSF's budget requests to the Congress. The NSF FY 2005 Budget Request was built around the R&D Criteria, thereby highlighting specific performance information for NSF's investment portfolio. The budget also clearly presents the resource request and outlines the activities that will be supported with the funds. In the Budget Request, NSF displays the full budgetary cost associated with the new program framework defined in the NSF Strategic Plan FY 2003-2008.

Evidence: The FY 2005 NSF Budget Request to Congress, as well as previous budget requests, indicate the long-term goals of the Biocomplexity in the Environment program and presents the resources needed in a complete and transparent manner (pages 15-19, http://www.nsf.gov/bfa/bud/fy2005/pdf/fy2005.pdf).

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2.8   Has the program taken meaningful steps to correct its strategic planning deficiencies?   Answer: YES   Question Weight: 9%

Explanation: For NSF's investments in Biocomplexity in the Environment (BE), the Committee of Visitors (COV) process provides a valuable mechanism for identifying and addressing planning-related issues.   Through the COV, NSF receives feedback on the activity's goals and overall effectiveness. Steps to address weaknesses are identified, when applicable. In the FY 2004 COV review of the BE program, one of the recommendations was to expand social science methodology to include rigorous qualitative research methods. The 2005 solicitation for BE will be revised to reflect this recommendation. The BE program has successfully emphasized NSF's broader impacts criterion, as acknowledged by the National Research Council as "one of the few programs to require that applicants explicitly include an education or outreach component."

Evidence: The program implements recommendations from outside evaluations as evidenced in the 2004 Committee of Visitors Report for the Biocomplexity in the Environment Competition (2001-2003) and the NSF response (page 31, http://www.nsf.gov/geo/ere/ereweb/advisory.cfm) and in Integrating Research and Education: Biocomplexity Investigators Explore the Possibilities, National Research Council, 2003.

2.RD1   If applicable, does the program assess and compare the potential benefits of efforts within the program to other efforts that have similar goals?   Answer: YES   Question Weight: 9%

Explanation: NSF's investments in Biocomplexity in the Environment (BE) address unique national interdisciplinary research questions and needs for multidisciplinary research teams that are not under the purview of the more mission-specific federal, state, or local agencies. As an agency-wide priority area, the BE program ensures that efforts are not duplicated within NSF. BE is a frontier activity. Therefore, it is difficult to make direct comparisons to other programs at this time. The 2004 BE Committee of Visitors found that "there has been an impressive response from the community" which has resulted in emerging programs at other agencies that BE may be able to be compared to in the future.

Evidence: The Biocomplexity program assesses and compares the potential benefits of its efforts through the evaluation process. Evidence of this assessment can be found in the 2004 Committee of Visitors Report for the Biocomplexity in the Environment Competition (2001-2003) (page 1, http://www.nsf.gov/geo/ere/ereweb/advisory.cfm) and in Complex Environmental Systems: Synthesis for Earth, Life, and Society in the 21st Century, Advisory Committee for Environmental Research and Education, 2003 (http://www.nsf.gov/geo/ere/ereweb/ac-re/acere_synthesis_rpt_full.pdf).

2.RD2   Does the program use a prioritization process to guide budget requests and funding decisions?   Answer: YES   Question Weight: 9%

Explanation: The program relies on the external merit review system to prioritize proposals for final funding decisions. These final decisions will include consideration of NSF's core strategies and maintaining a diverse portfolio. For budget requests, each of the activities within the program provides input to senior management about past performance and future needs. Senior management integrates that information, prioritizes budget requests within and among programs, and determines funding levels, all of which is reviewed by the National Science Board.

Evidence: Relevant information regarding the prioritization process may be found in the NSF Strategic Plan FY 2003-2008 (http://www.nsf.gov/od/gpra/Strategic_Plan/FY2003-2008.pdf) and in the NSF FY 2005 Budget Request to Congress (http://www.nsf.gov/bfa/bud/fy2005/pdf/fy2005.pdf). Additional information regarding funding decisions may be found in the Grant Proposal Guide (www.nsf.gov/pubsys/ods/getpub.cfm?gpg).

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3.1   **Does the agency regularly collect timely and credible performance information, including information from key program partners, and use it to manage the program and improve performance?**

Answer: YES   Question Weight: 9%

Explanation: Performance information is collected from NSF grant recipients via interim, annual and final project reports. Site visits to larger projects are also used to collect performance information. Committee of Visitors (COV) reviews and recommendations are utilized to improve program performance. Process-related or quantitative goals such as dwell time are monitored via the agency's Enterprise Information System (EIS). All of these assessments impact management practices.NSF programs collect high-quality performance data relating to key program goals and use this information to adjust program priorities, make decisions on resource allocations and make other adjustments in management actions. GPRA and PART performance data are verified and validated by an independent, external consulting firm.

Evidence: Evidence relating to the use of credible performance information may be found in the 2004 Committee of Visitors Report for the Biocomplexity in the Environment Competition (2001-2003) (http://www.nsf.gov/geo/ere/ereweb/advisory.cfm), and in Advisory Committee reports, including the Advisory Committee for GPRA Performance Assessment report (http://www.nsf.gov/od/gpra/reports/ACGPA%20Report%20for%20FY%202003%20accessible.pdf). Data is collected through annual, interim, and final project reports (internal documents); the Enterprise Information System (EIS) data - GPRA module; and site visit reports (e.g., EMSI Site Visit Report, June 2001; Site Visit Committee Report of EMSI Ohio State University, June 2003).

3.2   **Are Federal managers and program partners (including grantees, sub-grantees, contractors, cost-sharing partners, and other government partners) held accountable for cost, schedule and performance results?**

Answer: YES   Question Weight: 9%

Explanation: NSF awardees must meet annual and final reporting requirements as well as financial record keeping requirements. NSF staff monitor cost, schedule and technical performance and take corrective action when necessary. The efforts of NSF staff are reviewed by their supervisors and by Committees of Visitors. Individual performance plans are directly linked to NSF's strategic goals.

Evidence: Federal managers and program partners are held accountable through cooperative agreements or contracts and annual performance evaluation of NSF employees/program officers. Relevant evidence of this may be found in the 2004 Committee of Visitors Report for the Biocomplexity in the Environment Competition (2001-2003) (page 4, http://www.nsf.gov/geo/ere/ereweb/advisory.cfm), in annual and final project reports, and in the NSF General Grant Conditions (http://www.nsf.gov/home/grants/gc102.pdf).

3.3   **Are funds (Federal and partners') obligated in a timely manner and spent for the intended purpose?**

Answer: YES   Question Weight: 9%

Explanation: NSF routinely obligates its funds in a timely manner. NSF also has pre-award internal controls to reduce the risk of improper payments. Beginning in FY 2004 NSF has incorporated erroneous payments testing of awardees into the on-site monitoring program. When this testing is complete, it will provide NSF with information about the usage of NSF funding by awardees.

Evidence: Evidence of the agency's financial obligations may be found in the NSF FY 2001 Risk Assessment for Erroneous Payments, Data on NSF Carryover (found in the NSF Budget Request to Congress), the Risk Assessment and Award Monitoring Guide, NSF's clean opinion on financial statements for past 6 years, and in the 2004 Committee of Visitors Report for the Biocomplexity in the Environment Competition (2001-2003) (page 7, http://www.nsf.gov/geo/ere/ereweb/advisory.cfm).

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3.4 **Does the program have procedures (e.g. competitive sourcing/cost comparisons, IT improvements, appropriate incentives) to measure and achieve efficiencies and cost effectiveness in program execution?**

Answer: YES   Question Weight: 9%

Explanation: NSF is a leader in the vigorous and dynamic use of information technology to advance the agency mission. Information technology improvements permit more timely and efficient processing of proposals. The NSF-wide priority of increasing award size and duration enhances efficiency because larger, longer awards allow the research community to spend more time conducting research and less time preparing proposals. Efficiencies and (internal) "effective practices" research are examining alternatives such as broadening the use of letters of intent, proactively coordinating program deadlines and developing strategies that reach out to a greater pool of reviewers. In the Biocomplexity in the Environment (BE) solicitation, subawards are used to enhance program efficiency by reducing burden in processing and tracking awards. Topical areas were developed to focus the competition within the BE priority area.

Evidence: Procedures to measure and achieve efficiencies are found in a number of documents: the Annual Performance and Accountability Reports (http://www.nsf.gov/pubs/2004/nsf0410/start.htm); the 2004 Committee of Visitors Report for the Biocomplexity in the Environment Competition (2001-2003) (page 17, http://www.nsf.gov/geo/ere/ereweb/advisory.cfm); the NSF Strategic Plan FY 2003-2008 (pages 27-29, http://www.nsf.gov/od/gpra/Strategic_Plan/FY2003-2008.pdf); the NSF Grant Proposal Guide (http://www.nsf.gov/pubs/2004/nsf042/nsf04_2.pdf); and the Biocomplexity program solicitation (http://www.nsf.gov/pubsys/ods/getpub.cfm?ods_key=nsf02167).

3.5 **Does the program collaborate and coordinate effectively with related programs?**

Answer: YES   Question Weight: 9%

Explanation: The Biocomplexity in the Environment (BE) program promotes partnerships, including collaboration with other agencies, industry, and national laboratories for projects of mutual interest and international collaboration. For example, BE is coordinating with DOE to provide academic researchers access to the cutting-edge resources available at the William R. Wiley Environmental Molecular Sciences Laboratory operated by the Pacific Northwest National Laboratory. NSF regularly shares information with other agencies and participates in coordination activities through OSTP and the National Science and Technology Council, such as the Microbe Project Interagency Working Group and the Climate Change Science Program Interagency Working Group. Policy guidance provided by the National Science Board incorporates perspectives from related programs and investments. Mechanisms are established for split funding between NSF directorates.

Evidence: Evidence relevant to demonstrating the Biocomplexity program's coordination and collaboration with similar programs may be found in management plans (internal documents, e.g., NSF-DOE/PNNL Interaction in Environmental Molecular Sciences FY 04 Management Plan); the NSTC Biotechnology Working Group 2001 Interagency Report on the Federal Investment in Microbial Genomics (http://www.ostp.gov/html/microbial/2000microbial/start.htm); the Ecology of Infectious Disease NSF/NIH MOU (00407); and the Strategic Plan for the U.S. Climate Change Program, 2003 (http://www.climatescience.gov/Library/stratplan2003/final/ccspstratplan2003-all.pdf).

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3.6 **Does the program use strong financial management practices?**   Answer: YES   Question Weight: 9%

Explanation: NSF uses strong financial management practices at the agency level and at the program level. NSF was the first federal agency to receive a 'green light' for financial management on the President's Management Agenda scorecard. NSF has received a clean opinion on its financial audits for the last six years.   The NSF is committed to providing quality financial management to all its stakeholders. It honors that commitment by preparing annual financial statements in conformity with generally accepted accounting principles in the U.S. and then subjecting the statement to independent audits.   As a federal agency, NSF prepares the following annual financial statements: Balance Sheet, Statement of Net Cost, Statement of Changes in Net Position, Statement of Budgetary Resources, and Statement of Financing. Supplementary statements are also prepared including Budgetary Resources by Major Accounts, Intragovernmental Balances, Deferred Maintenance, and Stewardship Investments.

Evidence: Evidence of NSF's strong financial management practices may be found in the President's Management Agenda, in the results of NSF financial audits, and in the annual Performance and Accountability Reports (http://www.nsf.gov/pubsys/ods/getpub.cfm?par).

3.7 **Has the program taken meaningful steps to address its management deficiencies?**   Answer: YES   Question Weight: 9%

Explanation: Committees of Visitors (COVs) regularly provide feed-back on programmatic and management-related concerns. In addition, the Foundation conducts an annual review to assess administrative and financial systems and procedures to ensure that effective management controls are in place and that any deficiencies are identified and addressed.   No management deficiencies were identified by the Biocomplexity COV.

Evidence: Reports indicating no significant management deficiencies in the Biocomplexity program include the annual Performance and Accountability Reports (http://www.nsf.gov/pubsys/ods/getpub.cfm?par); the NSF Business Analysis; the 2004 Committee of Visitors Report for the Biocomplexity in the Environment Competition (2001-2003) (page 22, http://www.nsf.gov/geo/ere/ereweb/advisory.cfm); Advisory Committee reviews of Committees of Visitors reports; the annual report to senior management; and IG reports and NSF responses.

3.CO1 **Are grants awarded based on a clear competitive process that includes a qualified assessment of merit?**   Answer: YES   Question Weight:18%

Explanation: All activities rely upon NSF's competitive, merit review process that includes external peer evaluation. All proposals are carefully reviewed by a scientist, engineer, or educator serving as an NSF program officer, and usually by 3-10 other persons outside NSF who are experts in the particular field represented by the proposal. Competitive merit review, with peer evaluation, is NSF's accepted method for informing its proposal decision process. The NSB-approved criteria address the "Intellectual Merit" and the "Broader Impacts" of the proposed effort. Some solicitations contain additional criteria that address specific programmatic objectives.NOTE: The weight of this question has been increased to reflect the relative importance of merit review in verifying the relevance, quality, and performance of NSF's investments.

Evidence: Evidence of grants awarded through a clear competitive process may be found in the FY 2003 Report on NSF Merit Review System (http://www.nsf.gov/nsb/documents/reports.htm).   Additional information may be found in the Enterprise Information System data (internal) and in the annual Performance and Accountability Reports (http://www.nsf.gov/pubsys/ods/getpub.cfm?par).

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3.CO2   **Does the program have oversight practices that provide sufficient knowledge of grantee activities?**   Answer: YES   Question Weight: 9%

Explanation: NSF has a formal Award Monitoring and Business Assistance Program (AMBAP) based on a financial and administrative risk assessment of NSF awardee institutions, focusing on award oversight, including desk and on-site monitoring and providing assistance to awardees. AMBAP is a collaborative effort between NSF administrative and financial managers/technical staff and NSF program managers working with their awardee counterparts. Oversight mechanisms are currently sufficient. NSF's capacity to provide adequate oversight is dependent on available resources to offset salary and expenses with current resources reducing NSF's ability to perform the level of oversight deemed desirable. NSF is using technology and creativeness, such as teleconferencing, videoconferencing, and reverse site visits to enhance performance oversight within current resource constraints. NSF maintains scientific oversight of all awards through annual and final project reports, and funds are tracked (via reporting systems) to ensure that funds are used for their designated purpose.

Evidence: Oversight activities which demonstrate a sufficient knowledge of grantee activities may be found in the 2004 Committee of Visitors Report for the Biocomplexity in the Environment Competition (2001-2003) (page 4, http://www.nsf.gov/geo/ere/ereweb/advisory.cfm). Additional evidence may be found in the annual, interim and final project reports; directorate reviews; the FY 2003 Report on NSF Merit Review System (http://www.nsf.gov/nsb/documents/2004/MRreport_2003_final.pdf); the Risk Assessment and Award Monitoring Guide; NSF's clean audit opinions for past six years; the President's Management Agenda Scorecard for Financial Management; site visit reports; and in the Biocomplexity in the Environment Awardees Meeting Report, September 2003.

3.CO3   **Does the program collect grantee performance data on an annual basis and make it available to the public in a transparent and meaningful manner?**   Answer: YES   Question Weight: 9%

Explanation: NSF Grant General Conditions require that results of NSF-supported research be published in the open literature and that NSF support is appropriately referenced/cited. NSF's annual Performance and Accountability Report and its annual Budget Request contain highlights of NSF-supported research. Principal Investigators provide annual progress reports to NSF which are examined and approved/disapproved by the program officers. Information is made available to the public on the numbers of proposals and numbers of awards as well as, for each award, the name of the principal investigator, the awardee institution, amount of the award, and an abstract of the project. The Budget Internet Information Site (BIIS) contains extensive information on awards and funding trends. Information on BE funded research is posted on the Environmental Research and Education (ERE) and Directorate websites.

Evidence: Grantee performance data is collected annually as evidenced in the annual Performance and Accountability Reports (http://www.nsf.gov/pubsys/ods/getpub.cfm?par); the annual Budget Request to Congress; Grant General Conditions (http://www.nsf.gov/home/grants/gc102.pdf); the Biocomplexity in the Environment Awardees Meeting Report, September 2003; Environmental Research and Education Activity Highlights (http://www.nsf.gov/geo/ere/ereweb/highlights.cfm); Awards (http://www.nsf.gov/geo/ere/ereweb/fund-biocomplex.cfm; http://www.nsf.gov/bio/pubs/awards/eid.htm#2003; http://www.nsf.gov/bio/pubs/awards/microbgen03.htm).

3.RD1   **For R&D programs other than competitive grants programs, does the program allocate funds and use management processes that maintain program quality?**   Answer: NA   Question Weight: 0%

Explanation: NSF programs are administered as competitive.

Evidence:

PROGRAM ID: 10002320

PART Performance Measurements

Program: Biocomplexity in the Environment

Agency: National Science Foundation

Bureau:

	Section Scores			Rating
1	2	3	4	Effective
100%	100%	100%	89%	

Type(s): Research and Development   Competitive Grant

4.1   **Has the program demonstrated adequate progress in achieving its long-term performance goals?**   Answer: LARGE EXTENT   Question Weight:17%

Explanation: NSF relies on external evaluation to determine whether it is achieving its long-term objectives. Input is derived from the Committees of Visitors (COVs), Principal Investigator annual and final project reports, and summaries of substantial outcomes ('nuggets') from funded research. The Advisory Committee for GRPA Performance Assessment has determined that the accomplishments under the Ideas goal have demonstrated "significant achievement' toward annual and long-term performance goals.

Evidence: Evidence demonstrating progress in meeting the Biocomplexity program's long-term goals may be found in the Measures tab , the 2004 Committee of Visitors Report for the Biocomplexity in the Environment Competition (2001-2003) (http://www.nsf.gov/geo/ere/ereweb/advisory.cfm); and the Advisory Committee for GPRA Performance Assessment Report (http://www.nsf.gov/pubs/2004/nsf04216/nsf04216.pdf).

4.2   **Does the program (including program partners) achieve its annual performance goals?**   Answer: YES   Question Weight:17%

Explanation: The program achieves its annual performance goals.

Evidence: Evidence demonstrating achievement of Biocomplexity's performance goals may be found in annual and final project reports; Committee of Visitors reports; and the annual Performance and Accountability Reports (http://www.nsf.gov/pubsys/ods/getpub.cfm?par).

4.3   **Does the program demonstrate improved efficiencies or cost effectiveness in achieving program goals each year?**   Answer: LARGE EXTENT   Question Weight:17%

Explanation: The NSF-wide priority of increasing award size and duration enhances efficiency because larger, longer awards allow the research community to spend more time conducting research and less time preparing proposals. Independent reviews by Committees of Visitors (COV) and other external groups [e.g., Advisory Committee for Environmental Research and Education, National Research Council] provide additional scrutiny to portfolio and program goals, ensuring effectiveness and operational efficiency. The Biocomplexity in the Environment (BE) COV found the efficiency of the merit review process in the BE program to be excellent.

Evidence: Cost effectiveness and efficiencies for the Biocomplexity program are shown in the Measures tab. Evidence may be found in several documents, including the annual Performance and Accountability Reports (http://www.nsf.gov/pubsys/ods/getpub.cfm?par); the Biocomplexity program solicitation http://www.nsf.gov/pubs/2003/nsf03597/nsf03597.htm); the NSF FY 2005 Budget Request to Congress; Integrating Research and Education: Biocomplexity Investigators Explore the Possibilities, National Research Council 2003; and the 2004 Committee of Visitors Report for the Biocomplexity in the Environment Competition (2001-2003) (page 3, http://www.nsf.gov/geo/ere/ereweb/advisory.cfm).

PROGRAM ID: 10002320

Program: Biocomplexity in the Environment

Agency: National Science Foundation

Bureau:

Section Scores				Rating
1	2	3	4	Effective
100%	100%	100%	89%	

Type(s): Research and Development   Competitive Grant

4.4   **Does the performance of this program compare favorably to other programs, including government, private, etc., with similar purpose and goals?**

Answer: YES   Question Weight:17%

Explanation: NSF's activities through its investment in Biocomplexity in the Environment (BE) address unique national interdisciplinary research needs that are not addressed by the mission agencies. Because of their recognized effectiveness, aspects of NSF investments in BE have been emulated by other programs in government and the private sector. The 2004 BE Committee of Visitors found that "there has been an impressive response from the community as demonstrated by the development of new multidisciplinary communities, the realignment of departments and resources in universities, the establishment of new centers, the creation of a new journal dedicated to biocomplexity."

Evidence: Other federal agencies have implemented similar programs with guidance from NSF. Evidence of Biocomplexity's relationship with similar projects may be found in the annual Performance and Accountability Reports (http://www.nsf.gov/pubsys/ods/getpub.cfm?par) and the 2004 Committee of Visitors Report for the Biocomplexity in the Environment Competition (2001-2003) (page 1, http://www.nsf.gov/geo/ere/ereweb/ac-ere/2004BECOV/BECOVFinalReport.pdf).

4.5   **Do independent evaluations of sufficient scope and quality indicate that the program is effective and achieving results?**

Answer: YES   Question Weight:33%

Explanation: Independent reviews by Committees of Visitors (COVs) and other external groups (e.g., Advisory Committees and the National Science Board) provide additional scrutiny of the portfolio and program goals and results. The Advisory Committee for GPRA Performance Assessment report noted that NSF demonstrated "significant achievement' with respect to its FY 2003 GPRA Strategic Outcome Goals for Ideas (which includes Biocomplexity in the Environment). The COVs for Biocomplexity in the Environment found that "there has been an impressive response from the community as demonstrated by the development of new multidisciplinary communities, the realignment of departments and resources in universities, the establishment of new centers, and the creation of a new journal dedicated to biocomplexity." Assessment by COVs of the "overall quality of the research and education projects supported" by the program is a continuing measure. NOTE: The weight of this question has been doubled to reflect the importance of independent evaluation in verifying relevance, quality and performance of NSF's investments.

Evidence: Evaluations of the Biocomplexity in the Environment program may be found in the Advisory Committee for GPRA Performance Assessment Report (http://www.nsf.gov/pubs/2004/nsf04216/nsf04216.pdf); NSF's annual Performance and Accountability Reports (http://www.nsf.gov/pubsys/ods/getpub.cfm?par); Integrating Research and Education: Biocomplexity Investigators Explore the Possibilities, National Research Council 2003; Annual and final project reports; Committee of Visitors reports and NSF responses; and other external reports (e.g., National Academy of Sciences).

PROGRAM ID: 10002320

PART Performance Measurements

Program: Biocomplexity in the Environment

Agency: National Science Foundation

Bureau:

Section Scores				Rating
1	2	3	4	Effective
100%	100%	100%	89%	

Type(s): Research and Development   Competitive Grant

Measure: Qualitative assessment by external experts for Biocomplexity in the Environment program's "relevance to national priorities, agency mission, relevant fields, and other customer needs."

Additional Information: The Biocomplexity in the Environment (BE) Committee of Visitors (COV) evaluates the program every three years and determines whether the program has the appropriate balance in its award portfolio for a variety of performance indicators.

Year	Target	Actual	**Measure Term:** Long-term
2004	Success	Success	
2007	Success		
2010	Success		

Measure: Percent of award decisions made available to applicants within six months of proposal receipt or deadline date, while maintaining a credible and efficient competitive merit review system, as evaluated by external experts.

Additional Information: Timely availability of proposal decisions allows the research community to more effectively plan activities. Considering the increasing complexity and numbers of proposals coming into NSF, the goal of keeping decision time for 70% of proposals down to six months is ambitious. This measure is a proxy for efficiency.

Year	Target	Actual	**Measure Term:** Annual
2001	baseline	98%	
2002	70%	74%	
2003	70%	83%	
2004	70%	61%	
2005	70%		
2006	70%		
2007	70%		

PROGRAM ID: 10002320

PART Performance Measurements

Program: Biocomplexity in the Environment
Agency: National Science Foundation
Bureau:

Section Scores				Rating
1	2	3	4	Effective
100%	100%	100%	89%	

Type(s): Research and Development   Competitive Grant

Measure: Qualitative assessment by external experts of the "overall quality of the research and education projects supported" by the Biocomplexity in the Environment program.

Additional Information: The Biocomplexity in the Environment (BE) Committee of Visitors (COV) evaluates the program every three years and determines whether the program has the appropriate balance in its award portfolio for a variety of performance indicators.

Year	Target	Actual	**Measure Term:** Long-term
2004	Success	Success	
2007	Success		
2010	Success		

Measure: Percent of Biocomplexity in the Environment (BE) proposals with at least one minority PI or co-PI for BE solicitation

Additional Information: Responds to NSF goal to increase racial and ethnic diversity of proposers.

Year	Target	Actual	**Measure Term:** Annual
2001	Baseline	11%	
2002	> 11%	12%	
2003	> 12%	15%	
2004	16%	18%	
2005	17%		

Measure: Percent of Biocomplexity in the Environment (BE) proposals with at least one female PI or co-PI for BE solicitation.

Additional Information: Responds to NSF goal to increase the number of female proposers.

Year	Target	Actual	**Measure Term:** Annual
2001	Baseline	44%	
2002	> 44%	49%	

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PROGRAM ID: 10002320

PART Performance Measurements

Program: Biocomplexity in the Environment

Agency: National Science Foundation

Bureau:

Section Scores				Rating
1	2	3	4	Effective
100%	100%	100%	89%	

Type(s): Research and Development   Competitive Grant

2003	> 49%	49%
2004	51%	53%
2005	53%	
2006	53%	

Measure: Qualitative assessment by external experts for "the balance of the Biocomplexity in the Environment (BE) award portfolio across disciplines and subdisciplines and of emerging opportunities."

Additional Information: The Biocomplexity in the Environment (BE) Committee of Visitors (COV) evaluates the program every three years and determines whether the program has the appropriate balance in its award portfolio for a variety of performance indicators.

Year	Target	Actual	**Measure Term:** Long-term
2004	Success	Success	
2007	Success		
2010	Success		

PROGRAM ID: 10002320

PART Performance Measurements

Program: Collaborations

Agency: National Science Foundation

Bureau:

Section Scores				Rating
1	2	3	4	Effective
100%	100%	100%	78%	

Type(s): Research and Development   Competitive Grant

1.1   **Is the program purpose clear?**   Answer: YES   Question Weight 20%

Explanation: The purpose of NSF's investments in Collaborations is to 'foster partnerships with colleges, universities, school districts, and other institutions - public, private, state, local, and Federal - to strengthen science and engineering (S&E) education at all levels and broaden participation in S&E fields.' This statement is derived from the statutes that govern NSF. The NSF Act of 1950 authorizes and directs NSF to support science and engineering education at all levels. Other statutes, notably the Science and Engineering Equal Opportunities Act, address the underrepresentation of women, minorities, and persons with disabilities in science and engineering. These purposes have since been further expanded and clarified in the recently enacted NSF Authorization Act of 2002. Continuing as a high priority of the Administration, No Child Left Behind calls for research that enables the successful development and implementation of science-based programs and practices in K-12 education and calls for collaboration between universities and K-12 schools and districts.

Evidence: Relevant information concerning the Collaborations program purpose may be found in the NSF Strategic Plan FY 2003-2008 (pages 14-15, http://www.nsf.gov/od/gpra/Strategic_Plan/FY2003-2008.pdf). Additional information may be found in the National Science Foundation Act of 1950, 42 USC 1861 et. seq, the Science and Engineering Equal Opportunities Act, 42 USC 1885, the NSF Authorization Act of 2002 (P.L. 107-378), and the No Child Left Behind Act of 2001 (P.L. 107-110).

1.2   **Does the program address a specific and existing problem, interest or need?**   Answer: YES   Question Weight 20%

Explanation: The national imperative for NSF's investments in Collaborations is addressed in Paragraphs 1 and 2 of Section 3 (Policy Objectives) of the NSF Authorization Act of 2002: "To strengthen the Nation's lead in science and technology by - ' (C) expanding the pool of scientists and engineers in the United States; ' and (2) To increase overall workforce skills by ' (A) improving the quality of mathematics and science education, particularly in kindergarten through grade 12; ' (D) increasing access to higher education in science, mathematics, engineering, and technology fields for students from low-income households; and (E) expanding science, mathematics, engineering, and technology training opportunities at institutions of higher education."

Evidence: Collaborations address issues identified in the National Science Foundation Act of 1950, 42 USC 1861 et. seq. and in the NSF Authorization Act of 2002 (P.L. 107-378).

1.3   **Is the program designed so that it is not redundant or duplicative of any other Federal, state, local or private effort?**   Answer: YES   Question Weight 20%

Explanation: NSF's relationship with the scientific research and education communities and its competitive grant mechanisms uniquely position the agency through its investments in Collaborations to address national science, technology, engineering and mathematics education and workforce needs that are not under the purview of mission-oriented federal, state or local agencies. NSF is the only federal agency charged with promoting the progress of science and engineering research and education in all fields and disciplines.

Evidence: The Informal Science Education (ISE) is the only activity of its kind in the federal government. The Institute of Museum and Library Services (IMLS) has a different mission and NASA and NIH have instituted some recent efforts to fund informal science education along lines consistent with their missions. NSF's ISE has previously collaborated with IMLS and other agencies on funding a research study on learning in museums. ISE communicates regularly with other agencies and review changes in their direction and solicitations to assure cooperation and unnecessary duplication.

18   PROGRAM ID: 10002322

PART Performance Measurements

Program: Collaborations

Agency: National Science Foundation

Bureau:

Section Scores				Rating
1	2	3	4	Effective
100%	100%	100%	78%	

Type(s): Research and Development Competitive Grant

1.4 **Is the program design free of major flaws that would limit the program's effectiveness or efficiency?** Answer: YES Question Weight 20%

Explanation: NSF's investments in Collaborations rely upon the competitive merit review process, NSF program officers, and Committees of Visitors (COVs) to ensure program effectiveness and efficiency. Merit review by peers has been recognized as a best practice for administering R&D programs. Independent reviews by COVs and other external groups (e.g., Advisory Committees, National Science Board, National Academy of Science/National Research Council, President's Committee of Advisors on Science and Technology) provide additional scrutiny of the portfolio and program goals and results. This follows the guidance provided in the R&D Criteria, as outlined in the OMB/OSTP Guidance Memo.

Evidence: Evidence demonstrating that the Collaborations program is free of major flaws may be found in the annual Performance and Accountability Reports (http://www.nsf.gov/pubsys/ods/getpub.cfm?par), the FY 2003 Report on NSF Merit Review System (http://www.nsf.gov/nsb/documents/2004/MRreport_2003_final.pdf) and in Committee of Visitors reports.

1.5 **Is the program effectively targeted, so that resources will reach intended beneficiaries and/or otherwise address the program's purpose directly?** Answer: YES Question Weight 20%

Explanation: NSF's investments in Collaborations rely upon two mechanisms to ensure that the program is effectively targeted and that funding addresses the program's purpose directly. First, the solicitations for each activity contain a clear statement of the purpose in the context of the particular activity. Then, the merit review process ensures that funding is awarded to proposals that best address the activity's purpose.

Evidence: Examples from Collaboration solicitations include: Centers for Learning and Teaching proposals must involve partnerships of organizations with a scientific, engineering, and/or educational mission. Each Center must have one or more school district partners (or an appropriate group of schools, e.g., specialized schools), as well as a partner that is authorized to award doctoral degrees in an appropriate science, technology, engineering and mathematics (STEM) education area. Alliances for Graduate Education and the Professoriate is designed to increase the number of minority students pursuing advanced study, obtaining doctoral degrees, and entering the professoriate in STEM disciplines. Alliances participating in this program are expected to engage in comprehensive institutional cultural changes that will lead to sustained increases in the conferral of STEM doctoral degrees, significantly exceeding historic levels of performance.

2.1 **Does the program have a limited number of specific long-term performance measures that focus on outcomes and meaningfully reflect the purpose of the program?** Answer: YES Question Weight: 9%

Explanation: Specific long-term performance measures for NSF's investments in Collaborations are listed in the 'Measures' tab. These are drawn from the objectives set forth in the NSF Strategic Plan FY 2003-2008 and they encompass NSF's commitment to broadening participation in science and engineering and to strengthening the U.S. workforce in science, technology, engineering and mathematics (STEM).

Evidence: Performance measures may be found in the Measures tab. Additional information regarding the assessment of performance may be found in the NSF Strategic Plan FY 2003-2008 (http://www.nsf.gov/od/gpra/Strategic_Plan/FY2003-2008.pdf).

PROGRAM ID: 10002322

PART Performance Measurements

Program: Collaborations

Agency: National Science Foundation

Bureau:

Section Scores				Rating
1	2	3	4	Effective
100%	100%	100%	78%	

Type(s): Research and Development   Competitive Grant

2.2   **Does the program have ambitious targets and timeframes for its long-term measures?**   Answer: YES   Question Weight: 9%

Explanation: Ambitious targets and timeframes are set under 'Measures' tab.

Evidence: Targets and timeframes for long-term measures may be found in the Advisory Committe for GPRA Performance and Assessment Report http://www.nsf.gov/pubsys/ods/getpub.cfm?nsf04011) and in annual Performance and Accountability Reports (http://www.nsf.gov/pubsys/ods/getpub.cfm?par).

2.3   **Does the program have a limited number of specific annual performance measures that can demonstrate progress toward achieving the program's long-term goals?**   Answer: YES   Question Weight: 9%

Explanation: The program has identified a number of quantitative annual measures, shown in the 'Measures' tab, that relate directly to the agency's strategic goals.

Evidence: Performance measures may be found in the Measures tab.

2.4   **Does the program have baselines and ambitious targets for its annual measures?**   Answer: YES   Question Weight: 9%

Explanation: Baselines are obtained from internal NSF sources. Ambitious targets are set under the 'Measures' tab.

Evidence: Performance measures may be found in the Measures tab. Additional information may be found in NSF's Enterprise Information System (internal); annual and final project reports.

2.5   **Do all partners (including grantees, sub-grantees, contractors, cost-sharing partners, and other government partners) commit to and work toward the annual and/or long-term goals of the program?**   Answer: YES   Question Weight: 9%

Explanation: The key partners for NSF's investments in Collaborations both commit to and work toward the goals of the program. The commitment is ensured through the mechanisms described in the response to Q1.5 -- namely the combination of the program purpose being expressed in program solicitations and the selection of awards through the merit review process. NSF then ensures that its partners are working toward the goals of the program via the following mechanisms: 1) continuing support is based upon annual progress reports submitted by Principal Investigators and reviewed by NSF program officers; 2) to receive subsequent awards, all applicants are required to report on the results of previous NSF support, which is then considered in the merit review process.

Evidence: Evidence of commitment to annual and long-term goals may be found in annual and final project reports and in the grant conditions. For example, Informal Science Education (ISE) specifies required elements of the Annual Report in the solicitation: The Annual Report 'should highlight major accomplishments, describe the lessons learned, document alignment with the proposed time line, and describe the status of the development of the materials. Samples of completed materials, or drafts of materials, should be included.' Centers for Learning and Teaching have as a grant condition that they must participate in the external program evaluation, which includes a monitoring function. The Math Science Partnership solicitation has, as an additional review criterion, evidence of an effective partnership among the partnering institutions and organizations. Projects report on progress in this area in their strategic plans, implementation plans and annual reports.

PROGRAM ID: 10002322

Program: Collaborations

Agency: National Science Foundation

Bureau:

	Section Scores				Rating
	1	2	3	4	Effective
	100%	100%	100%	78%	

Type(s): Research and Development   Competitive Grant

2.6   **Are independent evaluations of sufficient scope and quality conducted on a regular basis or as needed to support program improvements and evaluate effectiveness and relevance to the problem, interest, or need?**

Answer: YES   Question Weight: 18%

Explanation: Evaluations are conducted regularly to bring about program improvements and influence program planning. Each activity at NSF is reviewed once every three years by a Committee of Visitors (COV). NSF's approach to evaluation was recently highlighted by GAO as an "evaluation culture ' a commitment to self-examination, data quality, analytic expertise, and collaborative partnerships." Advisory Committees review Directorate performance, and the Advisory Committee for GPRA Performance Assessment assesses performance on an NSF-wide basis for the Strategic Goals. NSF staff and external experts conduct site visits for major activities, such as Math Science Partnership Critical Site Visits for all Comprehensive projects. All these activities inform NSF senior management and contribute to the development of plans for the program. NOTE: Weight reflects the importance NSF places on the conduct of independent evaluations to support program improvements and evaluate effectiveness.

Evidence: Independent evaluations are critical to NSF performance assessment as evidenced by the GAO report Program Evaluation: An Evaluation Culture and Collaborative Partnerships Help Build Agency Capacity GAO-03-454, May 2, 2003. Examples of independent evaluations of sufficient scope and quality include Committees of Visitors reports and NSF responses, Advisory Committee reports, including the Advisory Committee for GPRA Performance Assessment Report (http://www.nsf.gov/pubs/2004/nsf04216/nsf04216.pdf), and site visit reports (internal).

2.7   **Are Budget requests explicitly tied to accomplishment of the annual and long-term performance goals, and are the resource needs presented in a complete and transparent manner in the program's budget?**

Answer: YES   Question Weight: 9%

Explanation: Performance information is used by managers to make informed decisions and is incorporated into NSF's budget requests to the Congress. The FY 2005 Budget Request to Congress was built around the R&D Criteria, thereby highlighting specific performance information for NSF's investment portfolio. The budget also clearly presents the resource request and outlines the activities that will be supported with the funds. In the Budget Request, NSF displays the full budgetary cost associated with the new program framework defined in the NSF Strategic Plan FY 2003-2008.

Evidence: The FY 2005 NSF Budget Request to Congress presents the long-term goals of the Collaborations program and the resources needed in a complete and transparent manner (http://www.nsf.gov/bfa/bud/fy2005/pdf/fy2005.pdf). Additional information may be found in the NSF Strategic Plan FY 2003-2008 (http://www.nsf.gov/od/gpra/Strategic_Plan/FY2003-2008.pdf).

2.8   **Has the program taken meaningful steps to correct its strategic planning deficiencies?**

Answer: YES   Question Weight: 9%

Explanation: For NSF's investment in Collaborations, the Committee of Visitors (COV) process provides a valuable mechanism for identifying and addressing planning-related issues. The COV for Informal Science Education (ISE), for example, recommended more outreach to other organizations, resulting in the creation of the new ISE web site.   The Math and Science Partnership (MSP) conducted capacity building workshops, some focused primarily on minority institutions, in order to strengthen and expand the proposal pool. Additionally, MSP provides fiscal and programmatic technical assistance to awardees, conducting financial and reporting workshops for all new MSP awardees and providing feedback to each MSP project's detailed strategic and implementation plans.

Evidence: Relevant evidence may be found in the Math and Science Partnership Annual Report To Congress, Math and Science Partnership awardee Strategic Plans, Committee of Visitors reports and NSF responses, and at the Informal Science Education website.

PROGRAM ID: 10002322

PART Performance Measurements

Program: Collaborations

Agency: National Science Foundation

Bureau:

	Section Scores				Rating
	1	2	3	4	Effective
	100%	100%	100%	78%	

Type(s): Research and Development   Competitive Grant

2.RD1   **If applicable, does the program assess and compare the potential benefits of efforts within the program to other efforts that have similar goals?**   Answer: YES   Question Weight: 9%

Explanation: NSF's investments in Collaborations address national science, technology, engineering and mathematics (STEM) workforce and education needs that are not addressed in the same ways at the more mission-specific federal, state, or local agencies. The NSF investments in Collaborations are positioned to focus on STEM workforce and education issues using a research and development strategy, with a strong focus on research and evaluation of the activity and projects within the activity, and the collaborative engagement of STEM disciplinary practitioners with STEM educators and educational researchers. The Collaborations program assesses and compares the potential benefits of its efforts through the evaluation process. The process uses external review at several levels: Advisory Committees, National Science Board Committee on Education and Human Resources, and external evaluations of the program.

Evidence: The Collaborations program assesses and compares the potential benefits of its efforts through the evaluation process. Evidence of this assessment can be found in the National Science and Technology Council Subcommittee on Education and Workforce Development, National Science Board Report on National Workforce Policy, The Science and Engineering Workforce: Realizing America's Potential (NSB 03-69), the National Science Board report on diversity in the scientific and technological workforce (NSB Report -- Broadening Participation Workshop Proceedings [Note: This is currently in late draft stage]), Advisory Committee reports, and external evaluations on programs such as Louis Stokes Alliances for Minority Participation and Centers for Learning and Teaching.

2.RD2   **Does the program use a prioritization process to guide budget requests and funding decisions?**   Answer: YES   Question Weight: 9%

Explanation: The external merit review system includes review of proposals by expert panelists with backgrounds that match the core constituencies of the program. These reviewers assess proposals according to the Merit Review Criteria, intellectual merit and broader impacts. Often, proposals for large scale awards, such as those in Centers for Learning and Teaching and Math Science Partnership, participate in further external review in which teams from prospective collaborations that were deemed as competitive for funding come to NSF for reverse site visits involving expert external reviewers and NSF staff. Final decisions to make awards include consideration of NSF's core strategies and maintaining a diverse portfolio. For Budget Requests, each of the activities within the program provides input to senior management about past performance and future needs. Senior management integrates that information, prioritizes budget requests within and among programs, and determines funding levels, all of which is reviewed by the National Science Board.

Evidence: Relevant information regarding the prioritization process may be found in the NSF Budget Requests to Congress and the NSF Strategic Plan FY 2003-2008 (http://www.nsf.gov/od/gpra/Strategic_Plan/FY2003-2008.pdf). Additional information regarding funding decisions may be found in the Grant Proposal Guide (www.nsf.gov/pubsys/ods/getpub.cfm?gpg).

PROGRAM ID: 10002322

PART Performance Measurements

Program: Collaborations

Agency: National Science Foundation

Bureau:

Type(s): Research and Development   Competitive Grant

	Section Scores				Rating
	1	2	3	4	Effective
	100%	100%	100%	78%	

3.1   **Does the agency regularly collect timely and credible performance information, including information from key program partners, and use it to manage the program and improve performance?**

Answer: YES   Question Weight: 9%

Explanation: Performance information is collected from NSF grant recipients via interim, annual and final project reports. Site visits to larger projects are another mechanism used to collect performance information. Committee of Visitors reviews and recommendations are utilized to improve program performance. Process-related or quantitative goals such as dwell time are monitored via the agency's Enterprise Information System (EIS). All of these assessments impact management practices. NSF programs collect high-quality performance data relating to key program goals and use this information to adjust program priorities, make decisions on resource allocations and make other adjustments in management actions. In addition, NSF utilizes on-line monitoring of projects in many of its programs. GPRA performance data are verified and validated by an independent, external consulting firm.

Evidence: Evidence relating to the use of credible performance information may be found in Committee of Visitors reports (internal documents) and Advisory Committee reports, including the Advisory Committee for GPRA Performance Assessment Report (http://www.nsf.gov/pubs/2004/nsf04216/nsf04216.pdf). Data is collected through annual, interim, and final project reports (internal documents), the Enterprise Information System (EIS) data - GPRA module, annual contract performance evaluations, site visit reports (internal documents), external evaluation reports, and program monitoring.

3.2   **Are Federal managers and program partners (including grantees, sub-grantees, contractors, cost-sharing partners, and other government partners) held accountable for cost, schedule and performance results?**

Answer: YES   Question Weight: 9%

Explanation: NSF awardees must meet annual and final reporting requirements as well as financial record keeping requirements. NSF staff monitor cost, schedule and technical performance and take corrective action when necessary. The efforts of NSF staff are reviewed by their supervisors and by Committees of Visitors. Individual performance plans are directly linked to NSF's strategic goals.

Evidence: Federal managers and program partners are held accountable through cooperative agreements or contracts and annual performance evaluation of NSF employees/program officers. Relevant evidence of this may be found in Committee of Visitors reports, annual and final project reports, and in the NSF General Grant Conditions.

3.3   **Are funds (Federal and partners') obligated in a timely manner and spent for the intended purpose?**

Answer: YES   Question Weight: 9%

Explanation: NSF routinely obligates its funds in a timely manner. NSF also has pre-award internal controls to reduce the risk of improper payments. Beginning in FY 2004 NSF has incorporated erroneous payments testing of awardees into the on-site monitoring program. When this testing is complete, it will provide NSF with information about the usage of NSF funding by awardees.

Evidence: Evidence of the agency's financial obligations may be found in the NSF FY 2001 Risk Assessment for Erroneous Payments, Data on NSF Carryover (found in the NSF Budget Request to Congress), the Risk Assessment and Award Monitoring Guide, NSF's clean opinion on financial statements for past six years, and in the Statement of Net Costs.

Program: Collaborations

Agency: National Science Foundation

Bureau:

Section Scores				Rating
1	2	3	4	Effective
100%	100%	100%	78%	

Type(s): Research and Development   Competitive Grant

3.4   **Does the program have procedures (e.g. competitive sourcing/cost comparisons, IT improvements, appropriate incentives) to measure and achieve efficiencies and cost effectiveness in program execution?**

Answer: YES   Question Weight: 9%

Explanation: NSF is a leader in the vigorous and dynamic use of information technology (IT) to advance the agency mission. IT improvements permit more timely and efficient processing of proposals. The NSF-wide priority of increasing award size and duration enhances efficiency because larger, longer awards allow the community to spend more time developing and researching their projects and less time preparing proposals. Several Collaborations activities limit the number of proposals invited from a single institution. Such limits mean that many proposals have already faced a competitive process within the institution before they reach NSF, which tends to strengthen submitted proposals while relieving administrative burden on NSF. This also allows for higher success rates and maximized interdisciplinary collaboration. Efficiencies and (internal) "effective practices" research are examining alternatives such as broadening the use of letters of intent, proactively coordinating program deadlines and developing strategies that reach out to a greater pool of reviewers.

Evidence: Procedures to measure and achieve efficiencies are found in a number of documents: annual Performance and Accountability Reports (http://www.nsf.gov/pubsys/ods/getpub.cfm?par); Committees of Visitors reports; NSF Strategic Plan FY 2003-2008 (http://www.nsf.gov/od/gpra/Strategic_Plan/FY2003-2008.pdf); NSF Grant Proposal Guide; and the program solicitations: Math and Science Partnership -http://www.nsf.gov/pubsys/ods/getpub.cfm?ods_key=nsf03605; Centers for Learning and Teaching - http://www.nsf.gov/pubsys/ods/getpub.cfm?ods_key=nsf04501; Graduate Research Fellows in K-12 Education - http://www.nsf.gov/pubsys/ods/getpub.cfm?ods_key=nsf04533.

3.5   **Does the program collaborate and coordinate effectively with related programs?**

Answer: YES   Question Weight: 9%

Explanation: NSF promotes partnerships, intra-agency and interagency cooperation for its Collaborations program. NSF regularly shares information with other agencies and participates in coordination activities. Senior staff from the Education and Human Resources directorate and other agencies with interests in education meet regularly for planning and coordination purposes. Informal Science Education (ISE) communicates regularly with others, including the Institute for Museum and Library Sciences, the National Academies and NIH. NSF and the Department of Education coordinate the activities of the Math and Science Partnership activity. Within NSF, mechanisms are established and implemented for split funding between directorates.

Evidence: Evidence relevant to demonstrating the Collaboration program's coordination and collaboration with similar programs may be found in management plans (internal documents). In addition, meetings between senior NSF and Department of Education officials have resulted in mutually beneficial goals and projects. NSF/ED cooperation on the administration of their separate Math and Science Partnership activities These collaborations are evidenced in the Math and Science Partnership Semi-Annual Report to Congress.

PROGRAM ID: 10002322

PART Performance Measurements

Program: Collaborations

Agency: National Science Foundation

Bureau:

Type(s): Research and Development   Competitive Grant

	Section Scores				Rating
	1	2	3	4	Effective
	100%	100%	100%	78%	

3.6   **Does the program use strong financial management practices?**   Answer: YES   Question Weight: 9%

Explanation: NSF uses strong financial management practices at the agency level and at the program level. NSF was the first federal agency to receive a 'green light' for financial management on the President's Management Agenda scorecard. NSF has received a clean opinion on its financial audits for the last six years. The NSF is committed to providing quality financial management to all its stakeholders. It honors that commitment by preparing annual financial statements in conformity with generally accepted accounting principles in the U.S. and then subjecting the statement to independent audits. As a federal agency, NSF prepares the following annual financial statements: Balance Sheet, Statement of Net Cost, Statement of Changes in Net Position, Statement of Budgetary Resources, and Statement of Financing. Supplementary statements are also prepared including Budgetary Resources by Major Accounts, Intragovernmental Balances, Deferred Maintenance, and Stewardship Investments.

Evidence: Evidence of NSF's strong financial management practices may be found in the Executive Branch Management Scorecard, the results of NSF financial audits, and in the annual Performance and Accountability Reports (http://www.nsf.gov/pubsys/ods/getpub.cfm?par).

3.7   **Has the program taken meaningful steps to address its management deficiencies?**   Answer: YES   Question Weight: 9%

Explanation: Committees of Visitors regularly provide feedback on programmatic and management-related concerns. In addition, the Foundation conducts an annual review to assess administrative and financial systems and procedures to ensure that effective management controls are in place and that any deficiencies are identified and addressed.

Evidence: Reports indicating no significant management deficiencies in the Collaborations program include the annual Performance and Accountability Reports (http://www.nsf.gov/pubsys/ods/getpub.cfm?par), the NSF Business Analysis, Committee of Visitors reports, Advisory Committees' review of COV reports, annual report to senior management; and IG reports and NSF responses.

3.CO1   **Are grants awarded based on a clear competitive process that includes a qualified assessment of merit?**   Answer: YES   Question Weight:18%

Explanation: All activities rely upon NSF's competitive, merit review process that includes external peer evaluation. All proposals are carefully reviewed by a scientist, engineer, or educator serving as an NSF program officer, and usually by 3-10 other persons outside NSF who are experts in the particular field represented by the proposal. Competitive merit review, with peer evaluation, is NSF's accepted method for informing its proposal decision process. The NSB-approved criteria address the "Intellectual Merit" and the "Broader Impacts" of the proposed effort. Some solicitations contain additional criteria that address specific programmatic objectives. NOTE: The weight of this question has been doubled to reflect the relative importance of merit review in verifying the relevance, quality, and performance of NSF's investments.

Evidence: Evidence of grants awarded through a clear competitive process may be found in the FY 2003 Report on NSF Merit Review System (http://www.nsf.gov/nsb/documents/2004/MRreport_2003_final.pdf). Additional information may be found in the Enterprise Information System and the NSF Performance and Accountability Reports.

PROGRAM ID: 10002322

PART Performance Measurements

	Section Scores				Rating
	1	2	3	4	Effective
	100%	100%	100%	78%	

3.CO2   **Does the program have oversight practices that provide sufficient knowledge of grantee activities?**   Answer: YES   Question Weight: 9%

Explanation: NSF has a formal Award Monitoring and Business Assistance Program (AMBAP) based on a financial and administrative risk assessment of NSF awardee institutions, focusing on award oversight, including desk and on-site monitoring and providing assistance to awardees. AMBAP is a collaborative effort between NSF administrative and financial managers/technical staff and NSF program managers working with their awardee counterparts. Oversight mechanisms are currently sufficient. NSF's capacity to provide adequate oversight is dependent on available resources to offset salary and expenses with current resources reducing NSF's ability to perform the level of oversight deemed desirable. NSF is using technology and creativeness, such as teleconferencing, videoconferencing, and reverse site visits to enhance performance oversight within current resource constraints. NSF maintains scientific oversight of all awards through annual and final project reports, and funds are tracked (via reporting systems) to ensure that funds are used for their designated purpose.

Evidence: Oversight activities which demonstrate a sufficient knowledge of grantee activities may be found in Committee of Visitors reports; quarterly / annual and final project reports; directorate reviews; FY 2003 Report on NSF Merit Review System (http://www.nsf.gov/nsb/documents/2004/MRreport_2003_final.pdf); the Risk Assessment and Award Monitoring Guide; Clean audit opinions for last six years; the Executive Branch Management Scorecard; site visit reports; workshops and grantee meetings; grants and cooperative agreements; and project audits.

3.CO3   **Does the program collect grantee performance data on an annual basis and make it available to the public in a transparent and meaningful manner?**   Answer: YES   Question Weight: 9%

Explanation: NSF Grant General Conditions require that results of NSF-supported research be published in the open literature and that NSF support is appropriately referenced/cited. NSF's annual Performance and Accountability Report and its annual Budget Request contain highlights of NSF-supported research. Principal Investigators provide annual progress reports to NSF that are examined and approved/disapproved by the program directors. Information is made available to the public on the numbers of proposals and numbers of awards as well as, for each award, the name of the principal investigator, the awardee institution, amount of the award, and an abstract of the project. The Budget Internet Information Site (BIIS) contains extensive information on awards and funding trends.

Evidence: Grantee performance data is collected annually as evidenced in the annual Performance and Accountability Reports (http://www.nsf.gov/pubsys/ods/getpub.cfm?par) and the annual Budget Request to Congress. Additional information may be found in the Grant General Conditions (GC-1), highlights of annual meetings/grantees meetings, workshops, and the Budget Internet Information Site (http://dellweb.bfa.nsf.gov/).

3.RD1   **For R&D programs other than competitive grants programs, does the program allocate funds and use management processes that maintain program quality?**   Answer: NA   Question Weight: 0%

Explanation: NSF programs are administered as competitive.

Evidence:

PROGRAM ID: 10002322

PART Performance Measurements

Program:	Collaborations						

Program: Collaborations

Agency: National Science Foundation

Bureau:

	Section Scores				Rating
	1	2	3	4	Effective
	100%	100%	100%	78%	

Type(s): Research and Development   Competitive Grant

4.1 **Has the program demonstrated adequate progress in achieving its long-term performance goals?**

Answer: LARGE EXTENT   Question Weight: 17%

Explanation: NSF relies on external evaluation to determine whether it is achieving its long-term objectives. Since FY 2002, the NSF Advisory Committee for GPRA Performance Assessment (AC/GPA) serves as the focal point for these activities. Input is derived from numerous sources including Committees of Visitors, annual and final project reports, and summaries of substantial outcomes ('nuggets') from funded research. The AC/GPA has determined that the accomplishments under the People goal have demonstrated "significant achievement' toward annual and long-term performance goals. In addition, component activities of the Collaboration program undergo third party evaluations. Collectively, these evaluations provide further evidence that the activities are demonstrating adequate progress in achieving their long-term performance goals.

Evidence: Evidence demonstrating progress in meeting the Collaboration program's long-term goals may be found in the Measures tab, the Advisory Committee for GPRA Performance Assessment Report (http://www.nsf.gov/pubs/2004/nsf04216/nsf04216.pdf); in the annual Performance and Accountability Reports (http://www.nsf.gov/pubsys/ods/getpub.cfm?par); in annual and final project reports; and in third party evaluations and impact monitoring of component activities of the program.

4.2 **Does the program (including program partners) achieve its annual performance goals?**

Answer: LARGE EXTENT   Question Weight: 17%

Explanation: The program achieves its annual performance goals.

Evidence: Evidence demonstrating achievement of Collaboration's performance goals may be found in Committee of Visitors and other assessment reports, program reports, project reports, and the annual Performance and Accountability Reports.

4.3 **Does the program demonstrate improved efficiencies or cost effectiveness in achieving program goals each year?**

Answer: SMALL EXTENT   Question Weight: 17%

Explanation: The NSF-wide priority of increasing award size and duration enhances efficiency because larger, longer awards allow the research community to spend more time conducting research and less time preparing proposals. Independent reviews by COVs and other external groups provide additional scrutiny to portfolio and program goals, ensuring effectiveness and operational efficiency. Where appropriate, the number of proposals accepted from a single institution is limited, leading to higher success rates and more interdisciplinary collaboration within submitting universities. Several activities use pre-proposals to improve merit review efficiencies and reduce the burden on researchers and reviewers. NSF continues to improve operational efficiencies through electronic systems including the use of interactive electronic panels, online reviews, and online award processing. Increases for high priority graduate fellowships and traineeships required reallocations across the People activities, affecting the ability to make consistent improvements in award size/duration.

Evidence: Evidence demonstrating cost effectiveness is shown in the Measures tab. Additional information may be found in the annual Peformance and Assessment Reports (http://www.nsf.gov/pubsys/ods/getpub.cfm?par), the NSF Budget Requests to Congress, Centers for Learning and Teaching (http://www.nsf.gov/pubsys/ods/getpub.cfm?ods_key=nsf04501); Math Science Partnership (http://www.nsf.gov/pubsys/ods/getpub.cfm?ods_key=nsf03605); Presidential Awards for Excellence in Science, Mathematics, and Engineering Mentoring (http://www.nsf.gov/pubsys/ods/getpub.cfm?ods_key=nsf04525); Graduate Research Fellows in K-12 Education (http://www.nsf.gov/pubsys/ods/getpub.cfm?ods_key=nsf04533); Informal Science Education (http://www.nsf.gov/pubsys/ods/getpub.cfm?ods_key=nsf03511).

PROGRAM ID: 10002322

PART Performance Measurements

Program: Collaborations

Agency: National Science Foundation

Bureau:

Section Scores				Rating
1	2	3	4	Effective
100%	100%	100%	78%	

Type(s): Research and Development Competitive Grant

4.4 **Does the performance of this program compare favorably to other programs, including government, private, etc., with similar purpose and goals?**

Answer: YES   Question Weight: 17%

Explanation: NSF's activities through its investment in Collaborations address national science, technology, engineering, and mathematics education and workforce needs that are not addressed by the mission agencies. Because of its recognized effectiveness, aspects of NSF investments in Collaborations are often emulated by other programs in government and the private sector. The NSF activities also create a nation-wide response to address the goals of the program.

Evidence: Other federal agencies have implemented similar programs with guidance from NSF. Evidence may be found in the annual Performance and Accountability Reports (http://www.nsf.gov/pubsys/ods/getpub.cfm?par), Committee of Visitors reports, Advisory Committee reports, and in data from the Enterprise Information System (internal).

4.5 **Do independent evaluations of sufficient scope and quality indicate that the program is effective and achieving results?**

Answer: YES   Question Weight: 33%

Explanation: Independent reviews by Committees of Visitors and other external groups (e.g., Advisory Committees and the National Science Board) provide additional scrutiny of the portfolio and program goals and results. In particular, the most recent evaluation that included the entire Collaborations portfolio was the 2004 meeting of the Advisory Committee for GPRA Performance Assessment (AC/GPA). The AC/GPA determined that NSF demonstrated "significant achievement' with respect to its FY 2004 GPRA Strategic Outcome Goals for People (which includes Collaborations). In reaching this determination, the committee specifically considered indicators that matched the objectives used here for Collaborations. NOTE: The weight of this question has been doubled to reflect the importance of independent evaluation in verifying relevance, quality and performance of NSF's investment in Collaborations.

Evidence: Evaluations of the Collaborations program are sufficient in scope and quality, as evidenced by the Advisory Committee for GPRA Performance Assessment Report (http://www.nsf.gov/pubs/2004/nsf04216/nsf04216.pdf), the annual Performance and Accountability Reports (http://www.nsf.gov/pubsys/ods/getpub.cfm?par), the annual and final project reports; Committee of Visitors reports and NSF responses, and other external reports (e.g., National Academy of Sciences).

PROGRAM ID: 10002322

PART Performance Measurements

Program: Collaborations

Agency: National Science Foundation

Bureau:

	Section Scores			Rating
1	2	3	4	Effective
100%	100%	100%	78%	

Type(s): Research and Development   Competitive Grant

Measure: Percent of award decisions made available to applicants within six months of proposal receipt or deadline date, while maintaining a credible and efficient competitive merit review system, as evaluated by external experts.

Additional Information: Timely availability of proposal decisions allows the research community to more effectively plan activities. Considering the increasing complexity and numbers of proposals coming into NSF, the goal of keeping decision time for 70% of proposals down to six months is ambitious. This measure is a proxy for efficiency.

Year	Target	Actual	**Measure Term:** Annual
2001	baseline	62%	
2002	70%	82%	
2003	70%	92%	
2004	70%	82%	
2005	70%		
2006	70%		
2007	70%		

Measure: External validation by the Advisory Committee for GPRA Performance Assessment that NSF promotes public understanding and appreciation of science, technology, engineering and mathematics (STEM) disciplines and builds bridges between formal and informal science education.

Additional Information: Assessment of the impact of Collaborations on promoting public understanding of the STEM disciplines by the Advisory Committee for GPRA Performance Assessment.

Year	Target	Actual	**Measure Term:** Long-term
2004	Success	Success	
2007	Success		
2010	Success		

PROGRAM ID: 10002322

PART Performance Measurements

Program:	Collaborations
Agency:	National Science Foundation
Bureau:	

Type(s):   Research and Development   Competitive Grant

Measure: Percentage of Collaborations proposals received from institutions not in the top 100.

Additional Information: Responds to NSF goals to broadening participation of proposing institutions.

Year	Target	Actual	**Measure Term:** Annual
2001	baseline	63%	
2002	> 63%	62%	
2003	> 62%	61%	
2004	61%	61%	
2005	62%		
2006	63%		
2007	63%		

Measure: External validation by Advisory Committee that NSF programs promote greater diversity in science, technology, engineering, and mathematics (STEM) workforce through increased participation of underrepresented groups and institutions.

Additional Information: Assessment of the impact of Collaborations on promoting greater diversity in the STEM workforce by the Advisory Committee for GPRA Performance Assessment.

Year	Target	Actual	**Measure Term:** Long-term
2004	Success	Success	
2007	Success		
2010	Success		

PROGRAM ID: 10002322

PART Performance Measurements

Program: Facilities

Agency: National Science Foundation

Bureau:

	Section Scores			Rating
1	2	3	4	Effective
100%	100%	100%	90%	

Type(s): Research and Development   Capital Assets and Service Acquisition   Competitive Grant

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1.1   **Is the program purpose clear?**   Answer: YES   Question Weight 20%

Explanation: NSF's Facilities program reflects the parts of NSF's mission directed at programs to strengthen scientific and engineering research potential and to support the development and use of computers and other scientific methods and technologies. The NSF mission ("To promote the progress of science; to advance the national health, prosperity, and welfare; and to secure the national defense, and for other purposes.") is clear and unambiguous, and there is consensus of program purpose among interested parties.

Evidence: National Science Foundation Act of 1950 (http://www.nsf.gov/home/about/creation.htm); NSF Strategic Plan (http://www.nsf.gov/pubs/2001/nsf0104/start.htm)

1.2   **Does the program address a specific and existing problem, interest or need?**   Answer: YES   Question Weight 20%

Explanation: NSF's Facilities program supports large, multiuser facilities, which allow researchers access to unique, state-of-the-art facilities that are necessary to advance U.S. capabilities required for world-class research. It also includes small facilities. This program addresses a critical need for tools to support basic research at universities and colleges.

Evidence: * Recent reports, such as that prepared by the National Science Board's (NSB) Taskforce on Science and Engineering Infrastructure (http://www.nsf.gov/nsb/documents/2003/start.htm), as well as Committee of Visitor (COV) * * reports and community workshops support NSF's role in capacity building.(* *COVs assess approximately one-third of NSF programs each year, and review performance over the previous three years. See the FY 2002 Performance and Accountability Report for a Schedule of Program Evaluations.) * GEO Advisory Committee endorsement of the GEO Facilities Plan is an example of this support (http://www.geo.nsf.gov/geo/adgeo/fac_lrp/facilities_plan.pdf). * NAS Study: Neutrinos and Beyond, New Windows on Nature

1.3   **Is the program designed so that it is not redundant or duplicative of any other Federal, state, local or private effort?**   Answer: YES   Question Weight 20%

Explanation: NSF supports unique facilities to enable research and education activities across the span of disciplines for which the Foundation has responsibility. In contrast, other federal agencies support research focused on specific missions. NSF has a responsibility to consider what large facilities are needed to maintain the nation's leadership in science and engineering. NSF consults with other agencies to avoid duplication and cooperates with other agencies and with international partners in constructing facilities.

Evidence: * The September 2001 report of the National Committee on Organization and Management of Research in Astronomy and Astrophysics recommended that "the National Science Foundation's astronomy and astrophysics responsibilities should not be transferred to NASA." The rationale for this recommendation was based on a thorough analysis of NSF activities in ground-based astronomy and the conclusion that NSF is the appropriate agency to sponsor ground-based astronomy and astrophysics (http://books.nap.edu/books/0309076269/html/3.html#pagetop). * NSF serves as the lead agency for the NITRD initiative, provides interagency leadership for the National Nanotechnology Initiative (http://www.nano.gov) and coordinates with the National Science and Technology Council in other areas. *NSF provides a majority of support for ground based astronomy, the Academic Research Fleet, and the majority of support for facilities at universities, colleges and other non-profit organizations. * Proposals to this and other NSF programs must identify other agency funding/requests to ensure no unnecessary duplication.

PROGRAM ID: 10001145

PART Performance Measurements

Program: Facilities

Agency: National Science Foundation

Bureau:

	Section Scores			Rating
1	2	3	4	Effective
100%	100%	100%	90%	

Type(s): Research and Development   Capital Assets and Service Acquisition   Competitive Grant

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1.4 **Is the program design free of major flaws that would limit the program's effectiveness or efficiency?**   Answer: YES   Question Weight 20%

Explanation: NSF relies on the competitive merit review process, the NSF Program Officers in their oversight capacity, and Committees of Visitors (COVs) to ensure that facilities are effectively serving their intended communities, and to recommend changes to improve program effectiveness and efficiency. These measures ensure that supporting the acquisition and operation of infrastructure is the most efficient method of facilitating the science in question. Many facilities have "user groups" that communicate regularly with NSF and facilities managers. Merit review by peers has been recognized as a "best practice" for administering R&D programs. Independent reviews by COVs and external groups (e.g., National Research council, PCAST) provide additional scrutiny of the portfolio and program goals.

Evidence: * FY 2002 Report on the NSF Merit Review Process (http://www.nsf.gov/nsb/documents/2003/merit_report 2002 final.doc) * FY 2002 Performance and Accountability Report(http://www.nsf.gov/pubs/2003/nsf03023/pdf/chapter4.pdf) * COV Reports * R&D Investment Criteria

1.5 **Is the program effectively targeted, so that resources will reach intended beneficiaries and/or otherwise address the program's purpose directly?**   Answer: YES   Question Weight 20%

Explanation: NSF supports unique facilities to enable research and education activities across the span of disciplines for which the Foundation has responsibility. The peer review process for access to specific facility resources and/or time ensures effective targeting of funding so that results of investments will reach the intended beneficiaries. Committees of Visitors ensure relevance to community needs. In most cases, the National Science Board reviews facility awards to ensure that they are appropriately supportive of NSF's mission.

Evidence: * COV Reports * NAS Study: Neutrinos and Beyond, New Windows on Nature * NRC 2001 Report: Astronomy and Astrophysics in the New Millennium. * Workshop Reports * NSB Report: Science and Engineering Infrastructure for the 21st Century: the Role of NSF * NAS Decadal Review of Astronomy: Astronomy and Astrophysics in the New Millennium (2001)

2.1 **Does the program have a limited number of specific long-term performance measures that focus on outcomes and meaningfully reflect the purpose of the program?**   Answer: YES   Question Weight: 9%

Explanation: The Facilities Program is a subset of the Tools Strategic Goal -- providing "broadly accessible, state-of-the-art and shared research and education tools." This reflects the parts of NSF's mission directed at programs to strengthen scientific and engineering research potential, and to support the development and use of computers and other scientific methods and technologies.

Evidence: * NSF Revised Strategic Plan (http://www.nsf.gov/pubsys/ods/getpub.cfm?nsf0104)   * NSF annual GPRA Performance Plans (http://www.nsf.gov/od/gpra). * A limited number of Tools performance indicators pertain directly to facilities.

PROGRAM ID: 10001145

PART Performance Measurements

			Section Scores				Rating
Program:	Facilities		**1**	**2**	**3**	**4**	Effective
Agency:	National Science Foundation						
Bureau:			100%	100%	100%	90%	

Type(s): Research and Development   Capital Assets and Service Acquisition   Competitive Grant

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2.2 **Does the program have ambitious targets and timeframes for its long-term measures?** Answer: YES   Question Weight: 9%

Explanation: Facilities that enable discoveries or enhance productivity of NSF research or education communities: The target of "significant achievement" requires external assessment of facility outcomes based on knowledge of science achievement on a world-wide stage. Partnerships to support and enable development of large facilities: Partnerships require major negotiations with international partners in times of economic uncertainty and must represent "significant achievement" in the view of external assessors.

Evidence: * Advisory Committee for GPRA Performance Assessment (ACGPA) Reports * FY 2004 Budget Request to Congress, Chapters on Tools and the MREFC Account. * FY 2002 Performance and Accountability Report

2.3 **Does the program have a limited number of specific annual performance measures that can demonstrate progress toward achieving the program's long-term goals?** Answer: YES   Question Weight: 9%

Explanation: Each year, performance indicators that demonstrate progress toward achieving the long-term Facilities goal are delineated in the annual GPRA performance plan. There is also an annual cost and schedule goal for construction and upgrade of facilities and an annual goal related to facility operations.

Evidence: * In FY 2002, committees of external experts determined that NSF had demonstrated significant achievement for all of the annual performance indicators for the TOOLS goal, which includes facilities. * NSF was successful in achieving two of the four goals related to the construction/upgrade and operations of facilities projects. See the NSF FY 2002 Performance and Accountability Report (http://www.nsf.gov/pubs/2003/nsf03023/start.htm) for additional details.

2.4 **Does the program have baselines and ambitious targets for its annual measures?** Answer: YES   Question Weight: 9%

Explanation: Baselines have been established for annual performance measures, and targets for facility performance are reviewed annually. Performance targets are ambitious but commensurate with the budget environment. In addition to program measures, individual projects also set performance targets.

Evidence: * NSF GPRA Performance Reports * FY 2002 Performance and Accountability Report * FY 2004 Budget Request to Congress, Chapters on Tools and the MREFC Account * FY 2004 GPRA Performance Plan

2.5 **Do all partners (including grantees, sub-grantees, contractors, cost-sharing partners, and other government partners) commit to and work toward the annual and/or long-term goals of the program?** Answer: YES   Question Weight: 5%

Explanation: All partners commit to and work toward the goals of the program. Purpose, responsibilities, and requirements for all partners are spelled out in Cooperative agreements for facilities. These Cooperative agreements specifically require annual reports on progress relative to the project's construction/upgrade or operations goals, as relevant. Memoranda of Understanding (MOUs) and Memoranda of Agreement (MOAs) exist between NSF and partnering organizations.

Evidence: * Annual / Final Project Reports. * GPRA Reporting Requirements in Cooperative Agreements for Facility Awards.

PROGRAM ID: 10001145

PART Performance Measurements

Program: Facilities
Agency: National Science Foundation
Bureau:

Section Scores				Rating
1	2	3	4	Effective
100%	100%	100%	90%	

Type(s): Research and Development   Capital Assets and Service Acquisition   Competitive Grant

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2.6   **Are independent evaluations of sufficient scope and quality conducted on a regular basis or as needed to support program improvements and evaluate effectiveness and relevance to the problem, interest, or need?**

Answer: YES   Question Weight:18%

Explanation: Evaluations are conducted regularly at multiple levels in order to inform program improvements and influence program planning. Each program at NSF is reviewed once every three years by a COV. Advisory Committees review and approve COV reports. As of FY 2002 the Advisory Committee for GPRA Performance Assessment makes use of COV reports in its assessment of performance for each Tools indicator applicable to facilities on an NSF-wide basis. NSF conducts workshops and various facilities have been reviewed by external entities such as the NAS. NSF staff and external experts conduct site visits at NSF-supported facilites. All these activities inform NSF senior management and contribute to development of plans for the agency. (The weight of this question has been increased to reflect the importance NSF places on the conduct of independent evaluations to support program improvements and evaluate effectiveness.)

Evidence: * COV reports and NSF responses. * AC reports, including the Advisory Committee for GPRA Assessment (AC/GPA) report (Fall 2002). * External reviews. * Community workshops. * Annual site visits that include external reviewers for facilities.

2.7   **Are Budget requests explicitly tied to accomplishment of the annual and long-term performance goals, and are the resource needs presented in a complete and transparent manner in the program's budget?**

Answer: YES   Question Weight: 5%

Explanation: Performance information is incorporated into NSF's budget requests. The FY 2004 justification was built around the R&D Criteria, thus highlighting specific performance information for NSF's investment portfolio. Continued funding for facilities is contingent on satisfactory progress and performance with respect to previously established metrics. The budget also clearly presents the resource request for each program and outlines activities supported with the funds. The FY 2004 Request provided full budgetary costing by the program framework in use at that time (Strategic Goals and Directorates). In FY 2005, NSF will display full budgetary cost associated with the new program framework defined in the Revised GPRA Strategic Plan. Facilities submit annual progress reports, and Program Officers conduct site visits with external experts. In contrast to the 2004 PART assessment for TOOLS, in which linkages were not all well defined, direct linkages exist for the Facilities program -- i.e., the MREFC Account and other major facilities.

Evidence: * Detailed plans for MREFC projects and other major facilities are included in the FY 2004 Budget Request to Congress (http://www.nsf.gov/bfa/bud/fy2004/toc/htm). * Budget submissions to OMB at multiple levels outline performance changes.   * NSF's Budget Request to Congress contains milestones for MREFC projects.   * Full budgetary costing for MREFC and for Tools is included in the FY 2004 Budget Request to Congress.   * Capital Asset Plans. * Site Visit reports * Annual Reports

2.8   **Has the program taken meaningful steps to correct its strategic planning deficiencies?**

Answer: YES   Question Weight: 9%

Explanation: NSF solicits public feedback on the agency's goals and planning processes as part of each independent (external) assessment of agency activities. Steps to address specific weaknesses are identified and implemented.

Evidence: * COVs address deficiencies and the program must respond. These reports and responses are reviewed by Advisory Committees for acceptability. * AC reports. * Selection of the Deputy Director, Large Facility Projects. He will coordinate NSF management and oversight activities for all facilities. * FY 2002 Performance and Accountability Report * Inspector General Reports and NSF Responses

PROGRAM ID: 10001145

PART Performance Measurements

Program: Facilities

Agency: National Science Foundation

Bureau:

	Section Scores				Rating
	1	2	3	4	Effective
	100%	100%	100%	90%	

Type(s):   Research and Development   Capital Assets and Service Acquisition   Competitive Grant

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2.CA1   **Has the agency/program conducted a recent, meaningful, credible analysis of alternatives that includes trade-offs between cost, schedule, risk, and performance goals and used the results to guide the resulting activity?**

Answer: YES   Question Weight: 9%

Explanation: Cost/benefit analysis and risk management are aspects of the planning and decision-making processes when facility investments are considered. Alternative approaches, including cost and risk and utility for research, are considered in advance of project initiation. Research and development is conducted to support these choices and the decision-making process. Design studies examine tradeoffs between different concepts, such as selection of alternate sites (e.g., ALMA) and technical design (e.g., Gemini).

Evidence: Considerations of alternatives are apparent in: * Facility-specific benefit and risk analysis * Requirements from Large Facility Projects guidelines * Committee on the Organization and Management of Research in Astronomy and Astrophysics (COMRAA) Report * R&D prototyping * Site selection process for facilities * FY 2004 Budget Request to Congress * Examples of specific projects for which alternative approaches were considered: * Atacama Large Millimeter Array (ALMA) * Laser Interferometer Gravitational Wave Observatory (LIGO) * Gemini

2.RD1   **If applicable, does the program assess and compare the potential benefits of efforts within the program to other efforts that have similar goals?**

Answer: YES   Question Weight: 9%

Explanation: Prior to initiating support for new activities, workshops and external reviews are typically conducted to ensure that scientific opportunities justify the facility expenditure, and that supporting the acquisition and operation of infrastructure is the most efficient method of facilitating the science in question. NSF senior management reviews and compares opportunities of competing projects and selects from them, forwarding them for subsequent review and approval to the NSB. Interagency and international agreements and understandings are active and on file for most facilities projects, demonstrating the commitment of NSF to non-duplication and efficient and effective coordination of efforts.

Evidence: * NAS Studies * Workshops * COVs * Merit Review Process * MOUs and MOAs * Advisory Committee Reports * Example of interagency coordination -- High Energy Physics Advisory Panel (HEPAP) between NSF and DOE.

2.RD2   **Does the program use a prioritization process to guide budget requests and funding decisions?**

Answer: YES   Question Weight: 9%

Explanation: NSF investments in Major Research Equipment and Facilities Construction have a documented prioritization process. For example, the MREFC Guidelines have been updated over the past year, and the Guidelines will continue to be a living document. Priorities for MREFC were explicitly provided in the FY 2004 Budget Request, as was a discussion of the process. Other facility investments are prioritized utilizing workshops, community-based planning efforts, and with advice from established Advisory Committees.   In addition, external groups such as the National Academies provide prioritized recommendations.

Evidence: * Examples of documentation include: MREFC chapter in FY 2004 Budget Request   MREFC Prioritizing Guidelines   Community Planning Documents   GEO Facilities Plan   NAS Studies   AC Reports High Energy Physics Advisory Panel reports   NAS Decadal Review of Astronomy: Astronomy and Astrophysics in the New Millennium (2001)

PROGRAM ID: 10001145

PART Performance Measurements

Program: Facilities

Agency: National Science Foundation

Bureau:

Section Scores				Rating
1	2	3	4	Effective
100%	100%	100%	90%	

Type(s): Research and Development   Capital Assets and Service Acquisition   Competitive Grant

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3.1 **Does the agency regularly collect timely and credible performance information, including information from key program partners, and use it to manage the program and improve performance?**

Answer: YES   Question Weight: 8%

Explanation: NSF programs collect high-quality performance data relating to key program goals and use this information to adjust program priorities, make decisions on resource allocations and make other adjustments in management actions. NSF facilities are unique and information gathering can vary by facility. All facilities provide annual or more frequent progress reports on operations. NSF also has external annual reviews for programs that involve interagency and/or international partners. Program Officers monitor and collect information through weekly to monthly scheduled meetings with facilities managers and appropriate financial, managerial, and scientific staff. This oversight provides current and timely performance information that is meaningful to NSF program management. In agency construction programs, collection of performance data and monitoring can occur as frequently as daily. NSF collection is accomplished through formal channels of communication with interagency and/or international partners through weekly, quarterly, semiannual or annual reviews. External reviews are provided at least annually.

Evidence: * Examples of COV reports: FY 2002: Ship Operations; Astronomy facilities; Materials Research facilities. FY 2003: NCAR; Physics facilities. * AC reports, including the AC/GPA report. * GPRA Facilities Reports. * Annual Project Reports. * Enterprise Information System (EIS) data -- GPRA module. * Annual contract performance evaluations. * Site visit reports.

3.2 **Are Federal managers and program partners (including grantees, sub-grantees, contractors, cost-sharing partners, and other government partners) held accountable for cost, schedule and performance results?**

Answer: YES   Question Weight: 8%

Explanation: Facilities are subject to GPRA performance reporting requirements. NSF's contracts and Cooperative Agreements specify expected cost, schedule and performance results. These agreements can be (and have been) terminated in cases where the awardee is unable to meet the terms of the award instrument. NSF Program Officers monitor cost, schedule and technical performance and take corrective action when necessary. NSF has established policies and procedures that require program managers to report to senior management all deviations on cost and schedule. Deviations on cost that are greater than 10% must also be reported to the National Science Board.

Evidence: * Cooperative agreements or contracts for Facilities. * Annual performance evaluations of NSF employees * COV reports * Annual and final reports * GPRA Facilities Performance Reports * A number of facilities have been terminated or phased out based on performance

3.3 **Are funds (Federal and partners') obligated in a timely manner and spent for the intended purpose?**

Answer: YES   Question Weight: 8%

Explanation: NSF, including the facilities program, routinely obligates its funds in a timely manner. A study conducted by PricewaterhouseCoopers found no erroneous payments. NSF's grant monitoring activities assure that the funds are used for their intended purpose.

Evidence: * NSF FY 2001 Risk Assessment for Erroneous Payments * Data on NSF Carryover, found in the NSF's Budget Requests to Congress * Risk Assessment and Award Monitoring Guide * Clean opinion on financial statements for past 5 years

PROGRAM ID: 10001145

PART Performance Measurements

Program: Facilities

Agency: National Science Foundation

Bureau:

	Section Scores				Rating
	1	2	3	4	Effective
	100%	100%	100%	90%	

Type(s): Research and Development   Capital Assets and Service Acquisition   Competitive Grant

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3.4   **Does the program have procedures (e.g. competitive sourcing/cost comparisons, IT improvements, appropriate incentives) to measure and achieve efficiencies and cost effectiveness in program execution?**   Answer: YES   Question Weight: 8%

Explanation: In most cases, NSF's facilities are unique or one-of-a-kind and not available commercially, hence direct comparisons are not generally possible. In instances where facility capability may be commercially available, cost comparisons, including lease/purchase analysis per OMB A-94, are conducted to determine the most efficient and effective method of providing the required capability. As a result, NSF employs a number of acquisition strategies, including direct purchase/construction, lease, and fixed-duration contract in providing facility services.Cost efficiencies example: Daily operations costs for the Academic Research Fleet have been analyzed and compared to similar Navy and NOAA ships. NSF costs were found to be comparable.

Evidence: * FY 2002 Performance and Accountability Report * COV reports * The Academic Research Fleet report (http://www.geo.nsf.gov/oce/pubs/fleetrev.html)

3.5   **Does the program collaborate and coordinate effectively with related programs?**   Answer: YES   Question Weight: 8%

Explanation: Facility construction projects and operations are coordinated with other federal programs as well as with international partners. For example, the Large Hadron Collider (LHC) is an example of a collaborative international partnership. LHC is an example of a collaborative international partnership. LHC is an international project under construction at the CERN laboratory in Geneva, Switzerland. The U.S. is involved in the construction of 2 particle detectors, a Toroidal LHC Apparatus (ATLAS) and the Compact Muon Solenoid (CMS). A total of 34 international funding agencies participate in the ATLAS detector project, and 31 in the CMS detector project. NSF and DOE are providing U.S. support. CERN is responsible for meeting the goals of the international LHC project.

Evidence: * Examples of facilities with other federal and international partners include: Large Hadron Collider   Ocean Drilling Program (ODP/IODP)   Atacama Large Millimeter Array (ALMA)   High Performance Instrumented Airborne Platform for Environmental   Research (HIAPER) * Mathematical and Physical Sciences coordinated activities

3.6   **Does the program use strong financial management practices?**   Answer: YES   Question Weight: 8%

Explanation: NSF's facilities program uses strong financial management practices. NSF is currently the only federal agency to receive a "green light" for financial management on the PMA scorecard. NSF has received a clean opinion on its financial audits for the last 5 years.

Evidence: * Executive Branch Management Scorecard (website) * Results of NSF financial audits (website)

PROGRAM ID: 10001145

PART Performance Measurements

Program: Facilities

Agency: National Science Foundation

Bureau:

Section Scores				Rating
1	2	3	4	Effective
100%	100%	100%	90%	

Type(s): Research and Development   Capital Assets and Service Acquisition   Competitive Grant

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3.7   **Has the program taken meaningful steps to address its management deficiencies?**   Answer: YES   Question Weight: 8%

Explanation: NSF has taken several steps to address identified deficiencies in management and oversight. In response to the OIG FY 2002 Management Challenges, NSF has begun updating its policies and procedures to strengthen the management and oversight of large facility projects. NSF's improvements to facilities management and oversight have included: * Developing a Large Facility Projects Management and Oversight Plan, and has sought OIG input as it developed this plan. This plan provides comprehensive guidelines and procedures for all aspects of facilities planning, managing and oversight; * Appointing a Deputy Director for Large Facility Projects; * Revising goals for facilities that use earned management practices to evaluate performance and redesigning the data collection module in FastLane to incorporate these changes; and * Providing continuing long-term senior executive attention to NSF's management challenges and reforms through the Management Controls Committee. The Committee is chaired by the NSF Chief Financial Officer.In NSF's FY 2002 Performance and Accountability Report, the OIG confirms that NSF has taken important first steps toward addressing its facilities-management challenges.

Evidence: * Selection of Deputy Director, Large Facility Projects. He will coordinate NSF management and oversight activities for facilities. * Large Facility Projects Management and Oversight Plan (September 2001) * NSF FY 2002 Performance and Accountability Report. * The NSF Academy provides management coursework. * Booz Allen Hamilton contract for a multi-year business analysis. * COVs address deficiencies and the program must respond. These reports and responses are reviewed by Advisory Committees for acceptability. * Revised goals for facilities that use earned management practices to evaluate performance. Data collection module in FastLane incorporates these changes.

3.CA1   **Is the program managed by maintaining clearly defined deliverables, capability/performance characteristics, and appropriate, credible cost and schedule goals?**   Answer: YES   Question Weight: 8%

Explanation: Construction projects are managed using annual cost and schedule goals as well as through "earned value". Facilities which have transitioned to an operations mode have annually defined deliverables.

Evidence: * Large Facility Project Guidelines; * GPRA performance goals * Annual / Final Project Reports

3.CO1   **Are grants awarded based on a clear competitive process that includes a qualified assessment of merit?**   Answer: YES   Question Weight 20%

Explanation: NSF facilities support is allocated using a competitive process which uses merit review. Although many facility operation grants are renewed, the continuation of support is based on a merit reviewed proposal. As a result of NSB guidance to periodically recompete facility grants, NSF considers whether an expiring grant should be recompeted, and the default is to do so barring extenuating circumstances. (The weight of this question has been increased to reflect the importance of external merit review in validating the quality of this basic research program.)

Evidence: * NSB Policy on Recompetition * FY 2002 Report on the NSF Merit Review System * NSF Performance and Accountability Reports * Enterprise Information System (EIS)

PROGRAM ID: 10001145

PART Performance Measurements

Program: Facilities

Agency: National Science Foundation

Bureau:

	Section Scores			Rating
1	2	3	4	Effective
100%	100%	100%	90%	

Type(s): Research and Development   Capital Assets and Service Acquisition   Competitive Grant

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3.CO2 **Does the program have oversight practices that provide sufficient knowledge of grantee activities?**   Answer: YES   Question Weight: 8%

Explanation: See Item 3.1 for current oversight mechanisms. Oversight mechanisms are currently sufficient, but projects are beginning to exceed our capacity to provide adequate oversight. This was raised as a management challenge in FY 2002, and NSF is addressing the increased oversight requirements in A&M budget plans. NSF is using technology, such as teleconferencing and videoconferencing to enhance performance oversight within current resource constraints. In FY 2002 NSF established a formal Award Monitoring and Technical Assistance Program (AM&TAP) based on financial and administrative risk assessment of NSF awardee institutions and with a primary focus to on-site monitoring. Consistent with NSF's existing award administration process, AM&TAP is a collaborative effort between administrative and financial managers/technical staff and NSF program managers.

Evidence: * COV reports * Quarterly / Annual and Final Project Reports. * Directorate Reviews * MREFC Panel Review * FY 2002 Report on the NSF Merit Review System * NSB Review * Consultants and external review committees * Annual reviews * Risk Assessment and Award Monitoring Guide * Facilities Management and Oversight Guide

3.CO3 **Does the program collect grantee performance data on an annual basis and make it available to the public in a transparent and meaningful manner?**   Answer: YES   Question Weight: 8%

Explanation: Annual performance data on facilities construction and operations are available through past GPRA Performance Reports and the combined Performance and Accountability Report. These reports are publicly available.

Evidence: * GPRA Performance Reports * Performance and Accountability Report * FY 2004 Budget Request

3.RD1 **For R&D programs other than competitive grants programs, does the program allocate funds and use management processes that maintain program quality?**   Answer: NA   Question Weight: 0%

Explanation: All NSF programs are administered as competitive grant programs

Evidence:

4.1 **Has the program demonstrated adequate progress in achieving its long-term performance goals?**   Answer: YES   Question Weight:15%

Explanation: NSF achieved its FY 2002 GPRA goal for TOOLS -- Providing "broadly accessible, state-of-the-art and shared research and education tools.'

Evidence: * FY 2002 Performance and Accountability Report. * AC/GPA

PROGRAM ID: 10001145

PART Performance Measurements

Program: Facilities

Agency: National Science Foundation

Bureau:

Section Scores				Rating
1	2	3	4	Effective
100%	100%	100%	90%	

Type(s): Research and Development   Capital Assets and Service Acquisition   Competitive Grant

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4.2   **Does the program (including program partners) achieve its annual performance goals?**   Answer: LARGE EXTENT   Question Weight:15%

Explanation: NSF achieved 2 of the 4 GPRA goals for Facilities Construction and Operations in FY 2002. Goals achieved: (1) Annual Construction and Upgrade Expenditures: Of the 28 construction and upgrade projects supported by NSF in FY 2002, 26 (93%) were within 110% of annual expenditure plans. (2) Construction and Upgrade Total Cost (for projects initiated after 1996): Two projects were completed in FY 2002, one of which had been initiated prior to 1996.Goals not achieved: (1) Meeting Annual Schedule Milestones: Of the 27 construction and upgrade projects NSF supported, 13 (48%) met all annual schedule milestones compared to the goal of 90%. (2) Operating Time: Of 31 reporting facilities, 26 (84%) met the goal of keeping unscheduled downtime to below 10% of the total scheduled operating time compared to the goal of 90%.In FY 2003, NSF will combine cost and schedule performance into a single goal. The revised goals are calculated using the Earned Value technique, a project management tool for measuring progress that recognizes that cost or schedule data alone can lead to distorted perceptions of performance.

Evidence: * FY 2002 Performance and Accountability Report.

4.3   **Does the program demonstrate improved efficiencies or cost effectiveness in achieving program goals each year?**   Answer: YES   Question Weight:15%

Explanation: Facilities are improving efficiencies through development of instrumentation making use of state-of-the-art technology to provide greater data gathering capabilities, including more efficient use of equipment and improved transmission rates (e.g., Gemini telescope). Upgrades to facilities provide improved technologies and enable more efficient operations. For example, scheduling of telescopes to carry out long term observations is accomplished using Q-scheduling, a scheduling technique that significantly enhances efficiency of use of telescopes.

Evidence: Specific examples of efficiencies: * Instrumentation at National Observatories takes data at rates hundreds of times faster than in the past. * Development of high-speed internet connections to Hawaii and South America for transmission of data to users. * Remote access to facilities enables increased cost efficiencies and easier access to results.

4.4   **Does the performance of this program compare favorably to other programs, including government, private, etc., with similar purpose and goals?**   Answer: YES   Question Weight:15%

Explanation: NSF uses competitive merit review to allocate the vast majority of its basic and applied research funds. NSF-supported construction and upgrade projects are routinely within estimated costs. COVs and ACs assess program performance in light of their knowledge of programs throughout the government.

Evidence: * NSF FY 2002 Performance and Accountability Report * COV reports * AC reports.

4.5   **Do independent evaluations of sufficient scope and quality indicate that the program is effective and achieving results?**   Answer: YES   Question Weight:25%

Explanation: Independent assessments of components of the TOOLS program find that the program is effective. External experts noted that NSF demonstrated significant achievement for the FY 2002 performance indicators associated with the TOOLS strategic outcome. (The weight of this question has been increased to reflect the importance of independent evaluations in assessing effectiveness of basic research programs.)

Evidence: * COV reports and NSF responses. * AC Reports. * FY 2002 Performance Report. * External Reports (e.g. NAS Reports).

PROGRAM ID: 10001145

PART Performance Measurements

Program: Facilities

Agency: National Science Foundation

Bureau:

Type(s): Research and Development   Capital Assets and Service Acquisition   Competitive Grant

Section Scores				Rating
1	**2**	**3**	**4**	Effective
100%	100%	100%	90%	

4.CA1   **Were program goals achieved within budgeted costs and established schedules?**   Answer: LARGE EXTENT   Question Weight:15%

Explanation: NSF achieved 2 of the 3 GPRA goals for Facilities Construction. Goals achieved: (1) Annual Construction and Upgrade Expenditures: Of the 28 construction and upgrade projects supported by NSF in FY 2002, 26 (93%) were within 110% of annual expenditure plans. (2) Construction and Upgrade Total Cost (for projects initiated after 1996): Two projects were completed in FY 2002, one of which had been initiated prior to 1996.Goal not achieved: (1) Meeting Annual Schedule Milestones: Of the 27 construction and upgrade projects NSF supported, 13 (48%) met all annual schedule milestones compared to the goal of 90%.In FY 2003, NSF will combine cost and schedule performance into a single goal. The revised goals are calculated using the Earned Value technique, a project management tool for measuring progress that recognizes that cost or schedule data alone can lead to distorted perceptions of performance.

Evidence: * FY 2002 Performance and Accountability Report.

PROGRAM ID: 10001145

PART Performance Measurements

Program:	Facilities			
Agency:	National Science Foundation			
Bureau:				

Type(s):   Research and Development   Capital Assets and Service Acquisition   Competitive Grant

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Measure: Percent of construction acquisition and upgrade projects with negative cost and schedule variances of less that 10% of the approved project plan.

Additional Information: Investments in development, construction of state-of-the-art facilities and platforms are implemented consistently with planned cost and schedule. Through FY 2002, there were three interrelated but separate GPRA goals for schedule and cost for construction/upgrade projects. For FY 2003 and beyond, these goals were combined (with OMB approval) into the single goal. While annual and total cost targets were all met in FY 2001 and FY 2002, scheduling milestones were not. The targets and actual performance shown (*) for FY 2001 and FY 2002 reflect the schedule goal only.

Year	Target	Actual	**Measure Term:** Annual (Efficiency Measure)
2001	90%	84%	
2002	90%	48%	
2003	90%	88%	
2004	90%		
2005			
2006			

Measure: Percent of operational facilities that keep scheduled operating time lost to less than 10%

Additional Information: Investments in the operation of state-of-the-art facilities and platforms. Measure in FY 01 and 02 was based on keeping operating time greater than 90%; results reported here are in terms of present measure.

Year	Target	Actual	**Measure Term:** Annual (Efficiency Measure)
2002	90%	84%	
2003	90%	87%	
2004	90%		
2005			
2006			

PROGRAM ID: 10001145

PART Performance Measurements

Program: Facilities

Agency: National Science Foundation

Bureau:

	Section Scores				Rating
	1	**2**	**3**	**4**	Effective
	100%	100%	100%	90%	

Type(s): Research and Development   Capital Assets and Service Acquisition   Competitive Grant

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Measure: External advisory committee (AC/GPA) finding of "significant achievement" that facilities enable discoveries or enhance productivity of NSF research or education communities.

Additional Information: Leadership in the development, construction, and operation of major, next-generation facilities.

Year	Target	Actual	**Measure Term:** Long-term
2001	Success	Success	
2002	Success	Success	
2003	Success	Success	
2004	Success	Success	
2005	Success		
2006	Success		

Measure: External advisory committee (AC/GPA) finding of "significant achievement" that NSF has partnerships to support and enable development of large facilities.

Additional Information: Expand opportunities for access to state-of-the-art S&E facilities

Year	Target	Actual	**Measure Term:** Long-term
2001	Success	Success	
2002	Success	Success	
2003	Success	Success	
2004	Success		
2005	Success		
2006	Success		

PROGRAM ID: 10001145

PART Performance Measurements

Program: Individuals

Agency: National Science Foundation

Bureau:

	Section Scores			Rating
1	2	3	4	Effective
100%	91%	100%	83%	

Type(s): Research and Development   Competitive Grant

1.1   **Is the program purpose clear?**   Answer: YES   Question Weight 20%

Explanation: The purpose of NSF's investments in individuals is to "ensure development of world-class scientists, mathematicians, technologists and educators" (NSF Revised GPRA Strategic Plan). This statement of purpose is derived directly from the statutes that govern the Foundation. The NSF Act of 1950 authorizes NSF to support science and engineering education at all levels, including providing graduate fellowships in science and engineering. Other statutes, notably the Science and Engineering Equal Opportunities Act, have expanded this authority to address the underrepresentation of women, minorities, and persons with disabilities in science and engineering. These purposes have since been further expanded and clarified in recently-enacted NSF Authorization Act of 2002.

Evidence: NSF Revised GPRA Strategic Plan; National Science Foundation Act of 1950, 42 USC 1861 et. Seq.; Science and Engineering Equal Opportunities Act, 42 USC 1885; NSF Authorization Act of 2002, P.L. 107-378

1.2   **Does the program address a specific and existing problem, interest or need?**   Answer: YES   Question Weight 20%

Explanation: The national imperative for NSF's investments in Individuals is addressed in Paragraph 4 of Section 2, (Findings) of the NSF Authorization Act of 2002: "The research and education activities of the National Science Foundation...prepare future generations of scientists, mathematicians, and engineers who will be necessary to ensure America's leadership in the global marketplace."

Evidence: NSF Authorization Act of 2002, P.L. 107-378

1.3   **Is the program designed so that it is not redundant or duplicative of any other Federal, state, local or private effort?**   Answer: YES   Question Weight 20%

Explanation: NSF is the only Federal agency charged with promoting the progress of science and engineering research and education in all fields and disciplines. As such NSF's activities through its investments in Individuals address unique national science, technology, engineering, and mathematics (STEM) workforce needs that are not under the purview of mission-oriented federal, state or local agencies.

Evidence: NSF has specific, statutory authority to evaluate the status and needs of the various sciences and engineering and to consider the results of this evaluation in correlating its research and educational programs with other Federal and non-Federal programs. (http://www.nsf.gov/home/about/creation.htm)

1.4   **Is the program design free of major flaws that would limit the program's effectiveness or efficiency?**   Answer: YES   Question Weight 20%

Explanation: NSF's investments in Individuals rely upon the competitive merit review process, NSF Program Officers, and Committees of Visitors to ensure program effectiveness and efficiency. Merit review by peers has been recognized as a best practice for administering R&D programs. Independent reviews by COVs and other external groups (e.g., Advisory Committees, National Science Board, NAS/NRC, PCAST) provide additional scrutiny of the portfolio and program goals. This follows the guidance provided in the R&D Criteria, as outlined in the OMB/OSTP Guidance Memo.

Evidence: FY 2002 Performance Report (http://www.nsf.gov/pubs/2003/nsf03023/pdf/chapter4.pdf); Report to the NSB on the NSF Merit Review Process ' FY 2002 (http://www.nsf.gov/nsb/documents/2003/merit_rprt/mrreport_2002_final.doc); June 2003 OMB/OSTP Guidance Memo (http://www.ostp.gov/html/OSTP-OMB%20Memo.pdf).

PROGRAM ID: 10001148

PART Performance Measurements

Program:	Individuals						

Type(s):	Research and Development	Competitive Grant

1.5   **Is the program effectively targeted, so that resources will reach intended beneficiaries and/or otherwise address the program's purpose directly?**

Answer: YES   Question Weight 20%

Explanation: NSF's investments in Individuals rely upon two mechanisms to ensure that the program is effectively targeted and that funding addresses the programs purpose directly. First, the program solicitations for each activity contain a clear statement of the program's purpose in the context of the particular activity. Then, the merit review process ensures that funding is awarded to proposals that best address the programs purpose.

Evidence: Information on program solicitations (including URLs) for investments in Individuals is included in the Account Information tab. Key excerpts include:-NSF's most prestigious awards for new faculty members (CAREER) recognizes and provides direct support for the early career-development activities of those teacher-scholars who are most likely to become the academic leaders of the 21st century.-Graduate Research Fellowships provide three years of support for graduate study leading to research-based master's or doctoral degrees in STEM fields and are intended for students in the early stages of their graduate study.-IGERT meets the challenges of educating U.S. Ph.D. scientists, engineers, and educators with the interdisciplinary backgrounds, deep knowledge in chosen disciplines, and technical, professional, and personal skills to become in their own careers the leaders and creative agents for change.-The NSF Director's Award for Distinguished Teaching Scholars (DTS) recognizes and rewards individuals with distinguished records of educating undergraduates....

2.1   **Does the program have a limited number of specific long-term performance measures that focus on outcomes and meaningfully reflect the purpose of the program?**

Answer: YES   Question Weight: 8%

Explanation: Specific long-term performance measures for NSF's investments in Individuals are listed in the 'Measures' tab. These are drawn from the objectives set forth in the NSF Revised GPRA Strategic Plan, and they encompass NSF's commitment to broadening participation in science and engineering and to strengthening the U.S. workforce in science, technology, engineering and mathematics (STEM).

Evidence: Measures Tab

2.2   **Does the program have ambitious targets and timeframes for its long-term measures?**

Answer: YES   Question Weight: 8%

Explanation: The long-term measures for NSF's investments in Individuals are verifiable, as assessed by external advisory committees. This ensures that the goals and timeframes for these activities are appropriately ambitious and that they promote continuous improvement. The primary mechanisms for external evaluation are the Advisory Committee for GPRA Performance Assessment (last meeting 6/24-25/2003) and the Committee of Visitors process. Other external guidance includes 3rd party program assessments and PI meetings.

Evidence: AC GPA Report: http://www.nsf.gov/od/gpra/reports/final_report_1107.doc FY 2002 Performance and Accountability Report/PEOPLE Discussion: http://www.nsf.gov/pubs/2003/nsf03023/pdf/chapter3.pdf

2.3   **Does the program have a limited number of specific annual performance measures that can demonstrate progress toward achieving the program's long-term goals?**

Answer: YES   Question Weight: 8%

Explanation: NSF is in the process of developing appropriate measures, baselines, and targets for its investments in Individuals. Until now, NSF's assessment processes have been based on qualitative evaluations (under the 'alternative format' authorized by GPRA). The agency has identified a number of potential quantitative annual measures, shown in the Measures Tab, that relate directly to the agency's strategic goals.

Evidence: Measures Tab

PROGRAM ID: 10001148

PART Performance Measurements

Program: Individuals

Agency: National Science Foundation

Bureau:

	Section Scores				Rating
	1	**2**	**3**	**4**	Effective
	100%	91%	100%	83%	

Type(s): Research and Development   Competitive Grant

2.4 **Does the program have baselines and ambitious targets for its annual measures?**   Answer: NO   Question Weight: 8%

Explanation: As is described in Q2.3 (above), NSF is developing measures, baselines, and targets for its investments in individuals. The annual measures shown in the measures tab provide valuable indicators of progress, but further analysis is required before specific baselines and targets can be identified.

Evidence: Measures Tab

2.5 **Do all partners (including grantees, sub-grantees, contractors, cost-sharing partners, and other government partners) commit to and work toward the annual and/or long-term goals of the program?**   Answer: YES   Question Weight: 8%

Explanation: The key partners for NSF's investments in Individuals both commit to and work toward the goals of the program. The commitment is ensured through the mechanisms described in the response to Q1.5 -- namely the combination of the program purpose being expressed in program solicitations and the selection of awards through the merit review process. NSF then ensures that its partners are working toward the goals of the program via the following mechanisms: 1) continuing support (i.e. renewals, continuations) is based upon annual progress reports submitted by grantees and reviewed by NSF program officers; 2) to receive further support (subsequent awards), all applicants are required to report on the results of previous NSF support, which is then considered in the merit review process.

Evidence: Annual Reports, Final Project Reports. CAREER places special emphasis on document the commitment of grantees. The following statement is included in the CAREER solicitation with respect to annual reports: "For CAREER awards, the report must be approved by the principal investigator's department head or equivalent, thereby reaffirming the department's endorsement of the work plan and continuing partnership in the individual's career-development plan."

2.6 **Are independent evaluations of sufficient scope and quality conducted on a regular basis or as needed to support program improvements and evaluate effectiveness and relevance to the problem, interest, or need?**   Answer: YES   Question Weight 20%

Explanation: Evaluations are conducted regularly in order to inform program improvements and influence program planning. Each activity at NSF is reviewed once every three years by a COV. NSF's approach to evaluation was recently highlighted by GAO as an "evaluation culture--a commitment to self-examination, data quality, analytic expertise, and collaborative partnerships." Advisory Committees review Directorate performance, and as of FY 2002 the Advisory Committee for GPRA Performance Assessment assesses performance on an NSF-wide basis for the Strategic Goals. NSF conducts workshops, PI meetings, and various aspects of the Individuals program have been reviewed by external entities. NSF staff and external experts conduct site visits for major activities, such as IGERT sites. All these activities inform NSF senior management and contribute to development of plans for the agency. NOTE: The weight of this question has been increased to 20% to reflect the importance of independent evaluation in verifying the relevance, quality, and performance of NSF's investments in Individuals.

Evidence: * Program Evaluation: An Evaluation Culture and Collaborative Partnerships Help Build Agency Capacity GAO-03-454 May 2, 2003 * COV reports and NSF responses. * AC reports, including the Advisory Committee for GRPA Assessment (AC/GPA) report (Fall 2002).   * External reviews.   * Community workshops.   * Three-year reviews that include external experts for IGERT and VIGRE.

PROGRAM ID: 10001148

PART Performance Measurements

Program: Individuals

Agency: National Science Foundation

Bureau:

Section Scores				Rating
1	2	3	4	Effective
100%	91%	100%	83%	

Type(s): Research and Development   Competitive Grant

2.7   **Are Budget requests explicitly tied to accomplishment of the annual and long-term performance goals, and are the resource needs presented in a complete and transparent manner in the program's budget?**

Answer: YES   Question Weight: 8%

Explanation: Performance information informs NSF's budget decisions and is incorporated into NSF's budget requests to the Congress. The FY 2004 Congressional justification was built around the R&D Criteria, thereby highlighting specific performance information for NSF's investment portfolio. For NSF's investments in Individuals, for example, the FY 2004 highlights the accomplishments of recipients of NSF graduate fellowships, noting that four former GRF recipients received the Nobel Prize in 2001 and two received the National Medal of Science. The budget also clearly presents the resource request for each program and outlines the activities that will be supported with the funds. In addition, the FY 2004 Request provided full budgetary costing by the program framework in use at that time (Strategic Goals and Directorates). For the FY 2005 Budget, NSF will display the full budgetary cost associated with the new program framework defined in the Revised GPRA Strategic Plan.

Evidence: FY 2004 Congressional Justification, http://www.nsf.gov/bfa/bud/fy2004/toc.htm. Full budgetary costing discussion begins on page 144.

2.8   **Has the program taken meaningful steps to correct its strategic planning deficiencies?**

Answer: YES   Question Weight: 8%

Explanation: For NSF's investments in Individuals, the Committee of Visitors process (COV) provides a valuable mechanism for identifying and addressing planning-related issues. Through the COVs, NSF receives feedback on the activity's goals and overall effectiveness. Steps to address identified weaknesses are identified. For example, in the FY 2001 COV review of the CAREER program, one of the recommendations of the COV was to broaden the base of applicants to include, among others, minority investigators and minority-serving institutions. In response, NSF awarded a grant in FY 2002 to fund a three-year series of CAREER workshops for minority investigators and investigators at minority serving institutions. The first workshops were held in January and March of 2003, in preparation for submission to the FY 2004 CAREER competition.

Evidence: * COV reports and NSF responses. * AC reports. * External Evaluations.

2.CA1   **Has the agency/program conducted a recent, meaningful, credible analysis of alternatives that includes trade-offs between cost, schedule, risk, and performance goals and used the results to guide the resulting activity?**

Answer: NA   Question Weight: 0%

Explanation:

Evidence:

2.RD1   **If applicable, does the program assess and compare the potential benefits of efforts within the program to other efforts that have similar goals?**

Answer: YES   Question Weight: 8%

Explanation: NSF's investments in Individuals address unique national STEM workforce needs that are not under the purview of the more mission-specific federal, state or local agencies. The Office of Science and Technology Policy, the National Science and Technology Council, the National Science Board, OMB, the Congress, and other policy-making bodies regularly review NSF's investments in Individuals in the context of the overall Federal investment in science and engineering.

Evidence: NSTC Subcommittee on Education and Workforce Development, NSB Report on National Workforce Policy.

PROGRAM ID: 10001148

PART Performance Measurements

Program: Individuals

Agency: National Science Foundation

Bureau:

Section Scores				Rating
1	2	3	4	Effective
100%	91%	100%	83%	

Type(s): Research and Development   Competitive Grant

2.RD2   **Does the program use a prioritization process to guide budget requests and funding decisions?**

Answer: YES   Question Weight: 8%

Explanation: NSF's investments in Individuals employs rigorous prioritization processes for developing its budget requests and determining its funding decisions. For budget requests, each of the activities within the program provides input to senior management about past performance and future needs. Senior management integrates that information, prioritizes budget requests within and between programs, and determines funding levels, all of which is reviewed by the National Science Board. For funding decisions, the program relies on the external merit review system as well as internal factors (addressing NSF's core strategies, maintaining a diverse portfolio, etc.) to prioritize proposals.

Evidence: Budget requests: Strategic Plan, Congressional JustificationsFunding decisions: Grant Proposal Guide

3.1   **Does the agency regularly collect timely and credible performance information, including information from key program partners, and use it to manage the program and improve performance?**

Answer: YES   Question Weight: 8%

Explanation: Performance information is collected via interim, annual and final project reports. Site visits to larger projects are another mechanism used to collect performance information. COV reviews and recommendations are utilized to improve program performance. Process-related goals such as dwell time can be monitored via the agency's Enterprise Information System (EIS).

Evidence: Interim, annual and final project reportsSite visit reportsCOV reportsEIS

3.2   **Are Federal managers and program partners (including grantees, sub-grantees, contractors, cost-sharing partners, and other government partners) held accountable for cost, schedule and performance results?**

Answer: YES   Question Weight: 8%

Explanation: NSF awardees must meet annual and final reporting requirements as well as financial record-keeping requirements. Performance is monitored by NSF Program Officers and funds can be withheld pending satisfactory project performance. The efforts of NSF Program Officers are reviewed by their supervisors and by COVs. Corrective actions are taken as needed to assure accountability. Examples: - VIGRE awards are made for five years, but each VIGRE site is subject to a third year review to determine whether it should receive the last two years of funding. Since the activity began, a total of six VIGRE sites did not successfully pass this review and consequently did not receive funding for the final two years. - IGERT has held up Continuing Grant Increments to grantees until necessary progress was demonstrated.

Evidence: Performance Evaluations of NSF EmployeesCOV ReportsAnnual and final reportsNSF Grant General Conditions

3.3   **Are funds (Federal and partners') obligated in a timely manner and spent for the intended purpose?**

Answer: YES   Question Weight: 8%

Explanation: NSF funds are routinely obligated in a timely manner. A study conducted by PwC found no erroneous payments. NSF's grant monitoring activities ensure that the funds are used for their intended purpose.

Evidence: NSF FY 2001 Risk Assessment for Erroneous PaymentsData on NSF Carryover, found in NSF's Budget Requests to CongressRisk Assessment and Award Monitoring GuideClean opinion on NSF Financial statements

PROGRAM ID: 10001148

PART Performance Measurements

Program: Individuals

Agency: National Science Foundation

Bureau:

Type(s): Research and Development   Competitive Grant

	Section Scores			Rating
1	**2**	**3**	**4**	Effective
100%	91%	100%	83%	

3.4   **Does the program have procedures (e.g. competitive sourcing/cost comparisons, IT improvements, appropriate incentives) to measure and achieve efficiencies and cost effectiveness in program execution?**

Answer: YES   Question Weight: 8%

Explanation: NSF's investments in Individuals take have resulted in procedures to achieve efficiencies and cost effectiveness in program execution. For example, IGERT and other key activities have taken steps to reduce workloads on institutions, on NSF, and on the reviewer community. Foremost among these is placing limits on the number of full proposals that an institution may submit to a competitive solicitation. Similarly, CAREER limits investigators to one submission per round and three reviewed submissions total. Such limits mean that many proposals have already faced a competitive process before they reach NSF, which tends to strengthen them while relieving administrative burden on NSF. In addition, CAREER now issues a new solicitation every three years instead of annually, which greatly reduces the workload at NSF . More generally, NSF is a leader in the vigorous and dynamic use of information technology to advance the agency mission. IT improvements permit more timely and efficient processing of proposals. It has also been an NSF-wide priority to increase the size and duration of the awards it provides. The minimum size and duration for CAREER awards, for example, have been increased in recent years (to a total of $400,000-$500,000 for five years) as part of the NSF-wide effort to increase average size and duration.. This enhances efficiency because larger, longer awards allow the research community to spend more time conducting research and less time preparing proposals to continue funding ongoing projects.

Evidence: NSF 2002 Performance and Accountability Report

3.5   **Does the program collaborate and coordinate effectively with related programs?**

Answer: YES   Question Weight: 8%

Explanation: NSF's investments in Individuals have a long tradition of collaborating and coordinating effectively with related programs. Specifically:- NSF's Graduate Research Fellowship activity provides leadership for the 'fellowship roundtable,' which includes representatives of other Federal as well as privately-funded fellowship programs. The roundtable provides a forum for improving coordination and raising issues of common concern.- NSF's Scholarships for Service were developed jointly with the National Security Agency and the Office of Personnel Management.- NSF has developed a cooperative activity with the NIH called "NSF/NIH Scholar in Residence at NIH" to enable physical scientists and engineers to work as visitors within the biomedical research environment at NIH. A similar program has been developed with the FDA.More generally, NSF regularly shares information with other agencies and participates in coordination activities through OSTP and NSTC. Policy guidance provided by the National Science Board also incorporates perspectives from related programs and investments.

Evidence: NSTC Subcommittee on Education and Workforce Development, NSB Report on National Workforce Policy

3.6   **Does the program use strong financial management practices?**

Answer: YES   Question Weight: 8%

Explanation: NSF's investments in Individuals use NSF's financial management system. NSF is the only agency to receive a 'green' rating for financial management in the President's Management Agenda, and NSF has received a clean opinion on its financial audit for the past five years. The Individuals portfolio contributes to this outstanding assessment.

Evidence: Executive Branch Management ScorecardResults of NSF Financial Audits

PROGRAM ID: 10001148

PART Performance Measurements

Program: Individuals

Agency: National Science Foundation

Bureau:

	Section Scores				Rating
	1	2	3	4	Effective
	100%	91%	100%	83%	

Type(s): Research and Development   Competitive Grant

3.7   **Has the program taken meaningful steps to address its management deficiencies?**   Answer: YES   Question Weight: 8%

Explanation: All activities are included in reviews by NSF's Management Controls Committee which, chaired by the NSF CFO, provides continuing long-term senior executive attention to NSF's management challenges and reforms. In addition, challenges are identified by the NSF IG and through NSF's annual review of financial and administrative systems as required by the FMFIA. In addition, COVs regularly provide feedback on management-related concerns.

Evidence: Office of Inspector General reports and NSF responses; COV reports.

3.CA1   **Is the program managed by maintaining clearly defined deliverables, capability/performance characteristics, and appropriate, credible cost and schedule goals?**   Answer: NA   Question Weight: 0%

Explanation:

Evidence:

3.CO1   **Are grants awarded based on a clear competitive process that includes a qualified assessment of merit?**   Answer: YES   Question Weight 20%

Explanation: All of the activities in the Individuals portfolio rely upon NSF's competitive, merit review process that includes external peer evaluation. NOTE: The weight of this question has been increased to 20% to reflect the importance of merit review in verifying the relevance, quality, and performance of NSF's investments in Individuals.

Evidence: EIS; NSF Performance and Accountability Reports

3.CO2   **Does the program have oversight practices that provide sufficient knowledge of grantee activities?**   Answer: YES   Question Weight: 8%

Explanation: In FY 2002 NSF established a formal Award Monitoring and Technical Assistance Program (AM&TAP) based on financial and administrative risk assessment of NSF awardee institutions and with a primary focus to on-site monitoring. Consistent with NSF's existing award administration process, AM&TAP is a collaborative effort between administrative and financial managers/technical staff and NSF program managers. Also, to leverage its staff resources, NSF has increased the number of reverse site visits that are especially effective in providing technical assistance to new and other high risk awardees. NSF maintains scientific oversight of all awards through the Annual and Final Project Reports, and funds are tracked (via reporting systems and audits) to verify that funds are used for their designated purpose. S&E limitations on staffing and travel limit our ability to perform the level of oversight that we deem desirable.

Evidence: * COV reports * Quarterly / Annual and Final Project Reports. * Directorate Reviews * FY 2002 Report on the NSF Merit Review System * Annual reviews * Risk Assessment and Award Monitoring Guide * Clean audit opinions * PMA Scorecard for Financial Management

PROGRAM ID: 10001148

PART Performance Measurements

Program: Individuals

Agency: National Science Foundation

Bureau:

Section Scores				Rating
1	2	3	4	Effective
100%	91%	100%	83%	

Type(s): Research and Development Competitive Grant

3.CO3 **Does the program collect grantee performance data on an annual basis and make it available to the public in a transparent and meaningful manner?**

Answer: YES Question Weight: 8%

Explanation: Program results and other relevant information are made available via a number of mechanisms -- ranging from award information on the NSF web site to publications. It is required under NSF's general grant terms and conditions that all NSF awardees publish the results of their research in public journals. In addition, award abstracts for all funded projects are available on the NSF web site. NSF's investments in Individuals also provide additional information on program accomplishments. Examples include: For IGERT, each project maintains a web site that is aimed at general audiences. For CAREER activities, there is a separate web site through which users can search the abstracts for all CAREER awards. The VIGRE program has a Website that gives information on all current VIGRE sites.

Evidence: NSF Grant Proposal Guide: http://www.nsf.gov/pubsys/ods/getpub.cfm?gpg;IGERT: http://www.nsf.gov/home/crssprgm/igert/igertprojects.htm; CAREER: http://www.nsf.gov/home/crssprgm/career/awardsearch2.cfmVIGRE: The URL is http://www.vigre.org/ but may be migrated to the NSF site in the near future.

3.RD1 **For R&D programs other than competitive grants programs, does the program allocate funds and use management processes that maintain program quality?**

Answer: NA Question Weight: 0%

Explanation: All NSF programs are administered as competitive grant programs

Evidence:

4.1 **Has the program demonstrated adequate progress in achieving its long-term performance goals?**

Answer: YES Question Weight: 17%

Explanation: NSF relies on external evaluation to determine whether it is achieving its long-term objectives. In FY 2002, the NSF Advisory Committee for GPRA Performance Assessment was the focal point for these activities. In FY 2001, these evaluations worked through NSF's Directorate Advisory Committees. In both years, the reviews found that NSF's accomplishments under the PEOPLE goal have "demonstrated significant achievement." Both sets of reviews specifically considered indicators that parallel the objectives of the Individuals portfolio.

Evidence: Measures Tab; NSF FY 2002 PAR, p. II-40-41; FY 2001 NSF GPRA Performance Report (http://www.nsf.gov/pubsys/ods/getpub.cfm?nsf02105).

4.2 **Does the program (including program partners) achieve its annual performance goals?**

Answer: SMALL EXTENT Question Weight: 17%

Explanation: As was noted in Q2.4, NSF is in the process of developing appropriate targets for its annual performance measures. Hence, the answer here can be no higher than "Small Extent," even though NSF has shown progress under all of the indicators identified.

Evidence: See Measures tab.

PROGRAM ID: 10001148

PART Performance Measurements

Program: Individuals

Agency: National Science Foundation

Bureau:

Type(s): Research and Development   Competitive Grant

	Section Scores				Rating
	1	**2**	**3**	**4**	Effective
	100%	91%	100%	83%	

4.3   **Does the program demonstrate improved efficiencies or cost effectiveness in achieving program goals each year?**

Answer: LARGE EXTENT   Question Weight: 17%

Explanation: For NSF's investments in Individuals, the stipends provided under GRF and IGERT have met or exceeded NSF's target for the past four years. Efficiency goals were a major reason why NSF has sought this increase, as the increased funding allows students to focus more directly on their education rather than having to devote time and energy to seeking other sources of support. Similarly, the emphasis on increased award size and duration in CAREER means that NSF need not assess as many proposals or fund as many awards over the academic career of that particular individual. Additionally, the changes in practices for programs such as CAREER and IGERT noted in Question 3.4 have all achieved the intended efficiency gains. More generally, NSF is a leader in the vigorous and dynamic use of information technology to advance the agency mission. IT improvements have eliminated grantee mailing costs, significantly reduced printing costs and permitted more timely and efficient processing of proposals.

Evidence: Measures Tab, NSF Budget Justifications, NSF 2002 Performance and Accountability Report, p. II-68

4.4   **Does the performance of this program compare favorably to other programs, including government, private, etc., with similar purpose and goals?**

Answer: YES   Question Weight: 17%

Explanation: NSF's activities through its investments in Individuals address national STEM workforce needs that are not addressed by the mission agencies. Because of their recognized effectiveness, aspects of NSF investments in Individuals are often emulated by other programs in government and the private sector. The NSF activities also create a national response to address the goals of the program.

Evidence: USDA has developed a graduate traineeship program based directly on IGERT with guidance from NSF. GRFs has also been considered a model for development of fellowship programs in other countries. The national response to the NSF program is evidenced by the number of proposals (e.g., in FY 2003, IGERT received 425 preproposals, for which only approximately 20 proposals or 5% can be funded due to budget constraints), and the fact that many of the unfunded projects will promote efforts toward the goals of the program.

4.5   **Do independent evaluations of sufficient scope and quality indicate that the program is effective and achieving results?**

Answer: YES   Question Weight: 30%

Explanation: The most recent evaluation that included the entire Individuals portfolio was the 2002 meeting of the ACGPA. The AC GPA wrote: "The 'People' Indicator retrospective portfolio was impressive in its diversity, breadth, and impact. Significant achievements were accomplished in all areas of the People portfolio." In reaching this determination, the committee specifically considered indicators that matched the objectives used here for Individuals. NOTE: The weight of this question has been increased to 20% to reflect the importance of independent evaluation in verifying the relevance, quality, and performance of NSF's investments in Individuals.

Evidence: AC GPA Report: http://www.nsf.gov/od/gpra/reports/final_report_1107.doc FY 2002 Performance and Accountability Report/PEOPLE Discussion: http://www.nsf.gov/pubs/2003/nsf03023/pdf/chapter3.pdf

4.CA1   **Were program goals achieved within budgeted costs and established schedules?**

Answer: NA   Question Weight: 0%

Explanation:

Evidence:

PROGRAM ID: 10001148

PART Performance Measurements

Program: Individuals

Agency: National Science Foundation

Bureau:

Section Scores				Rating
1	2	3	4	Effective
100%	91%	100%	83%	

Type(s): Research and Development   Competitive Grant

Measure: External validation of "signficant achievement" in promoting diversity in the science and engineering workforce through increased participation of underrepresented groups in NSF activities.

Additional Information: This objective speaks directly to NSF's statutory responsibilities. It will be evaluated through the external Advisory Committee for GPRA (ACGPA).

Year	Target	Actual	**Measure Term:** Long-term
2001	Success	Success	
2002	Success	Success	
2003	Success	Success	
2004	Success	Success	
2005	Success		
2006	Success		
2009	Success		

Measure: Number of applicants for Graduate Research Fellowships from groups that are underrepresented in the science and engineering workforce. (NSF is working to improve targets for this measure.)

Additional Information: Graduate Research Fellowships are NSF's flagship investment in graduate education and training, and outreach efforts to increase the number of applicants from underrepresented groups are an ongoing priority.

Year	Target	Actual	**Measure Term:** Annual
2002		730	
2003		820	
2004	Increase		
2005	Increase		
2006	Increase		

PROGRAM ID: 10001148

PART Performance Measurements

			Section Scores				Rating
Program:	Individuals		**1**	**2**	**3**	**4**	Effective
Agency:	National Science Foundation		100%	91%	100%	83%	
Bureau:							

Type(s): Research and Development   Competitive Grant

2005

2006

Measure: Number of applications for CAREER awards from investigators at minority-serving institutions.

Additional Information: CAREER is NSF's flagship investment in the development of young faculty, and broadening the institutional base of applicants to the program is a continuing priority. Outreach efforts have specifically focused on attracting faculty from minority-serving institutions and from a broader geographic base.

Year	Target	Actual	**Measure Term:** Annual
2002		60	
2003		67	
2004	Increase		
2005	Increase		
2006	Increase		

2005

2006

Measure: External validation of "significant achievement" in attracting and preparing U.S. students to be highly qualified members of the global S&E workforce.

Additional Information: This objective speaks directly to NSF's statutory responsibilities. It will be evaluated through the ACGPA process.

Year	Target	Actual	**Measure Term:** Long-term
2002	Success	Success	
2003	Success	Success	
2004	Success	Success	
2005	Success		

PROGRAM ID: 10001148

PART Performance Measurements

Program: Individuals

Agency: National Science Foundation

Bureau:

Section Scores				Rating
1	2	3	4	Effective
100%	91%	100%	83%	

Type(s): Research and Development · Competitive Grant

2006	Success
2009	Success

Measure: Number of U.S. students receiving fellowships through GRF and IGERT.

Additional Information: GRF and IGERT are the two principal sources of graduate student support in the Individuals portfolio.

Year	Target	Actual	**Measure Term:** Annual
2002		4,236	
2003		4,250	
2004	Increase		
2005	Increase		
2006	Increase		

Measure: Stipend level for GRF and IGERT awards (dollars/year)

Additional Information: Promotes efficiency in achieving program goals by reducing the need for students to seek supplemental funding to support their education and research activities.

Year	Target	Actual	**Measure Term:** Annual (Efficiency Measure)
2000		$16,800	
2001		$18,000	
2002		$21,500	
2003	$27,500	$27,500	
2004	$30,000		

PROGRAM ID: 10001148

PART Performance Measurements

Program: Information Technology Research

Agency: National Science Foundation

Bureau:

	Section Scores			Rating
1	**2**	**3**	**4**	Effective
100%	100%	100%	90%	

Type(s): Research and Development   Competitive Grant   Capital Assets and Service Acquisition

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1.1   **Is the program purpose clear?**   Answer: YES   Question Weight 20%

Explanation: The Information Technology Research (ITR) program responds to the President's Information Technology Advisory Committee (PITAC) Report of 1999 and the resulting Congressional authorization. PITAC recommended long term goals including increased research on software, scalable information infrastructure, high-end computing and socio-economic impacts of IT, including IT workforce issues. PITAC also called for "acquisition of the most powerful high end computing systems to support science and engineering research."

Evidence: PITAC Report to the President (http://www.itrd.gov/ac/report/); NSF Annual Budget Request to Congress; Congressional Authorization Bill for NSF in FY2000; NSTC's report "IT for the 21st Century: A Bold Investment in America's Future" (http://www.itrd.gov/pubs/it2-ip/); Annual 3-page ITR Descriptions.

1.2   **Does the program address a specific and existing problem, interest or need?**   Answer: YES   Question Weight 20%

Explanation: Information Technology is a major driver of the US economy and is dependent on research advances. ITR stimulates this needed research. ITR also supports innovative IT research that supports advances across the range of science and engineering frontiers.

Evidence: PITAC Report to the President (http://www.itrd.gov/ac/report/); NSF Science and Engineering Indicators 2002: Chapter 8 on Significance of IT (http://www.nsf.gov/sbe/srs/seind02/start.htm)

1.3   **Is the program designed so that it is not redundant or duplicative of any other Federal, state, local or private effort?**   Answer: YES   Question Weight 20%

Explanation: ITR targets long-term, basic, high-risk research in IT of the kind that is too speculative for industry to support. Other government agencies support long-term research, but of a more mission-oriented type. PITAC called for a coordinated, government-wide initiative, so although other agencies received little in new funding, ITR is coordinated through the National Coordinating Office (NCO) for Networking and IT R&D (NITRD) with IT funding programs in other federal agencies.

Evidence: The "Bluebook" supplements to the President's Budget produced annually under the auspices of the NSTC by the National Coordinating Office (NCO) for NITRD . The NCO coordinates and these reports articulate the relationships among agencies that fund IT research and development.

1.4   **Is the program design free of major flaws that would limit the program's effectiveness or efficiency?**   Answer: YES   Question Weight 20%

Explanation: ITR relies on the competitive merit review process, the NSF Program Officer, and Committees of Visitors to ensure program effectiveness and efficiency. Merit review by peers has been recognized as a "best practice" for administering R&D programs. Independent reviews by Committees of Visitors (COVs) and external groups (e.g. the National Research Council, the President's Council of Advisors on Science and Technology (PCAST)) provide additional scrutiny of the portfolio and program goals.

Evidence: R&D Investment Criteria has identified merit review as the model selection method; FY2002 Performance and Accountability Report (http://www.nsf.gov/pubs/2003/nsf03023/pdf/chapter4.pdf); Report to the NSF on the NSF Merit Review Process-FY2002 (http://www.nsf.gov/nsb/documents/2003/merit_rprt/mrreport_2002_final.doc); ITR Program Announcements 2000-2002 (NSF99-167, NSF00-126, NSF01-149, NSF02-168)

PROGRAM ID: 10001146

PART Performance Measurements

Program: Information Technology Research

Agency: National Science Foundation

Bureau:

Section Scores				Rating
1	2	3	4	Effective
100%	100%	100%	90%	

Type(s): Research and Development   Competitive Grant   Capital Assets and Service Acquisition

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1.5 **Is the program effectively targeted, so that resources will reach intended beneficiaries and/or otherwise address the program's purpose directly?**   Answer: YES   Question Weight 20%

Explanation: The peer review process ensures effective targeting of funding so that investments will reach those most qualified to carry out the research program and will directly address the program's purpose, as expressed in program announcements and solicitations and as embodied in NSF's merit review criteria.

Evidence: NSF Strategic Plan; ITR Program Announcements 2000-2002 (NSF99-167, NSF00-126, NSF01-149, NSF02-168).

2.1 **Does the program have a limited number of specific long-term performance measures that focus on outcomes and meaningfully reflect the purpose of the program?**   Answer: YES   Question Weight: 8%

Explanation: Long-term measures have been chosen consonant with the PITAC recommendations and with NSF GPRA measures to assure that the program is effective in terms of its own goals and its performance can be judged and compared to that of other NSF programs. Short-term goals provide evidence for long-term evaluation.

Evidence: ITR Program Announcements FY2000 - FY2003; PITAC Report to the President; NSF Budget Requests FY2000 - FY2003; NSF Strategic Plan; NSF GPRA Plan; NSF-ITR award portfolio at www.itr.nsf.gov; NSTC Bluebooks FY2000-FY2003

2.2 **Does the program have ambitious targets and timeframes for its long-term measures?**   Answer: YES   Question Weight: 8%

Explanation: The ITR Program intends to make progress toward its long-term goals and to achieve substantial impact on the nation's IT capabilities and IT workforce by 2008.

Evidence: NSF Budget Requests

2.3 **Does the program have a limited number of specific annual performance measures that can demonstrate progress toward achieving the program's long-term goals?**   Answer: YES   Question Weight: 8%

Explanation: Performance measures include construction and operations targets for terascale computing facilities, award size and duration indicators to measure diversified modes of support, number of multi-investigator projects, and number and diversity of people supported.

Evidence: ITR Program Announcements FY2000 - FY2003; ITR Management Plan FY2000-FY2003; Annual Program Reports FY2000-2003; Site Visit Reports. Annual and Final Project Reports.

2.4 **Does the program have baselines and ambitious targets for its annual measures?**   Answer: YES   Question Weight: 8%

Explanation: Baselines are obtainable from internal NSF sources and are being developed. Ambitious targets are set under the "Measures" tab.

Evidence: NSF's Enterprise Information System; annual and final reports.

PROGRAM ID: 10001146

PART Performance Measurements

Program: Information Technology Research

Agency: National Science Foundation

Bureau:

	Section Scores				Rating
	1	2	3	4	Effective
	100%	100%	100%	90%	

Type(s): Research and Development   Competitive Grant   Capital Assets and Service Acquisition

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2.5 **Do all partners (including grantees, sub-grantees, contractors, cost-sharing partners, and other government partners) commit to and work toward the annual and/or long-term goals of the program?**

Answer: YES   Question Weight: 8%

Explanation: Program announcements/solicitations provide clear statements of program goals and objectives. Annual and final project reports, required of all awardees, outline progress toward objectives as laid out in the solicitation. Results of prior support are considered when making new awards.

Evidence: ITR Program Announcements FY2000 - FY2003; Terascale competition announcements FY2000-FY2003. Annual and final ITR project reports.

2.6 **Are independent evaluations of sufficient scope and quality conducted on a regular basis or as needed to support program improvements and evaluate effectiveness and relevance to the problem, interest, or need?**

Answer: YES   Question Weight20%

Explanation: Larger projects are site-visited by NSF and external evaluators at least once in 5 years.   A Committee of Visitors (COV) for the ITR research component will be held. A COV consists of external experts independent of the NSF and performs a thorough review of an NSF program and renders a report to an NSF advisory committee. The Terascale Computing Facility projects are extensively reviewed each year for performance and contributions to national needs. The Terascale competitions of 2000 and 2001 were recently reviewed by a COV. (The weight of this question has been increased to reflect the importance NSF places on the conduct of independent evaluations to support program improvements and evaluate effectiveness.)

Evidence: Site visit reports; COV for Advanced Computing Infrastructure. ITR COV Report to be conducted.

2.7 **Are Budget requests explicitly tied to accomplishment of the annual and long-term performance goals, and are the resource needs presented in a complete and transparent manner in the program's budget?**

Answer: YES   Question Weight: 8%

Explanation: Performance information is used by managers to inform decisions and is incorporated into NSF's budget requests to the Congress. The FY 2004 Congressional Justification was built around the R&D Criteria, thereby highlighting specific performance information for NSF's investment portfolio. The budget also clearly presents the resource request for each program and outlines the activities that will be supported with the funds. In addition, the FY 2004 Request provided full budgetary costing by the program framework in use at that time (Strategic Goals and Directorates). For the FY 2005 Budget, NSF will display the full budgetary cost associated with the new program framework defined in the Revised GPRA Strategic Plan.

Evidence: PITAC Report to the President; NSF Budget Requests; FY 2004 Congressional Justification http://www.nsf.gov/bfa/bud/fy2004/toc.htm. Full budgetary costing discussion begins on page 144; R&D Investment Criteria.

2.8 **Has the program taken meaningful steps to correct its strategic planning deficiencies?**

Answer: NA   Question Weight: 0%

Explanation: No significant strategic planning deficiencies to correct.

Evidence:

PROGRAM ID: 10001146

PART Performance Measurements

Program: Information Technology Research

Agency: National Science Foundation

Bureau:

	Section Scores				Rating
	1	**2**	**3**	**4**	Effective
	100%	100%	100%	90%	

Type(s): Research and Development   Competitive Grant   Capital Assets and Service Acquisition

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2.CA1   **Has the agency/program conducted a recent, meaningful, credible analysis of alternatives that includes trade-offs between cost, schedule, risk, and performance goals and used the results to guide the resulting activity?**   Answer: YES   Question Weight: 8%

Explanation: This item applies only to the terascale facilities part of the total ITR Program. Terascale computing was the subject of two workshops that assessed community needs and requirements in 1998. Signicant planning, including broad community involvement, was done prior to each solicitation to assure effective objectives and schedules. For each competition, peer reviewers are asked to balance forward looking aspects against excessive risk in making recommendations. The selection process for choosing performers is done through open competition and merit review.   The competition compares the "alternatives" and selects one set of projects versus another. ITR selects projects by merit review, which is widely accepted as the optimal investment strategy. NSF works closely and continually with grantees to monitor progress and assure the meeting of milestones. The annual MREFC Chapter of the NSF Budget Request to Congress reviews and summarizes project status, schedules, etc. A recent advisory committee report has revisited the science and engineering community's needs for high performance computing resources.

Evidence: Terascale, Distributed Terascale and Extensible Terascale Program Announcements; Cooperative Agreements; Periodic project reports; "Revolutionizing Science and Engineering through Cyberinfrastructure," 2003 (http://www.communitytechnology.org/nsf_ci_report/); "Terascale and Petascale Computing: Digital Reality in the New Millennium" (http://www.cise.nsf.gov/div/acir/wksp/ter_nsf_rpt.htm); MREFC Chapter of the NSF Budget Request to Congress.

2.RD1   **If applicable, does the program assess and compare the potential benefits of efforts within the program to other efforts that have similar goals?**   Answer: YES   Question Weight: 8%

Explanation: PITAC recognized a need not being met by the Federal Government as a whole and recommended NSF take the lead role in addressing this need. No other program of this scope or objectives exists in the Federal Government; however, NSF coordinates with the other federal agencies that support IT research. For funding programs, the "alternatives" amount to funding one set of projects versus another set. ITR selects projects by merit review, which is widely accepted as the optimal investment strategy.

Evidence: PITAC Report to the President; Bluebooks FY2000 - FY2003; PITAC "Discovery" Assessment Report on ITR, 2001; NCO working group reports; COV reports of core CISE programs

2.RD2   **Does the program use a prioritization process to guide budget requests and funding decisions?**   Answer: YES   Question Weight: 8%

Explanation: Priority is given to projects seen as innovative, ground-breaking, and high-risk/high-return.   To select projects for funding, ITR obtains peer reviews from external experts; NSF Program Managers analyze the reviews and make recommendations (for Medium and Large projects) to an NSF-wide ITR Working Group. At all steps, these priorities are weighed in making decisions.   Funds are requested from Congress for topics that the PITAC Report listed as of high priority and other topics based on research community inputs. All NSF directorates weigh the priority of ITR within the context of core programs annually.

Evidence: PITAC Report; ITR Program Announcements FY2000 - FY2003; PITAC Assessment Report 2001; COV Reports of other CISE programs discuss relationship to the ITR Program

PROGRAM ID: 10001146

PART Performance Measurements

Program: Information Technology Research

Agency: National Science Foundation

Bureau:

	Section Scores				Rating
	1	2	3	4	Effective
	100%	100%	100%	90%	

Type(s): Research and Development   Competitive Grant   Capital Assets and Service Acquisition

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3.1 Does the agency regularly collect timely and credible performance information, including information from key program partners, and use it to manage the program and improve performance?   Answer: YES   Question Weight: 8%

Explanation: Performance information is collected via interim, annual and final project reports. Site visits to larger projects are another mechanism used to collect performance information. COV reviews and recommendations are utilized to improve program performance. Process-related goals such as dwell time can be monitored via the agency's Enterprise Information System (EIS).

Evidence: ITR Interim, Annual, and Final Project Reports; Site Visit reports; COV Reports; EIS.

3.2 Are Federal managers and program partners (including grantees, sub-grantees, contractors, cost-sharing partners, and other government partners) held accountable for cost, schedule and performance results?   Answer: YES   Question Weight: 8%

Explanation: NSF awardees must meet annual and final reporting requirements as well as financial record keeping requirements. Performance is monitored by NSF Program Officers and funds can be withheld pending satisfactory project performance. Facilities are subject to GPRA Performance Reporting Requirements. The efforts of NSF Program Officers are reviewed by their supervisors and by COVs. Corrective actions are taken as needed to assure accountability.

Evidence: Performance Evaluations of NSF program officers; COV Reports; Annual and final project reports; GPRA Facilities Performance Reports; NSF Grant General Conditions

3.3 Are funds (Federal and partners') obligated in a timely manner and spent for the intended purpose?   Answer: YES   Question Weight: 8%

Explanation: ITR funds are routinely obligated in a timely manner. A study conducted by PricewaterhouseCoopers found no erroneous payments. NSF's grant monitoring activities ensure that the funds are used for their intended purpose.

Evidence: NSF FY2001 Risk Assessment for Erroneous Payments; Data on NSF Carryover, found in NSF's Budget Requests to Congress; Risk Assessment and Award Monitoring Guide; Clean opinion on NSF Financial statements for the past 5 years

3.4 Does the program have procedures (e.g. competitive sourcing/cost comparisons, IT improvements, appropriate incentives) to measure and achieve efficiencies and cost effectiveness in program execution?   Answer: YES   Question Weight: 8%

Explanation: NSF is a leader in the vigorous and dynamic use of information technology to advance the agency mission. ITR has, each year since its inception in 2000, made programmatic adjustments to increase efficiency and impact: In 2001, ITR moved from a 2-tier to a 3-tier competition, separated by award size, to make review comparisons more effective and assure a spread of award sizes; Also in 2001, ITR limited to 2 the number of ITR proposals any individual could submit; In 2002, ITR adjusted its use of pre-proposals to reduce reviewing workload.

Evidence: NSF Strategic Plan; NSF Grant Proposal Guide; NSF 2002 Performance and Accountability Report;   ITR Solicitations FY2000 - FY2002.

PROGRAM ID: 10001146

PART Performance Measurements

Section Scores				Rating
1	2	3	4	Effective
100%	100%	100%	90%	

Type(s): Research and Development   Competitive Grant   Capital Assets and Service Acquisition

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3.5 **Does the program collaborate and coordinate effectively with related programs?**   Answer: YES   Question Weight: 8%

Explanation: Specific mechanisms are established for split-funding between ITR and other related NSF program. DARPA and multiple intelligence agencies have co-funded selected ITR projects. ITR also coordinates with programs in other agencies through the Interagency Working Group (IWG) on Information Technology Research and Development (IT R&D), which has six interagency "Coordinating Groups" for different aspects of the Networking and IT R&D (NITRD) Program.

Evidence: ITR Management Plan

3.6 **Does the program use strong financial management practices?**   Answer: YES   Question Weight: 8%

Explanation: NSF was the first federal agency to receive a "green light" for financial management on the PMA Scorecard. NSF has received clean opinions on its financial audits in recent years.

Evidence: Executive Branch Management Scorecard; Results of NSF Financial Audits; Performance and Management Assessments (http://www.whitehouse.gov/omb/budget/fy2004/pma.html)

3.7 **Has the program taken meaningful steps to address its management deficiencies?**   Answer: YES   Question Weight: 8%

Explanation: ITR is overseen by a cognizant NSF Assistant Director (AD) and by the NSF Senior Management Group, as well as by the Inspector General. No serious management deficiencies have been identified by these processes; however, the cognizant AD had identified the need for additional staff and has been able to slightly increase the staff. Still, S&E limitations have not allowed sufficient staffing and travel for the level of project oversight that NSF deems desirable.

Evidence: ITR annual report to NSF Senior Management

3.CA1 **Is the program managed by maintaining clearly defined deliverables, capability/performance characteristics, and appropriate, credible cost and schedule goals?**   Answer: YES   Question Weight: 8%

Explanation: This item applies only to the terascale facilities part of the total ITR Program.   Facilities awards are made as cooperative agreements with clearly defined deliverables, capability/performance characteristics, and appropriate, credible cost and schedule goals. Terascale investments are managed with milestones and regular financial and performance reports.

Evidence: Annual and final project reports; Annual and Biannual progress reviews; Capital Assets Plan; Annual Program Reports.

3.CO1 **Are grants awarded based on a clear competitive process that includes a qualified assessment of merit?**   Answer: YES   Question Weight 20%

Explanation: Funds are allocated via a competitive, merit-review process followed by review analysis by NSF Program Officers, who make recommendations to the NSF-wide ITR Working Group. (The weight of this question has been increased to reflect the importance of external merit review in validating the quality of this basic research program.)

Evidence: EIS; NSF Performance and Accountability Reports

PROGRAM ID: 10001146

PART Performance Measurements

Program: Information Technology Research

Agency: National Science Foundation

Bureau:

	Section Scores				Rating
	1	**2**	**3**	**4**	Effective
	100%	100%	100%	90%	

Type(s): Research and Development   Competitive Grant   Capital Assets and Service Acquisition

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3.CO2   **Does the program have oversight practices that provide sufficient knowledge of grantee activities?**   Answer: YES   Question Weight: 8%

Explanation: Expenditures are tracked to verify that funds are used for their designated purposes. In FY 2002 NSF established a formal Award Monitoring and Technical Assistance Program (AM&TAP) based on financial and administrative risk assessment of NSF awardee institutions and with on-site monitoring as a primary focus. Consistent with NSF's existing award administration process, AM&TAP is a collaborative effort between administrative and financial managers/technical staff and NSF program managers. Also, to leverage its staff resources, NSF has increased the number of reverse site visits that are especially effective in providing technical assistance to new and other high risk awardees. NSF maintains scientific oversight of all awards through the Annual and Final Project Reports. S&E limitations on staffing and travel limit our ability to perform the level of oversight that we deem desirable.

Evidence: Annual Reports; Site Visit Reports.OIG clean audit opinionsPMA "Green Light" in Financial Management

3.CO3   **Does the program collect grantee performance data on an annual basis and make it available to the public in a transparent and meaningful manner?**   Answer: YES   Question Weight: 8%

Explanation: NSF Grant General Conditions require that results of NSF-supported research be published in the open literature and that NSF support is appropriately referenced / cited. NSF's annual Performance and Accountability report contains highlights of NSF-supported research, including results of ITR awards. Grantees provide annual progress reports to NSF which are examined and approved/disapproved by the program directors. Grantees also provide additional input for the purpose of GPRA reporting requirements. Terascale progress reports are available at sites. The public has web access to data on numbers of proposals and numbers of awards as well as, for each award, the name of the principal investigator, the awardee institution, amount of the award, and an abstract of the project. In addition, grantees are obligated to publish their research results in the open professional literature and to acknowledge the NSF support by award number in all such publications. Annual and final reports are available through FOIA.

Evidence: Annual and final project reports; Annual Program Reports.NSF FY 2002 Performance and Accountability ReportNSF Grant General Conditions (GC-1)

3.RD1   **For R&D programs other than competitive grants programs, does the program allocate funds and use management processes that maintain program quality?**   Answer: NA   Question Weight: 0%

Explanation: ITR is a competitive grants program.

Evidence:

4.1   **Has the program demonstrated adequate progress in achieving its long-term performance goals?**   Answer: LARGE EXTENT   Question Weight: 15%

Explanation: High level of research activity has been stimulated by the ITR Program. New directions started, new interdisciplinary activities instituted, communities expanded.

Evidence: PITAC "Discovery" Assessment Report on ITR, 2001   (http://www.itrd.gov/pitac/meetings/meetings-2001.html); Preliminary ITR Report; Annual Program Reports 2001-2002

PROGRAM ID: 10001146

PART Performance Measurements

Section Scores				Rating
1	2	3	4	Effective
100%	100%	100%	90%	

4.2   **Does the program (including program partners) achieve its annual performance goals?**

Answer: LARGE EXTENT   Question Weight:15%

Explanation: In general, ITR has been successful in achieving its annual performance goals.

Evidence: Annual and Final Project Reports; PITAC "Discovery" Assessment Report on ITR, 2001; Preliminary ITR Report; Annual Program Reports 2001-2002

4.3   **Does the program demonstrate improved efficiencies or cost effectiveness in achieving program goals each year?**

Answer: YES   Question Weight:15%

Explanation: NSF is a leader in the vigorous and dynamic use of information technology to advance the agency mission. IT improvements have eliminated grantee mailing costs, significantly reduced printing costs, and permitted more timely and efficient processing of proposals. In FY2000, ITR was volunteered to be one of the first, and the largest NSF programs to use the new FastLane Interactive Panel System. This on-line system allows panelists to submit reviews electronically before the panel meeting, read other panelists reviews and comments on-line, and enter and approve panel summaries on-line, thereby eliminating a large amount of paperwork, photocopying, and lost materials. Great improvements were made during that year in the Fastlane system as a result of this high-volume activity.

Evidence: NSF 2002 Performance and Accountability Report.

4.4   **Does the performance of this program compare favorably to other programs, including government, private, etc., with similar purpose and goals?**

Answer: YES   Question Weight:15%

Explanation: This program enhances the diversity of modes of funding. Performance for ITR awards is compared to the Computer and Information Science and Engineering (CISE) core programs portfolio, particularly with respect to interdisciplinary projects and awards size and duration. In 2001, the PITAC reviewed the IT-related programs across the federal research funding agencies with favorable findings presented in oral summaries in plenary session.

Evidence: PITAC "Discovery" Assessment Report on ITR, 2001; Enterprise Information System data (internal)

4.5   **Do independent evaluations of sufficient scope and quality indicate that the program is effective and achieving results?**

Answer: YES   Question Weight:25%

Explanation: Assessments have found that the program is effective and achieving results. Interdisciplinary research increased, more diverse modes of funding achieved, and larger scale projects funded. The Advisory Committee for GPRA (ACGPA) assessed ITR as an Area of Emphasis in NSF and reported that "The quality, creativity, importance and breadth of the projects in the ITR Emphasis Area are impressive...The portfolio demonstrates a good balance of risky, high potential benefit projects versus less risky research. Many of the projects are multidisciplinary." (The weight of this question has been increased to reflect the importance of independent evaluations in assessing effectiveness of basic research programs.)

Evidence: PITAC "Discovery" Assessment Report on ITR, 2001; "FY2002 Performance and Accountability Report" (ACGPA)

PART Performance Measurements

Program: Information Technology Research

Agency: National Science Foundation

Bureau:

	Section Scores			Rating
1	2	3	4	Effective
100%	100%	100%	90%	

Type(s): Research and Development   Competitive Grant   Capital Assets and Service Acquisition

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4.CA1   **Were program goals achieved within budgeted costs and established schedules?**   Answer: YES   Question Weight:15%

Explanation: This item applies only to the terascale facilities part of the total ITR Program. The program successfully held a competition each year for creation or expansion of terascale facilities. The first facility (Terascale Computing Facility at the Pittsburgh Supercomputing Center (PSC)) was constructed on schedule and on budget. The Distributed Terascale System and Extensible Terascale Facility are under construction and currently on schedule. The Capital Asset Plan for Terascale computing shows that performance goals are being met. The computing capability of the facility has exceeded specifications to date.

Evidence: Capital Asset Plan; Annual and Biannual progress reports.

PROGRAM ID: 10001146

PART Performance Measurements

Program: Information Technology Research

Agency: National Science Foundation

Bureau:

Section Scores				Rating
1	2	3	4	Effective
100%	100%	100%	90%	

Type(s): Research and Development   Competitive Grant   Capital Assets and Service Acquisition

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Measure: Qualitative assessment by external experts that there have been significant research contributions to software design and quality, scalable information infrastructure, high-end computing, workforce, and socio-economic impacts of IT.

Additional Information: Assessed by COV or PITAC. The first COV for ITR is scheduled in 2005.   A PITAC discussion of ITR can be found at http://www.itrd.gov/pitac/meetings/meetings-2001.html

Year	Target	Actual	**Measure Term:** Long-term
2005	Success		
2008	Success		
2011	Success		

Measure: Average annual award size for new ITR research grants. This measure promotes increasing award size, rather than supporting a greater number of smaller grants, which helps improve the efficiency of researcher time.

Additional Information: Responds to PITAC goal to diversify modes of IT research funding and to NSF goal to improve funding efficiency through award size. ITR was planned as a Priority Area through 2004, so the activity and its targets will be reassessed and restructured.

Year	Target	Actual	**Measure Term:** Annual
2001		$242,270	
2002		$226,454	
2003	$230,000	$276,000	
2004	$230,000		

Measure: Average award duration of new ITR research grants (in years).

Additional Information: Responds to PITAC goal to diversify modes of IT research funding and to NSF goal to improve funding efficiency through award duration. ITR was planned as a Priority Area through 2004, so the activity and its targets will be reassessed and restructured.

Year	Target	Actual	**Measure Term:** Annual (Efficiency Measure)
2001		3.4	
2002		3.3	

PROGRAM ID: 10001146

PART Performance Measurements

Program: Information Technology Research

Agency: National Science Foundation

Bureau:

	Section Scores				Rating
	1	2	3	4	Effective
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Type(s): Research and Development   Competitive Grant   Capital Assets and Service Acquisition

2003	3.3	3.7
2004	3.3	

Measure: Qualitative assessment by external experts that the program is serving the appropriate role in ensuring that grantees meaningfully and effectively collaborate across disciplines of science and engineering.

Additional Information: Interdisciplinary research is assessed by experts to determine if collaboration yields better results than individual projects; if collaboration is authentic, etc. Assessed by COV. The first COV for ITR is scheduled in 2005.

Year	Target	Actual	**Measure Term:** Long-term
2005	Success		
2008	Success		
2011	Success		

Measure: Peak available teraflops (trillions of operations per second) for scientific computation

Additional Information: Teraflops (trillions of floating-point operations per second) are a measure the power/speed of the computing facilities. About 80% of the quoted numbers are available at any time of the year to the academic and broader scientific community. After 2004, NSF will continue •to upgrade and improve the ITR funded Terascale Computing facilities and provide the indicated level or higher to S&D users, though•the funding sources for the facilities are yet to be determined.

Year	Target	Actual	**Measure Term:** Annual
2001	0	0.34	
2002	6	6	
2003	10	12.4	
2004	20		

PROGRAM ID: 10001146

Program:	Information Technology Research			
Agency:	National Science Foundation			
Bureau:				

<table>
<tr><td colspan="4">Section Scores</td><td>Rating</td></tr>
<tr><td>1</td><td>2</td><td>3</td><td>4</td><td rowspan="2">Effective</td></tr>
<tr><td>100%</td><td>100%</td><td>100%</td><td>90%</td></tr>
</table>

Type(s):	Research and Development	Competitive Grant	Capital Assets and Service Acquisition

Measure: Percent of ITR proposals that are multi-investigator

Additional Information: Responds to PITAC goal to diversify modes of funding. Multi-investigator projects conduct larger scale, deeper investigations. The targets are high relative to NSF averages. ITR was planned as a Priority Area through 2004, so the activity and its targets will be reassessed and restructured.

Year	Target	Actual	**Measure Term:** Annual
2001		56%	
2002		59%	
2003	50%	59%	
2004	50%		

Measure: Percent of ITR proposals with at least one minority PI or Co-PI

Additional Information: A measure of the diversity of the community supported by ITR. These are agressive targets for a discipline with extremely low numbers of minority PhDs. ITR was planned as a Priority Area through 2004, so the activity and its targets will be reassessed and restructured.

Year	Target	Actual	**Measure Term:** Annual
2001		7%	
2002		7%	
2003	7%	7%	
2004	7%		

Measure: Percent of ITR proposals with at least one female PI or Co-PI

Additional Information: A measure of the diversity of the community supported by ITR. These are aggressive targets for the discipline with the lowest numbers of female PhDs of all the sciences. ITR was planned as a Priority Area through 2004, so the activity and its targets will be reassessed and restructured.

Year	Target	Actual	**Measure Term:** Annual
2001		24%	
2002		25%	
2003	24%	26%	

PROGRAM ID: 10001146

PART Performance Measurements

Program: Information Technology Research

Agency: National Science Foundation

Bureau:

Section Scores				Rating
1	2	3	4	Effective
100%	100%	100%	90%	

Type(s):   Research and Development   Competitive Grant   Capital Assets and Service Acquisition

2004   25%

PROGRAM ID: 10001146

PART Performance Measurements

Program: Institutions

Agency: National Science Foundation

Bureau:

Section Scores				Rating
1	2	3	4	Effective
100%	100%	100%	78%	

Type(s):   Research and Development   Competitive Grant

1.1   **Is the program purpose clear?**   Answer: YES   Question Weight 20%

Explanation: The purpose of NSF's investments in Institutions is to "enable colleges, universities and other institutions to attract increased numbers of students to science and engineering (S&E) fields and enhance the quality of S&E education at all levels." This statement of purpose is derived directly from the statutes that govern the Foundation. The NSF Act of 1950 authorizes and directs NSF to support and strengthen science education programs at all levels. Other statutes, notably the Education for Economic Security Act, have expanded this authority to include the following objectives: public understanding of science and technology, faculty enhancement, student education and training, instructional development and instrumentation, and materials development and dissemination. These purposes have since been further expanded and clarified in the recently enacted NSF Authorization Act of 2002.

Evidence: Relevant information concerning the Institutions program purpose may be found in the NSF Strategic Plan FY 2003-2008 (http://www.nsf.gov/od/gpra/Strategic_Plan/FY2003-2008.pdf), the National Science Foundation Act of 1950, 42 USC 1861 et. seq., the NSF Authorization Act of 2002 (P.L. 107-378), and the Education for Economic Security Act, 20 USC 3912.

1.2   **Does the program address a specific and existing problem, interest or need?**   Answer: YES   Question Weight 20%

Explanation: The national imperative for NSF's investments in Institutions is addressed in Paragraph 2 of Section 3, (Policy Objectives) of the NSF Authorization Act of 2002: "To increase overall workforce skills by - ' (E) expanding science, mathematics, engineering, and technology training opportunities at institutions of higher education." In addition, Section 8 paragraph 7 authorizes the Science, Mathematics, Engineering and Technology Talent Expansion Program and Section 21 amends the Scientific and Advanced-Technology Act of 1992, which authorizes the Advanced Technological Education program. There are also provisions in Section 18 to report to Congress on gender differences in the careers of science and engineering faculty and Minority-Serving Institution funding.

Evidence: Evidence of the Institutions program addressing an existing problem may be found in the NSF Authorization Act of 2002 (P.L. 107-378).

1.3   **Is the program designed so that it is not redundant or duplicative of any other Federal, state, local or private effort?**   Answer: YES   Question Weight 20%

Explanation: NSF has specific, statutory authority to evaluate the status and needs of the various sciences and engineering and to consider the results of this evaluation in correlating its research and educational programs with other Federal and non-Federal programs. NSF is the only federal agency charged with promoting the progress of science and engineering research and education in all fields and disciplines. As such, NSF's activities through its investments in Institutions uniquely address needs that are not under the purview of mission-oriented federal, state or local agencies. Several of the Institutions program's activities respond to Congressional mandates.

Evidence: Evidence demonstrating the unique role of NSF's Institutions program may be found in Science and Engineering Equal Opportunities Act, 42 USC 1885. In addition, the Advanced Technological Education activity was established in the Scientific and Advanced Technology Act of 1992 (P.L. 102-476) and the Science, Mathematics, Engineering and Mathematics Talent Expansion Program (STEP) was established in the NSF Authorization Act of 2002 (P.L. 107-368).

PROGRAM ID: 10002324

PART Performance Measurements

Program: Institutions

Agency: National Science Foundation

Bureau:

Section Scores				Rating
1	2	3	4	Effective
100%	100%	100%	78%	

Type(s): Research and Development   Competitive Grant

1.4   **Is the program design free of major flaws that would limit the program's effectiveness or efficiency?**   Answer: YES   Question Weight 20%

Explanation: NSF's investments in Institutions rely upon the competitive merit review process, NSF program officers, and Committees of Visitors (COVs) to ensure program effectiveness and efficiency. Merit review by peers has been recognized as a best practice for administering R&D programs. Independent reviews by COVs and other external groups (e.g., Advisory Committees, National Science Board, National Academy of Sciences/ National Research Council, President's Committee of Advisors on Science and Technology, American Association for the Advancement of Science) provide additional scrutiny of the portfolio and program goals and results. This follows the guidance provided in the R&D Criteria, as outlined in the OMB/OSTP Guidance Memo.

Evidence: Relevant information regarding the Institutions program effectiveness may be found in the annual Performance and Accountability Reports (http://www.nsf.gov/pubsys/ods/getpub.cfm?par) and in the FY 2003 Report on NSF Merit Review System (http://www.nsf.gov/nsb/documents/2004/MRreport_2003_final.pdf).

1.5   **Is the program effectively targeted, so that resources will reach intended beneficiaries and/or otherwise address the program's purpose directly?**   Answer: YES   Question Weight 20%

Explanation: NSF's investments in Institutions rely upon two mechanisms to ensure that the activity is effectively targeted and that funding directly addresses the purpose. First, the solicitations for each activity contain a clear statement of the activity's purpose in the context of the particular activity. Then, the merit review process ensures that funding is awarded to proposals that best address the activity's purpose. An example of aligning program purposes with intended beneficiaries is found in ADVANCE. The goal of ADVANCE is to increase the representation and advancement of women in academic science and engineering careers. Institutional Transformation Awards support academic institutional transformation to promote the increased participation and advancement of women scientists and engineers in academe.

Evidence: Excerpts of program purposes aligned with Institutions: CCLI seeks to improve the quality of STEM education based on educational research and empirical data concerning needs and opportunities in undergraduate education and effective ways to address them. Grants for the Department Level Reform of Engineering Education enable departmental and larger units to reformulate, streamline, and update engineering degree programs, develop new curricula for emerging engineering disciplines, and meet the emerging workforce and educational needs of U.S. industry. IMD seeks to enhance science, technology, and mathematics content knowledge and thinking skills and problem solving abilities of all preK-12 students, regardless of background, ability, or plans for future education.

2.1   **Does the program have a limited number of specific long-term performance measures that focus on outcomes and meaningfully reflect the purpose of the program?**   Answer: YES   Question Weight: 9%

Explanation: Specific long-term performance measures for NSF's investments in Institutions are listed in the 'Measures' tab. These are drawn from the objectives set forth in the NSF Strategic Plan FY 2003-2008, and they encompass NSF's commitment to broadening participation in science and engineering and to strengthening the U.S. workforce in science, technology, engineering and mathematics.

Evidence: Performance measures can be found in the Measures tab. Additional information about the assessment of performance may be found in the NSF Strategic Plan FY 2003-2008 (http://www.nsf.gov/od/gpra/Strategic_Plan/FY2003-2008.pdf).

PROGRAM ID: 10002324

PART Performance Measurements

Program: Institutions

Agency: National Science Foundation

Bureau:

Section Scores				Rating
1	2	3	4	Effective
100%	100%	100%	78%	

Type(s): Research and Development   Competitive Grant

2.2   **Does the program have ambitious targets and timeframes for its long-term measures?**   Answer: YES   Question Weight: 9%

Explanation: Ambitious targets and timeframes are set under 'Measures' tab.

Evidence: Ambitious targets and timeframes for the Institutions program are included in the Advisory Committee for GPRA Performance Assessment Report (http://www.nsf.gov/pubs/2004/nsf04216/nsf04216.pdf) and in the annual Performance and Accountability Reports (http://www.nsf.gov/pubsys/ods/getpub.cfm?par).

2.3   **Does the program have a limited number of specific annual performance measures that can demonstrate progress toward achieving the program's long-term goals?**   Answer: YES   Question Weight: 9%

Explanation: The program has identified a number of quantitative annual measures, shown in the 'Measures' tab, that relate directly to the agency's strategic goals.

Evidence: Performance measures can be found in the Measures tab.

2.4   **Does the program have baselines and ambitious targets for its annual measures?**   Answer: YES   Question Weight: 9%

Explanation: Baselines are obtained from internal NSF sources. Ambitious targets are set under the 'Measures' tab.

Evidence: Performance measures can be found in the Measures tab. Additional information regarding baselines and targets may be found in NSF's Enterprise Information System and in annual and final project reports.

2.5   **Do all partners (including grantees, sub-grantees, contractors, cost-sharing partners, and other government partners) commit to and work toward the annual and/or long-term goals of the program?**   Answer: YES   Question Weight: 9%

Explanation: The key partners for NSF's investments in Institutions both commit to and work toward the goals of the program. The commitment is ensured through the mechanisms described in the response to Q1.5 -- namely the combination of the program purpose being expressed in program solicitations and the selection of awards through the merit review process. NSF then ensures that its partners are working toward the goals of the program via the following mechanisms: 1) continuing support that is based upon annual progress reports submitted by Principal Investigators and reviewed by NSF program officers; 2) to receive subsequent awards, all applicants are required to report on the results of previous NSF support, which is then considered in the merit review process.

Evidence: Relevant information may be found in annual and final project reports and in the grant conditions. For example: STEM Talent Expansion Program (STEP) project goals must be to increase the total graduation numbers of students (US citizens or permanent residents) obtaining science, technology, engineering and mathematics (STEM) degrees at institutions with baccalaureate degree programs; or completing associate degrees in STEM fields or completing credits toward transfer to a baccalaureate degree program in STEM fields at community colleges, and all STEP proposals must include specific numerical targets for these increases (http://www.nsf.gov/pubsys/ods/getpub.cfm?ods_key=nsf04529).

PROGRAM ID: 10002324

PART Performance Measurements

Agency: National Science Foundation

Bureau:

	Section Scores				Rating
	1	2	3	4	Effective
	100%	100%	100%	78%	

Type(s): Research and Development   Competitive Grant

2.6 **Are independent evaluations of sufficient scope and quality conducted on a regular basis or as needed to support program improvements and evaluate effectiveness and relevance to the problem, interest, or need?**

Answer: YES   Question Weight: 18%

Explanation: Regular evaluations bring about improvements and influence program planning. Each NSF activity is reviewed by a Committee of Visitors once every three years. GAO highlighted NSF's approach to evaluation as an 'evaluation culture--a commitment to self-examination, data quality, analytic expertise, and collaborative partnerships.' Advisory Committees review Directorate performance and the Advisory Committee for GPRA Performance Assessment assesses performance on NSF-wide Strategic Goals. NSF and external experts conduct major activity site visits. In fall 2002, the Education and Human Resources directorate instituted a series of community portfolio reviews to assess directorate-wide impact in critical areas, e.g., mathematics education, grades K-12, and the transition to college-level mathematics. NOTE: Increased weight reflects the importance NSF places on independent evaluations to support improvements and evaluate effectiveness.

Evidence: Independent evaluations are critical to NSF performance assessment. Examples include: Advanced Technological Education program evaluation (http://www.wmich.edu/evalctr/ate/); Course and Curriculum Development Program: Evaluation Report (http://www.nsf.gov/pubsys/ods/getpub.cfm?nsf9839); Final Report on the Evaluation of the National Science Foundation's Instructional Materials Development Program (Abt Associates, 2000); and Instructional Materials Development Dissemination and Implementation Site Evaluation, Final Report (WestEd/Abt Associates, 2003). Other formal curricula evaluations have been conducted by the Dept of Education (mathematics & science) and AAAS (middle school science), applied research studies, including dissertations, on student learning outcomes of NSF instructional materials, Committee of Visitors reports and NSF responses, and Advisory Committee reports.

2.7 **Are Budget requests explicitly tied to accomplishment of the annual and long-term performance goals, and are the resource needs presented in a complete and transparent manner in the program's budget?**

Answer: YES   Question Weight: 9%

Explanation: Performance information is used by managers to make informed decisions and is incorporated into NSF's budget requests to the Congress. The NSF FY 2005 Budget Request to Congress was built around the R&D Criteria, thereby highlighting specific performance information for NSF's investment portfolio. The budget also clearly presents the resource request and outlines the activities that will be supported with the funds. In the FY 2005 Budget Request, NSF displays the full budgetary cost associated with the new program framework defined in the NSF Strategic Plan FY 2003-2008.

Evidence: The FY 2005 NSF Budget Request to Congress presents the long-term goals of the Institutions program and the resources needed in a complete and transparent manner (http://www.nsf.gov/bfa/bud/fy2005/pdf/fy2005.pdf). Additional information may be found in the NSF Strategic Plan FY 2003-2008 (http://www.nsf.gov/od/gpra/Strategic_Plan/FY2003-2008.pdf).

PROGRAM ID: 10002324

Program: Institutions

Agency: National Science Foundation

Bureau:

	Section Scores			Rating
1	2	3	4	Effective
100%	100%	100%	78%	

Type(s): Research and Development   Competitive Grant

2.8 **Has the program taken meaningful steps to correct its strategic planning deficiencies?**   Answer: YES   Question Weight: 9%

Explanation: Committees of Visitors (COVs) provide a valuable mechanism for identifying and addressing planning-related issues. COVs provide feedback on the activity's goals and overall effectiveness. Steps to address weaknesses are identified. The FY 2003 COV for Course, Curriculum and Laboratory Improvement (CCLI) noted that the number of proposals from community colleges continues to be far less than the needs of these colleges. In response, NSF has provided funding to the Council for Resource Development to include sessions in their regional meetings about NSF programs. Additional activities include making use of the American Association of Community Colleges meetings and publications; more outreach activities to community colleges as well assuring that community college representatives are invited to presentations organized and normally attended by other types of institutions; and making a greater effort to invite more community college faculty to review proposals for the CCLI program.

Evidence: The program implements recommendations from outside evaluations as evidenced in Committee of Visitors reports and NSF responses.

2.RD1 **If applicable, does the program assess and compare the potential benefits of efforts within the program to other efforts that have similar goals?**   Answer: YES   Question Weight: 9%

Explanation: NSF's investments in Institutions address national science, technology, engineering and mathematics (STEM) workforce and education needs that are not addressed in the same ways at the more mission-specific federal, state or local agencies. The NSF investments in Institutions are positioned to focus on STEM workforce and education issues using a research and development strategy, with a strong focus on research and evaluation of the program and projects within the program and the institutional engagement of STEM disciplinary departments with STEM education institutions and departments. This process uses external review at several levels: Advisory Committees, National Science Board Committee on Education and Human Resources, and external evaluations of the program.

Evidence: The Institutions program assesses and compares the potential benefits of its efforts through the evaluation process. Evidence of this assessment can be found in the National Science and Technology Council Subcommittee on Education and Workforce Development, the National Science Board (NSB) Report on National Workforce Policy, The Science and Engineering Workforce: Realizing America's Potential (NSB 03-69), the National Science Board reports on diversity in the scientific and technological workforce, Advisory Committee reports, and external evaluations.

2.RD2 **Does the program use a prioritization process to guide budget requests and funding decisions?**   Answer: YES   Question Weight: 9%

Explanation: The program relies on the external merit review system to prioritize proposals for final funding decisions. These final decisions include consideration of NSF's core strategies and maintaining a diverse portfolio. NSF staff work to employ a rigorous prioritization process for developing the NSF budget requests and determining funding decisions. For budget requests, each of the activities within the program provides input to senior management about past performance and future needs. Senior management integrates that information, prioritizes budget requests within and among programs, and determines funding levels, all of which is reviewed by the National Science Board.

Evidence: Relevant information regarding the prioritization process may be found in the NSF Strategic Plan FY 2003-2008 (http://www.nsf.gov/od/gpra/Strategic_Plan/FY2003-2008.pdf) and in the NSF FY 2005 Budget Request to Congress (http://www.nsf.gov/bfa/bud/fy2005/pdf/fy2005.pdf). Additional information regarding funding decisions may be found in the Grant Proposal Guide (www.nsf.gov/pubsys/ods/getpub.cfm?gpg).

PROGRAM ID: 10002324

PART Performance Measurements

Program: Institutions

Agency: National Science Foundation

Bureau:

	Section Scores				Rating
	1	2	3	4	Effective
	100%	100%	100%	78%	

Type(s): Research and Development   Competitive Grant

3.1 **Does the agency regularly collect timely and credible performance information, including information from key program partners, and use it to manage the program and improve performance?**

Answer: YES   Question Weight: 9%

Explanation: Performance information is collected from NSF grant recipients via interim, annual and final project reports. Site visits to larger projects are also used to collect performance information. Committee of Visitor reviews and recommendations are utilized to improve program performance. Process-related or quantitative goals such as dwell time are monitored via the agency's Enterprise Information System (EIS). All of these assessments impact management practices. NSF programs collect high-quality performance data relating to key program goals and use this information to adjust program priorities, make decisions on resource allocations and make other adjustments in management actions. GPRA performance data are verified and validated by an independent, external consulting firm.

Evidence: Evidence relating to the use of credible performance information may be found in Committee of Visitor reports (internal documents), Advisory Committee reports, including the Advisory Committee for GPRA Performance Assessment Report (http://www.nsf.gov/pubs/2004/nsf04216/nsf04216.pdf). Data is collected through annual, interim, and final project reports (internal documents), the Enterprise Information System (EIS) data - GPRA module, annual contract performance evaluations, and site visit reports (internal documents). Principal investigators are able to post up-to-date information about their project activities and results through the Division of Undergraduate Education's (DUE) Project Information Resource System (PIRS). This is in addition to the information reported via FastLane in their project reports.

3.2 **Are Federal managers and program partners (including grantees, sub-grantees, contractors, cost-sharing partners, and other government partners) held accountable for cost, schedule and performance results?**

Answer: YES   Question Weight: 9%

Explanation: NSF awardees must meet annual and final reporting requirements as well as financial record keeping requirements. Performance is monitored by NSF program officers and funds can be withheld pending satisfactory project performance. The efforts of NSF staff are reviewed by their supervisors and by Committees of Visitors (COV). Corrective actions are taken as needed to assure accountability. NSF staff monitor cost, schedule and technical performance and take corrective action when necessary. Individual performance plans are directly linked to NSF's strategic goals.

Evidence: Federal managers and program partners are held accountable through cooperative agreements or contracts and annual performance evaluation of NSF employees/program officers. Relevant evidence of this may be found in annual and final project reports, in the NSF General Grant Conditions (http://www.nsf.gov/home/grants/gc102.pdf), Committee of Visitor reports, and in annual and final project reports.

3.3 **Are funds (Federal and partners') obligated in a timely manner and spent for the intended purpose?**

Answer: YES   Question Weight: 9%

Explanation: NSF routinely obligates its funds in a timely manner. NSF also has pre-award internal controls to reduce the risk of improper payments. Beginning in FY 2004 NSF has incorporated erroneous payments testing of awardees into the on-site monitoring program. When this testing is complete, it will provide NSF with information about the usage of NSF funding by awardees.

Evidence: Evidence of the agency's financial obligations may be found in the NSF FY 2001 Risk Assessment for Erroneous Payments, Data on NSF Carryover (found in the NSF Budget Request to Congress), the Risk Assessment and Award Monitoring Guide, NSF's clean opinion on financial statements for past 6 years, and in the Statement of Net Costs.

PROGRAM ID: 10002324

PART Performance Measurements

Program: Institutions

Agency: National Science Foundation

Bureau:

Type(s): Research and Development   Competitive Grant

Section Scores				Rating
1	2	3	4	Effective
100%	100%	100%	78%	

3.4   **Does the program have procedures (e.g. competitive sourcing/cost comparisons, IT improvements, appropriate incentives) to measure and achieve efficiencies and cost effectiveness in program execution?**

Answer: YES   Question Weight: 9%

Explanation: NSF is a leader in the vigorous and dynamic use of information technology to advance the agency mission. IT improvements support more timely and efficient processing of proposals. The NSF-wide priority of increasing award size and duration enhances efficiency because larger, longer awards allow the research community to spend more time conducting research and less time preparing proposals. The Science, Technology, Engineering, and Mathematics Talent Expansion Program (STEP) limits the number of proposals from a single institution. Such limits require an institution to come to an institution-wide consensus about the range of efforts that they believe that they can undertake to increase their numbers of students graduating with science, technology, engineering, or mathematics majors. It also allows for higher success rates and maximized interdisciplinary collaboration.

Evidence: Procedures to measure and achieve efficiencies are found in a number of documents: annual Performance and Accountability Reports (http://www.nsf.gov/pubsys/ods/getpub.cfm?par), Committee of Visitors reports; the NSF Strategic Plan FY 2003-2008 (http://www.nsf.gov/od/gpra/Strategic_Plan/FY2003-2008.pdf); the NSF Grant Proposal Guide (www.nsf.gov/pubsys/ods/getpub.cfm?gpg), and the Science, Mathematics, Engineering and Technology Talent Expansion Program (STEP) solicitation (http://www.nsf.gov/pubsys/ods/getpub.cfm?ods_key=nsf04529).

3.5   **Does the program collaborate and coordinate effectively with related programs?**

Answer: YES   Question Weight: 9%

Explanation: The Institutions program promotes partnerships, including collaboration with other agencies, industry, and national laboratories for projects of mutual interest and international collaboration. NSF regularly shares information with other agencies and participates in coordination activities through OSTP and the National Science and Technology Council. Policy guidance provided by the National Science Board incorporates perspectives from related programs and investments. The Instructional Materials Development (IMD) activity works collaboratively with NASA, NOAA, and EPA in Global Learning to Benefit the Environment (GLOBE). IMD has been adapted to create a national presence for nanoscale science in 7-12 classrooms through linkages with the nanoscience priority area that cross all NSF disciplinary research directorates. Mechanisms are established for split funding between NSF directorates.

Evidence: Evidence relevant to demonstrating the Institutions program's coordination and collaboration with similar programs may be found in management plans (internal documents).

3.6   **Does the program use strong financial management practices?**

Answer: YES   Question Weight: 9%

Explanation: NSF uses strong financial management practices. NSF was the first federal agency to receive a 'green light' for financial management on the President's Management Agenda scorecard. NSF has received a clean opinion on its financial audits for the last six years. The NSF is committed to providing quality financial management to all its stakeholders. It honors that commitment by preparing annual financial statements in conformity with generally accepted accounting principles in the U.S. and then subjecting the statement to independent audits. As a federal agency, NSF prepares the following annual financial statements: Balance Sheet, Statement of Net Cost, Statement of Changes in Net Position, Statement of Budgetary Resources, and Statement of Financing. Supplementary statements are also prepared including Budgetary Resources by Major Accounts, Intragovernmental Balances, Deferred Maintenance, and Stewardship Investments.

Evidence: Evidence of NSF's strong financial management practices may be found in the President's Management Agenda, in the results of NSF financial audits, and in the annual Performance and Accountability Reports (http://www.nsf.gov/pubsys/ods/getpub.cfm?par).

     PROGRAM ID: 10002324

PART Performance Measurements

Program: Institutions

Agency: National Science Foundation

Bureau:

Type(s): Research and Development   Competitive Grant

	Section Scores				Rating
	1	2	3	4	Effective
	100%	100%	100%	78%	

3.7   **Has the program taken meaningful steps to address its management deficiencies?**   Answer: YES   Question Weight: 9%

Explanation: Committees of Visitors (COV) regularly provide feedback on programmatic and management-related concerns. In addition, the Foundation conducts an annual review to assess administrative and financial systems and procedures to ensure that effective management controls are in place and that any deficiencies are identified and addressed.

Evidence: Reports indicating no significant management deficiencies in the Institutions program include the annual Performance and Accountability Reports (http://www.nsf.gov/pubsys/ods/getpub.cfm?par), the NSF Business Analysis, Committee of Visitors reports, Advisory Committee reviews of COV reports, and IG reports and NSF responses.

3.CO1   **Are grants awarded based on a clear competitive process that includes a qualified assessment of merit?**   Answer: YES   Question Weight: 18%

Explanation: All activities rely upon NSF's competitive, merit review process that includes external peer evaluation. All proposals are carefully reviewed by a scientist, engineer, or educator serving as an NSF program officer, and usually by 3-10 other persons outside NSF who are experts in the particular field represented by the proposal. Competitive merit review, with peer evaluation, is NSF's accepted method for informing its proposal decision process. The NSB-approved criteria address the "Intellectual Merit" and the "Broader Impacts" of the proposed effort. Some solicitations contain additional criteria that address specific programmatic objectives. NOTE: The weight of this question has been increased to reflect the relative importance of merit review in verifying the relevance, quality, and performance of NSF's investments.

Evidence: Evidence of grants awarded through a clear competitive process may be found in the FY 2003 Report on NSF Merit Review System (http://www.nsf.gov/nsb/documents/2004/MRreport_2003_final.pdf). Additional information may be found in the Enterprise Information System data (internal) and in the annual Performance and Accountability Reports (http://www.nsf.gov/pubsys/ods/getpub.cfm?par).

3.CO2   **Does the program have oversight practices that provide sufficient knowledge of grantee activities?**   Answer: YES   Question Weight: 9%

Explanation: NSF has a formal Award Monitoring and Business Assistance Program (AMBAP) based on a financial and administrative risk assessment of NSF awardee institutions, focusing on award oversight, including desk and on-site monitoring and providing assistance to awardees. AMBAP is a collaborative effort between NSF administrative and financial managers/technical staff and NSF program managers working with their awardee counterparts. Oversight mechanisms are currently sufficient. NSF's capacity to provide adequate oversight is dependent on available resources to offset salary and expenses with current resources reducing NSF's ability to perform the level of oversight deemed desirable. NSF is using technology and creativeness, such as teleconferencing, videoconferencing, and reverse site visits to enhance performance oversight within current resource constraints. NSF maintains scientific oversight of all awards through annual and final project reports, and funds are tracked (via reporting systems) to ensure that funds are used for their designated purpose.

Evidence: Oversight activities which demonstrate a sufficient knowledge of grantee activities may be found in the Committees of Visitors reports, quarterly / annual and final project reports, directorate reviews, FY 2003 Report on NSF Merit Review System, Risk Assessment and Award Monitoring Guide, clean audit opinions, President's Management Award Scorecard for Financial Management, site visit reports, workshops and grantee meetings (e.g., Advanced Technological Education Principal Investigator Meeting; Course, Curriculum and Laboratory Improvement Invention and Impact Conference (http://www.ccliconference.com); and Instructional Materials Development Principal Investigator Meeting (http://www.agiweb.org/education/nsf2004/index.html)).

PROGRAM ID: 10002324

Program: Institutions

Agency: National Science Foundation

Bureau:

Type(s): Research and Development   Competitive Grant

	Section Scores				Rating
	1	2	3	4	Effective
	100%	100%	100%	78%	

3.CO3 **Does the program collect grantee performance data on an annual basis and make it available to the public in a transparent and meaningful manner?**

Answer: YES   Question Weight: 9%

Explanation: NSF Grant General Conditions require that results of NSF-supported research be published in the open literature and that NSF support is appropriately referenced/cited. NSF's annual Performance and Accountability Report and its annual Budget Request contain highlights of NSF-supported research. Principal Investigators provide annual progress reports to NSF that are examined and approved/disapproved by the program directors. Information is made available to the public on the numbers of proposals and numbers of awards as well as, for each award, the name of the principal investigator, the awardee institution, amount of the award, and an abstract of the project. The Budget Internet Information Site (BIIS) contains extensive information on awards and funding trends. In addition, the Division of Undergraduate Education's (DUE) Project Information Resource System (PIRS) is integrated with FastLane's Project Reports System.

Evidence: Grantee performance data is collected annually as evidenced in the annual Performance and Accountability Reports (http://www.nsf.gov/pubsys/ods/getpub.cfm?par); the annual Budget Request to Congress; the Grant General Conditions (http://www.nsf.gov/home/grants/gc102.pdf); and the Budget Internet Information Site (http://dellweb.bfa.nsf.gov/). The Division of Undergraduate Education's (DUE) Project Information Resource System (PIRS) is integrated with FastLane's Project Reports System. When a Principal Investigator submits an annual, final, or interim project report to NSF via FastLane, some sections of the project report are made accessible to the public through PIRS (https://www.ehr.nsf.gov/pirs_prs_web/search/).

3.RD1 **For R&D programs other than competitive grants programs, does the program allocate funds and use management processes that maintain program quality?**

Answer: NA   Question Weight: 0%

Explanation: NSF programs are administered as competitive.

Evidence:

4.1 **Has the program demonstrated adequate progress in achieving its long-term performance goals?**

Answer: LARGE EXTENT   Question Weight: 17%

Explanation: NSF relies on external evaluation to determine whether it is achieving its long-term objectives. Since FY 2002, the NSF Advisory Committee for GPRA Performance Assessment (AC/GPA) serves as the focal point for these activities. Input is derived from numerous sources including Committees of Visitors, Principal Investigator annual and final project reports, and summaries of substantial outcomes ('nuggets') from funded research. The AC/GPA has determined that the accomplishments under the People goal have demonstrated "significant achievement' toward annual and long-term performance goals. In addition, component activities of the Institutions program undergo third party evaluations. Collectively, these evaluations provide further evidence that the programs are demonstrating adequate progress in achieving their long-term performance goals.

Evidence: Evidence demonstrating progress in meeting the long-term goals of the Institutions program may be found in the Measures tab, in annual Performance and Accounability Reports (http://www.nsf.gov/pubsys/ods/getpub.cfm?par), in the Advisory Committee for GPRA Performance Assessment Report (http://www.nsf.gov/pubs/2004/nsf04216/nsf04216.pdf), in annual and final project reports and in third party evaluations of component activities of the program.

PROGRAM ID: 10002324

PART Performance Measurements

Program: Institutions

Agency: National Science Foundation

Bureau:

	Section Scores				Rating
	1	**2**	**3**	**4**	Effective
	100%	100%	100%	78%	

Type(s): Research and Development   Competitive Grant

4.2   **Does the program (including program partners) achieve its annual performance goals?**   Answer: LARGE EXTENT   Question Weight:17%

Explanation: The program achieves its annual performance goals.

Evidence: Evidence demonstrating achievement of Institutions' performance goals may be found in the Advisory Committee for GPRA Performance Assessment Report (http://www.nsf.gov/pubs/2004/nsf04216/nsf04216.pdf), in annual and final project reports, in Committee of Visitors reports, and in the annual Performance and Accountability Reports (http://www.nsf.gov/pubsys/ods/getpub.cfm?par).

4.3   **Does the program demonstrate improved efficiencies or cost effectiveness in achieving program goals each year?**   Answer: SMALL EXTENT   Question Weight:17%

Explanation: The NSF-wide priority of increasing award size and duration enhances efficiency because larger, longer awards allow the research community to spend more time conducting research and less time preparing proposals. Independent reviews by Committees of Visitors and other expert panels provide additional scrutiny to portfolio and program goals, ensuring effectiveness and operational efficiency. Where appropriate, activities limit the number of proposals accepted from a single institution demonstrating higher success rates and more interdisciplinary collaboration within submitting universities than would otherwise be possible. Several activities use pre-proposals to improve efficiencies in the merit review process and reduce the burden on researchers and reviewers. Increases for high priority graduate fellowships and traineeships have required reallocations across the People activities, which has affected the ability of Collaborations to make consistent improvements in award size and duration.

Evidence: Cost effectiveness and efficiencies for the Institutions program are shown in the Measures tab. Evidence may be found in several documents including the annual Performance and Accountability Reports (http://www.nsf.gov/pubsys/ods/getpub.cfm?par), program solicitations, and the NSF FY 2005 Budget Request to Congress (http://www.nsf.gov/bfa/bud/fy2005/pdf/fy2005.pdf).

4.4   **Does the performance of this program compare favorably to other programs, including government, private, etc., with similar purpose and goals?**   Answer: YES   Question Weight:17%

Explanation: NSF's activities through its investment in Institutions address national science, technology, engineering, and mathematics (STEM) education and workforce needs that are not addressed by the mission agencies. Because of its recognized effectiveness, aspects of NSF investments in Institutions are often emulated by other programs in government and the private sector (e.g., rigorous pilot- and field-testing of K-12 instructional materials, alignment of education programs with relevant state and professional society content standards). The NSF activities also create a nation-wide response to address the goals of the program.

Evidence: Other federal agencies have implemented similar programs with guidance from NSF. Evidence of the Institutions program relationship with similar programs may be found in Committee of Visitors reports, Advisory Committee reports, and the Enterprise Information System data (internal) for split funding of projects.

PROGRAM ID: 10002324

PART Performance Measurements

Program: Institutions

Agency: National Science Foundation

Bureau:

	Section Scores				Rating
	1	2	3	4	Effective
	100%	100%	100%	78%	

Type(s): Research and Development Competitive Grant

4.5 **Do independent evaluations of sufficient scope and quality indicate that the program is effective and achieving results?**

Answer: YES   Question Weight 33%

Explanation: Independent reviews by Committees of Visitors and other external groups provide scrutiny of the portfolio and program goals and results. A number of education programs across the Education and Human Resources directorate support a growing number of merit-reviewed research projects studying the effectiveness of Instructional Materials Development and associated curricula. Research products are contributing growth in the knowledge base on student learning and curriculum implementation. The Advisory Committee for GPRA Performance Assessment wrote that NSF demonstrated "significant achievement' with respect to its GPRA Strategic Outcome Goals for People. In reaching this determination, the committee specifically considered indicators that matched the objectives used here for Institutions. NOTE: The weight of this question has been doubled to reflect the importance of independent evaluation in verifying relevance, quality and performance of NSF's investment in Institutions.

Evidence: Evaluations of the Institutions program may be found in the Advisory Committee for GPRA Performance Assessment Report (http://www.nsf.gov/pubs/2004/nsf04216/nsf04216.pdf), annual Performance and Accountability Reports (http://www.nsf.gov/pubsys/ods/getpub.cfm?par), annual and final project reports, and Committees of Visitors reports and NSF responses. For middle-school mathematics instruction, see growing list of doctoral dissertations that assess middle-school curricula efforts and inform future needs in mathematics education (http://showmecenter.missouri.edu/showme/dissertations.htm).

PROGRAM ID: 10002324

PART Performance Measurements

Program: Institutions

Agency: National Science Foundation

Bureau:

Section Scores				Rating
1	2	3	4	Effective
100%	100%	100%	78%	

Type(s): Research and Development   Competitive Grant

Measure: Percent of award decisions made available to applicants within six months of proposal receipt or deadline date, while maintaining a credible and efficient competitive merit review system, as evaluated by external experts.

Additional Information: Timely availability of proposal decisions allows the research community to more effectively plan activities. Considering the increasing complexity and numbers of proposals coming into NSF, the goal of keeping decision time for 70% of proposals down to six months is ambitious. This measure is a proxy for efficiency.

Year	Target	Actual	**Measure Term:** Annual
2001	baseline	71%	
2002	70%	74%	
2003	70%	80%	
2004	70%	83%	
2005	70%		
2006	70%		
2007	70%		

Measure: External validation by the Advisory Committee for GPRA Performance Assessment that Institutions has made "significant achievement" in activities to attract and prepare U.S. students to be highly qualified members of the global S&E workforce.

Additional Information: Assessment by the Advisory Committee for GPRA Performance Assessment of the impact of Institutions on the development of the S&E workforce (through means such as providing opportunities for international study, collaborations, and partnerships).

Year	Target	Actual	**Measure Term:** Long-term
2004	Success	Success	
2007	Success		
2010	Success		

PROGRAM ID: 10002324

PART Performance Measurements

Program: Institutions

Agency: National Science Foundation

Bureau:

	Section Scores				Rating
	1	2	3	4	Effective
	100%	100%	100%	78%	

Type(s):   Research and Development   Competitive Grant

Measure: Percentage of Institutions proposals received from institutions not in the top 100 of those funded by the program.

Additional Information: Responds to NSF goals to broadening participation of proposing institutions.

Year	Target	Actual	**Measure Term:** Annual
2001	baseline	73%	
2002	> 73%	66%	
2003	> 66%	70%	
2004	71%	68%	
2005	72%		
2006	73%		
2007	73%		

Measure: External validation by the Advisory Committee that Institutions has made "significant achievement" in developing the Nation's capability to provide K-12 and higher education faculty with opportunities for continuous learning and career development in science, technology, engineering and mathematics.

Additional Information: Assessment of the impact of Institutions in integrating research and education, promoting scientific literacy, and contributing scientific knowledge for use in national policy decisions by the Advisory Committee for GPRA Performance Assessment.

Year	Target	Actual	**Measure Term:** Long-term
2004	Success	Success	
2007	Success		
2010	Success		

PROGRAM ID: 10002324

PART Performance Measurements

Program: Nanoscale Science and Engineering

Agency: National Science Foundation

Bureau:

Section Scores				Rating
1	2	3	4	Effective
100%	100%	100%	90%	

Type(s): Research and Development   Competitive Grant   Capital Assets and Service Acquisition

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1.1   **Is the program purpose clear?**   Answer: YES   Question Weight 20%

Explanation: The program has a clear and unambiguous mission. Nanoscale Science and Engineering (NS&E) is part of an interagency initiative (NNI) under which NSF has primary responsibility for fundamental research, education and provision of research infrastructure. The goal of NS&E is to support fundamental knowledge creation across disciplinary principles, phenomena, and tools at the nanoscale, and to catalyze synergistic science and engineering research and education in emerging areas of nanoscale science and technology.

Evidence: * Nanotechnology Research Directions: IWGN Workshop Report; NSTC Committee on Technology; September 1999 * National Nanotechnology Initiative - The Initiative and its Implementation Plan; NSTC Committee on Technology; July 2000 * National Nanotechnology Initiative - The Initiative and its Implementation Plan; NSTC Committee on Technology; June 2002 * Small Wonders, Endless Frontiers: A Review of the NNI; National Academies Press; 2002 * NSF Authorization Bill, FY 2003-2005 * NSF Budget Requests to Congress (FY 2001-2004)

1.2   **Does the program address a specific and existing problem, interest or need?**   Answer: YES   Question Weight 20%

Explanation: NS&E responds to the national need to develop a knowledge base, workforce and infrastructure to advance nanotechnology. Nanotechnology is one of the most important emerging technologies with the potential to transform all fields of science and to enable revolutionary technologies that can advance electronics, health, manufacturing, energy and food and agricultural systems, and promote a sustainable environment. All major regions of the world have launched widescale efforts to promote nanoscience and nanoscale engineering. Successful developments in nanotechnology could play a key role in U.S. global competitiveness in the future. Sustained, long-term federal support for research, education and infrastructure is required if the nation is to realize the potential of nanoscale science and engineering. Nanoscale technologies cannot be commercialized until industry has confidence that they will provide a competitive advantage in the marketplace. Key to this market is enabling a well-equipped nanotechnology workforce. NS&E not only aims to facilitate this skilled workforce, but also to create new paradigms of science education, from the K-12 level through graduate school. Nanotechnology is in its infancy and substantial fundamental research will be needed to develop the science base and the proven technologies that will form the basis for commercial products. The time frame for private sector investments is relatively short--generally 5 years or less. The broad interdisciplinary nature of nanotechnology also makes it difficult for individual companies or industries to capture the benefits of nanotechnology research. NS&E supports the NNI Grand Challenges-- a coordinated interagency effort designed to capitlize on the emerging potential of nanoscale science and engineering. New tools that have been developed recently have made possible new discoveries in nanotechnology that can rapidly advance the field.

Evidence: * Nanotechnology Research Directions: IWGN Workshop Report; NSTC Committee on Technology; September 1999 * National Nanotechnology Initiative - The Initiative and its Implementation Plan; NSTC Committee on Technology; July 2000 * National Nanotechnology Initiative - The Initiative and its Implementation Plan; NSTC Committee on Technology; June 2002 * Small Wonders, Endless Frontiers: A Review of the NNI; National Academies Press; 2002 * PCAST Letter on the NNI to the President; December 1999 * House of Representative bill H.R. 766; May 2003

PROGRAM ID: 10001147

PART Performance Measurements

Program: Nanoscale Science and Engineering

Agency: National Science Foundation

Bureau:

Section Scores				Rating
1	2	3	4	Effective
100%	100%	100%	90%	

Type(s): Research and Development   Competitive Grant   Capital Assets and Service Acquisition

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1.3 **Is the program designed so that it is not redundant or duplicative of any other Federal, state, local or private effort?**

Answer: YES   Question Weight 20%

Explanation: NSF is lead agency for the National Nanotechnology Initiative (NNI). Within NNI, NSF supports fundamental research, education, and provision of research infrastructure. The NSTC's Subcommittee on Nanoscale Science, Engineering and Technology (NSET) coordinates planning and budgets of seventeen agencies, identifies promising research directions and collaborative investments to avoid duplication of effort and ensure development of a balanced infrastructure. NSET members develop a joint, long-term vision and annual implementation plans, and meet each month to discuss collaborations, and have a secretarial office (NNCO) to facilitate these collaborative activities. NSET and NSF have periodic contacts with professional societies, industrial organizations, state and nanotechnology regional alliances representatives to ensure complementary activities in such areas as infrastructure, education and commercialization.

Evidence: * National Nanotechnology Initiative - The Initiative and its Implementation Plan; NSTC Committee on Technology; July 2000 * National Nanotechnology Initiative - The Initiative and its Implementation Plan; NSTC Committee on Technology; June 2002 * NNI websites: www.nano.gov and www.nsf.gov/nano

1.4 **Is the program design free of major flaws that would limit the program's effectiveness or efficiency?**

Answer: YES   Question Weight 20%

Explanation: The purpose of NS&E can best be accomplished by federal research and development support. Within NSF, all NS&E awards are selected by merit review, which has been recognized as a best practice for administering R&D programs. NS&E is managed by a working group, with representation from each participating NSF Directorate. Major decisions are reviewed and approved by NSF senior management. This ensures that resources are targeted toward the most promising activities in nanoscale science and engineering research and education. Independent reviews by Committees of Visitors (COVs) and external groups (the National Research Council, PCAST) provide additional scrutiny of the portfolio and program goals, ensuring effectiveness and operational efficiency.

Evidence: * OMB/OSTP R&D Investment Criteria * Nanoscale Science and Engineering (NSE) Program Solicitation for FY 2001 (NSF 00-119); July 2000 * Nanoscale Science and Engineering (NSE) Program Solicitation for FY 2002 (NSF 01-157); July 2001 * Nanoscale Science and Engineering (NSE) Program Solicitation for FY 2003 (NSF 02-148); July 2002 * NS&E Management Plan (internal document) * Internal NSF Committee of Visitor (COV) reports to relevant participating NSF organizations * FY 2002 Performance and Accountability Report (http://www.nsf.gov/pubs/2003/nsf03023/pdf/chapter4.pdf) * Report to the NSB on the NSF Merit Review Process ' FY 2002 (http://www.nsf.gov/nsb/documents/2003/merit_rprt/mrreport_2002_final.doc)

PROGRAM ID: 10001147

PART Performance Measurements

Program: Nanoscale Science and Engineering
Agency: National Science Foundation
Bureau:

	Section Scores				Rating
	1	2	3	4	Effective
	100%	100%	100%	90%	

Type(s):   Research and Development   Competitive Grant   Capital Assets and Service Acquisition

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1.5   **Is the program effectively targeted, so that resources will reach intended beneficiaries and/or otherwise address the program's purpose directly?**   Answer: YES   Question Weight 20%

Explanation: NS&E directly targets the nanotechnology research community, educators and students; its broad secondary targets include industry, other mission-oriented agencies (provides the crosscutting fundamental research and education foundation and tools necessary in applications) and the general public (for instance, through informal education activities, such as museum displays). The research and education themes were established based on broad interaction with academic and industry communities (see list of workshops and grantees meetings), and are revised each year. All awards are peer reviewed, which ensures that resources are targeted toward the most promising and effective activities, and will directly address NS&E's purpose, as expressed in solicitations and announcements, and as embodied in NSF's merit review criteria. The merit review process explicitly considers the potential of the proposed activity to enhance education and training, the participation of underrepresented groups and EPSCoR states, the potential of partnerships with industry, the dissemination of scientific and technological knowledge, and societal benefits, including enhanced economic growth.

Evidence: * Nanoscale Science and Engineering (NSE) Program Solicitation for FY 2001 (NSF 00-119); July 2000 * Nanoscale Science and Engineering (NSE) Program Solicitation for FY 2002 (NSF 01-157); July 2001 * Nanoscale Science and Engineering (NSE) Program Solicitation for FY 2003 (NSF 02-148); July 2002 * NNI website (www.nano.gov) * NSF website (www.nsf.gov/nano) * Workshops and grantees meetings (lists attached)

2.1   **Does the program have a limited number of specific long-term performance measures that focus on outcomes and meaningfully reflect the purpose of the program?**   Answer: YES   Question Weight: 9%

Explanation: NS&E has specific long term performance measures, which are listed in the 'Measures' tab. These encompass development of a capable interdisciplinary research community, provision of the necessary research infrastructure, development of educational curricula, and building a knowledge-base that enables the next industrial revolution. NS&E's long-term measures support priority area objectives, defined in NSF's draft strategic plan.

Evidence: * Small Wonders, Endless Frontiers: A Review of the NNI; National Academies Press; 2002 * NNI website (www.nano.gov) and NSF website (www.nsf.gov/nano) * National Nanotechnology Initiative - The Initiative and its Implementation Plan; NSTC Committee on Technology; June 2002

2.2   **Does the program have ambitious targets and timeframes for its long-term measures?**   Answer: YES   Question Weight: 9%

Explanation: NS&E's long-term measures are, indeed, verifiable, as assessed by expert advisory committees. These targets are set at a level that promote continuous improvement of the priority area and the research it supports.

Evidence: * Nanoscale Science and Engineering (NSE) Program Solicitation for FY 2001 (NSF 00-119); July 2000 * Nanoscale Science and Engineering (NSE) Program Solicitation for FY 2002 (NSF 01-157); July 2001 * Nanoscale Science and Engineering (NSE) Program Solicitation for FY 2003 (NSF 02-148); July 2002 * SBIR/STTR Program Announcements: FY 2001-2003

2.3   **Does the program have a limited number of specific annual performance measures that can demonstrate progress toward achieving the program's long-term goals?**   Answer: YES   Question Weight: 9%

Explanation: NS&E has annual measures, as defined in the 'Measures' tab. These annual measures provide confidence that NS&E is moving toward accomplishment of its long-term goals.

Evidence:

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1	2	3	4	Effective
100%	100%	100%	90%	

Type(s): Research and Development   Competitive Grant   Capital Assets and Service Acquisition

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2.4   **Does the program have baselines and ambitious targets for its annual measures?**   Answer: YES   Question Weight: 9%

Explanation: NS&E's annual measures are, indeed, verifiable, and are largely quantifiable. Targets are set at a level that promote continuous improvement of the priority area and the research it supports.

Evidence:

2.5   **Do all partners (including grantees, sub-grantees, contractors, cost-sharing partners, and other government partners) commit to and work toward the annual and/or long-term goals of the program?**   Answer: YES   Question Weight: 9%

Explanation: The goals for NS&E are spelled out clearly in the NS&E annual solicitations. Support for these goals is reinforced through grantee workshops, cooperative agreements with the NSF centers and facilities (such as the Science and Technology Center on Nanobiotechnology, Nanoscale Science and Engineering Centers, Engineering Research Centers, etc.). Annual and final project reports, required of all NS&E awardees, outline progress toward objectives, which include goals outlined in the NS&E solicitations. Results of prior support are considered when making new awards.

Evidence: * Nanoscale Science and Engineering (NSE) Program Solicitation for FY 2001 (NSF 00-119); July 2000 * Nanoscale Science and Engineering (NSE) Program Solicitation for FY 2002 (NSF 01-157); July 2001 * Nanoscale Science and Engineering (NSE) Program Solicitation for FY 2003 (NSF 02-148); July 2002 * Cooperative agreements (internal award documents) with relevant centers, and the National Nanofabrication Users Network (NNUN) * Annual and final project reports for NS&E awards (internal award documents)

2.6   **Are independent evaluations of sufficient scope and quality conducted on a regular basis or as needed to support program improvements and evaluate effectiveness and relevance to the problem, interest, or need?**   Answer: YES   Question Weight 20%

Explanation: The NNI Program as a whole has been comprehensively evaluated by the NRC and will continue to receive annual evaluation. Additional comprehensive evaluations have been mandated by PCAST and NSET. A focused evaluation of the MRSEC program will begin in FY 2004. The COVs provide ongoing review of NS&E performance in key fields. Recognizing this, an NS&E-wide COV is planned for FY 2004. (The weight of this question has been increased to reflect the importance NSF places on the conduct of independent evaluations to support program improvements and evaluate effectiveness.)

Evidence: * Small Wonders, Endless Frontiers: A Review of the NNI; National Academies Press; 2002 * National Nanotechnology Initiative - The Initiative and its Implementation Plan; NSTC Committee on Technology; June 2002 * Committee of Visitors reviews (internal documents): Division of Manufacturing and Industrial Innovation (2003); Division of Materials Research (2002) * PCAST Evaluation Letter to the President for NNI.

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100%	100%	100%	90%	

Type(s): Research and Development   Competitive Grant   Capital Assets and Service Acquisition

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2.7 **Are Budget requests explicitly tied to accomplishment of the annual and long-term performance goals, and are the resource needs presented in a complete and transparent manner in the program's budget?**

Answer: YES   Question Weight: 9%

Explanation: Performance information is used by managers to inform decisions, and is incorporated into NSF's budget requests to the Congress. Independent external evaluations of the NNI have been conducted by high-level entities such as the National Academies and PCAST. The NNI then uses these expert assessments to inform broad management of federal investments in nanotechnology, of which NS&E plays the lead role. Major themes within the NS&E priority area are developed based upon these assessments. NSF's FY 2004 Congressional justification was built around the R&D Criteria, thereby highlighting specific performance information for NSF's investment portfolio, of which NS&E is part. The budget also clearly presents the resource request for each program and outlines the activities that will be supported with the funds. In addition, the FY 2004 Request provided full budgetary costing by the program framework in use at that time (Strategic Goals and Directorates). For the FY 2005 Budget, NSF will display the full budgetary cost associated with the new program framework defined in the Revised GPRA Strategic Plan.

Evidence: * FY 2004 Congressional Justification (http://www.nsf.gov/bfa/bud/fy2004/toc.htm). Full budgetary costing discussion begins on page 144. * Small Wonders, Endless Frontiers: A Review of the NNI; National Academies Press; 2002

2.8 **Has the program taken meaningful steps to correct its strategic planning deficiencies?**

Answer: NA   Question Weight: 0%

Explanation: No major strategic planning deficiencies have been identified. NS&E has identified ambitious long-term performance goals and is further refining its interim performance goals.

Evidence:

2.CA1 **Has the agency/program conducted a recent, meaningful, credible analysis of alternatives that includes trade-offs between cost, schedule, risk, and performance goals and used the results to guide the resulting activity?**

Answer: YES   Question Weight: 5%

Explanation: NSF supports major experimental facilities accessible to domestic and international researchers in nanoscale science and engineering. These include fully dedicated facilities such as the National Nanofabrication Users Network (NNUN), as well as facilities such as the National High Magnetic Field Laboratory, synchrotron radiation facilities and neutron facilities that support nanoscale research as well as other activities. NNUN was established in 1993 through an open solicitation. The merit review process assures that alternatives are considered, and the optimal mechanism selected. (The weight of this question was reduced, as only a fraction of the NS&E program is relevant to this capital assets question.)

Evidence: * Committee of Visitors reviews (internal documents): the National Nanofabrication Users Network * NSTC annual evaluation of NNI

2.RD1 **If applicable, does the program assess and compare the potential benefits of efforts within the program to other efforts that have similar goals?**

Answer: YES   Question Weight: 9%

Explanation: The NS&E Working Group, in collaboration with NSET, compares related efforts by other agencies, states and private industry on an ongoing basis. NSET ensures effective joint planning among federal agencies.

Evidence: * National Nanotechnology Initiative - The Initiative and its Implementation Plan; NSTC Committee on Technology; June 2002 * Workshops and grantees meetings (lists attached)

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Type(s): Research and Development   Competitive Grant   Capital Assets and Service Acquisition

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2.RD2 **Does the program use a prioritization process to guide budget requests and funding decisions?**
Answer: YES   Question Weight: 9%

Explanation: The prioritization process involves recommendations from each directorate with contribution to NSE; deliberative and collaborative evaluation by the NSE Group in NSF with input from community (outcomes from workshops and advisory committees), other agency contributions (NSET monthly meetings), external evaluations from entities such as the National Academies and PCAST; the recommendations are sent to NSF senior management for evaluation and approval.

Evidence: * NS&E Management Plan (internal document) * Small Wonders, Endless Frontiers: A Review of the NNI; National Academies Press; 2002

3.1 **Does the agency regularly collect timely and credible performance information, including information from key program partners, and use it to manage the program and improve performance?**
Answer: YES   Question Weight: 8%

Explanation: NS&E grant recipients are subject to reporting conditions, involving interim, annual, and final reports, and are specifically developed for continuing oversight and accountability measures. In addition, relevant NSF program managers conduct regular site visits, and NS&E awards are included in COV reviews. Quantitative goals are monitored, based on data in NSF's corporate systems. All of these assessments inform management practices.

Evidence: * Grantee interim, annual and final project reports (internal documents) * Site visit reports (internal documents) * Enterprise Information System (EIS) * Relevant NSF organizations' Committee of Visitors reviews (internal documents)

3.2 **Are Federal managers and program partners (including grantees, sub-grantees, contractors, cost-sharing partners, and other government partners) held accountable for cost, schedule and performance results?**
Answer: YES   Question Weight: 8%

Explanation: As mentioned in response 3.1, NS&E grantees must adhere to grant general conditions, pre-determined annual reporting requirements, and financial recordkeeping requirements. NS&E centers and collaborative awards are often subject to additional oversight activities, such as quarterly reporting requirements and site visits. In addition, NS&E facilities are subject to GPRA reporting requirements. Performance is monitored by cognizant NSF program officers, and funds can be withheld pending satisfactory project performance. The efforts of these program officers are reviewed by management and COVs. Corrective measures are undertaken as necessary to assure accountability.

Evidence: * Performance appraisals of NSF Program Officers * COV Reports * Awardee annual and final project reports * NSF Grant General Conditions (GC-1); April 2001 * GPRA Facilities Performance Reports

3.3 **Are funds (Federal and partners') obligated in a timely manner and spent for the intended purpose?**
Answer: YES   Question Weight: 8%

Explanation: NS&E funds are routinely obligated in a timely manner. A study conducted by Pricewaterhouse Cooper on NSF as a whole found no erroneous payments. NSF's grant monitoring activities assure that the funds are used for agreed to purposes.

Evidence: * NSF FY 2001 Risk Assessment for Erroneous Payments * Data on NSF Carryover, found in NSF's Budget Requests to Congress * Risk Assessment and Award Monitoring Guide * Clean opinion on NSF Financial statements for the past 5 years

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3.4   **Does the program have procedures (e.g. competitive sourcing/cost comparisons, IT improvements, appropriate incentives) to measure and achieve efficiencies and cost effectiveness in program execution?**   Answer: YES   Question Weight: 8%

Explanation: NSF is a leader in the vigorous and dynamic use of information technology to advance the agency mission. NS&E uses NSF's centralized systems, thereby benefiting from them. In addition, NS&E limits the number of proposals it invites from a single university for Nanoscale Science and Engineering Centers (NSECs) and Nanoscale Interdisciplinary Research Teams (NIRTs) in order to ensure higher success rates and maximize interdisciplinary collaboration within submitting universities. Such limits mean that many proposals have already faced a competitive process before they reach NSF, which tends to strengthen them while relieving administrative burden on NSF.

Evidence: * NSF Performance and Accountability Report, FY 2002 (http://www.nsf.gov/od/gpra/start.htm) * Nanoscale Science and Engineering (NSE) Program Solicitation for FY 2003 (NSF 02-148); July 2002

3.5   **Does the program collaborate and coordinate effectively with related programs?**   Answer: YES   Question Weight: 8%

Explanation: As mentioned in response 1.1, NS&E comprises NSF's participation in the National Nanotechnology Initiative (NNI); NSF is the lead of 17 participating agencies. NSF also promotes partnerships, including collaboration with other agencies, industry and national laboratories, for projects of mutual interest and international collaboration. Internally, NS&E is managed by a working group, with representation from all involved research Directorates.

Evidence: * NNI website (www.nano.gov) * NS&E Management Plan (internal document)

3.6   **Does the program use strong financial management practices?**   Answer: YES   Question Weight: 8%

Explanation: NS&E uses NSF's financial management system. NSF was the first agency to receive a 'green' rating for financial management in the President's Management Agenda, and NSF has received a clean opinion on its financial audit for the past five years. The NS&E priority area contributes to this outstanding assessment.

Evidence: * Executive Branch Management Scorecard * results of NSF financial audits

3.7   **Has the program taken meaningful steps to address its management deficiencies?**   Answer: NA   Question Weight: 0%

Explanation: NS&E has no identified management deficiencies.

Evidence:

3.CA1   **Is the program managed by maintaining clearly defined deliverables, capability/performance characteristics, and appropriate, credible cost and schedule goals?**   Answer: YES   Question Weight: 8%

Explanation: NS&E facilities are subject to the same reporting requirements and deliverables as all facilities funded at NSF. (90% of construction projects must keep negative schedule/cost variance to less than 10% of the project plan. 90% of operating facilities must keep operating time lost to less than 10%.) In addition, NS&E facilities undergo regular site visits, annual and final project reports.

Evidence: * GPRA performance plans and reports (http://www.nsf.gov/od/gpra/start.htm) * Relevant annual and final project reports; annual program reports

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Type(s): Research and Development   Competitive Grant   Capital Assets and Service Acquisition

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3.CO1 | **Are grants awarded based on a clear competitive process that includes a qualified assessment of merit?** | Answer: YES | Question Weight 20%

Explanation: The NS&E funding process is conducted in two phases. First, proposals are subject to NSF merit review. Proposals selected from this process are then assessed by the internal NS&E working group, with representation from all involved research Directorates. The latter step maximizes broad disciplinary representation, and ensures funds are directed to the most promising emerging nanotechnology themes. (The weight of this question has been increased to reflect the importance of external merit review in validating the quality of this basic research program.)

Evidence: * NS&E Management Plan (internal document) * Enterprise Information System (EIS) * Performance and Accountability Reports

3.CO2 | **Does the program have oversight practices that provide sufficient knowledge of grantee activities?** | Answer: YES | Question Weight: 8%

Explanation: NS&E conducts an annual grantees workshop to highlight major accomplishments. NSF conducts sites visits and evaluations for the Engineering Research Centers, the Nanobiotechnology Science and Technology Center, Nanoscale Science and Engineering Centers, and the NNUN. In FY 2002 NSF established a formal Award Monitoring and Technical Assistance Program (AM&TAP) based on financial and administrative risk assessment of NSF awardee institutions and with a primary focus to on-site monitoring. Consistent with NSF's existing award administration process, AM&TAP is a collaborative effort between administrative and financial managers/technical staff and NSF program managers. Expenditures are tracked to verify that funds are used for their designated purposes. Also, to leverage its staff resources, NSF has increased the number of reverse site visits, since they are especially effective in providing technical assistance to new and other high risk awardees.

Evidence: * Workshops and grantees meetings (list attached). * Annual and final project reports * Site visit reports * OIG clean audit opinions * PMA 'Green Light' in Financial Management

3.CO3 | **Does the program collect grantee performance data on an annual basis and make it available to the public in a transparent and meaningful manner?** | Answer: YES | Question Weight: 8%

Explanation: NSF's Grant General Conditions (GGC) require that results of NSF-supported research be published in open literature, and that NSF support is appropriately referenced/cited. In addition, NS&E organizes an annual grantees meeting and the summaries and highlights are published on the website and in print . Selected research and education highlights are collected each year, and made public on the websites (www.nsf.gov/nano). In addition there are program reviews of the key contributing programs at grantees meetings.

Evidence: * GC-1 (Grant General Conditions) * Highlights of annual meetings are available at: http://www.nsf.gov/nano, section Program Reviews; FY 2001: http://www-unix.oit.umass.edu/%7Enano/index2001.html; FY 2002: http://www-unix.oit.umass.edu/%7Enano/ * NSF Performance and Accountability Report, FY 2002 (http://www.nsf.gov/od/gpra/start.htm) * Program reviews at grantees meetings include: - Nanomanufacturing Grand Challenge in Manufacturing at Nanoscale NSF-Arlington, VA - May 13, 2002; - NSF Workshop in 3D Nanomanufacturing Partnering with Industry, Birmingham, AL - Jan. 5-6, 2003 (www.nano.neu.edu/nsf_workshop.html); - MRSEC network meeting and website; - SBIR (Small Businesses Move to Nanotechnology, NSF-Arlington, VA - March 20-21, 2002, www.eng.nsf.gov/sbir).

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	100%	100%	100%	90%	

Type(s): Research and Development   Competitive Grant   Capital Assets and Service Acquisition

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3.RD1   **For R&D programs other than competitive grants programs, does the program allocate funds and use management processes that maintain program quality?**   Answer: NA   Question Weight: 0%

Explanation: NS&E is a competitive grants program.

Evidence:

4.1   **Has the program demonstrated adequate progress in achieving its long-term performance goals?**   Answer: LARGE EXTENT   Question Weight: 10%

Explanation: A number of important discoveries and their applications of nanoscale materials and devices that are impacting the economy or close to commercialization can be tied to NNI, for which NSF plays the lead federal role. NNI has promoted increased business investment in nanoscale science and engineering for the support of startup companies and for the development of tools, applications and innovations that use nanoscale science and engineering. Related to NS&E's infrastructure goals, academic-based computational infrastructure has been established, and expanded for experimental facilities. NNI has also led to increased core industrial competence in nanotechnology in the U.S. Results within the NS&E priority area have been validated by existing Committees of Visitors (COVs), and an NS&E-wide COV is planned for FY 2004. Finally, annual and final project reports provide regular discussion of progress toward NS&E goals. (The weight of this question was decreased as NS&E is still early in its development with respect to its long-term research outcomes.)

Evidence: * Small Wonders, Endless Frontiers: A Review of the NNI; National Academies Press; 2002 * Examples of NS&E-supported research can be found at the Nanobusiness alliance website (http://www.nanobusiness.org/) * Examples of NS&E-supported research can be found at the Small Times website (http://www.smalltimes.com/) * The NNI Implementation Plan discusses outcomes from NS&E awards * Annual and final project reports, including NNUN and NCN reports * Annual NSEC reviews

4.2   **Does the program (including program partners) achieve its annual performance goals?**   Answer: SMALL EXTENT   Question Weight: 10%

Explanation: NS&E is a relatively young, robust priority area at NSF, for which internal assessment tools (such as an NS&E-wide COV) are under development. Contributing theme elements, such as nanomanufacturing, MRSECs and NSECs, are evaluated periodically by COVs. Finally, individual awards are evaluated annually through requisite annual project reports, and continued funding of these is contingent upon successful progress. (The weight of this question was decreased as NS&E is still early in its development with respect to its long-term research outcomes.)

Evidence: * Annual program reports * Annual and final project reports * Small Wonders, Endless Frontiers: A Review of the NNI; National Academies Press; 2002

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Type(s):   Research and Development   Competitive Grant   Capital Assets and Service Acquisition

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4.3   **Does the program demonstrate improved efficiencies or cost effectiveness in achieving program goals each year?**

Answer: YES   Question Weight:18%

Explanation: As discussed in Question 3.4, NSF is a leader in the vigorous and dynamic use of information technology to advance the agency mission. IT improvements have eliminated grantee mailing costs, significantly reduced printing costs and permitted more timely and efficient processing of proposals. In addition, since NS&E limits the number of proposals it will accept from a single institution, NIRTs and NSECs have demonstrated higher success rates and more interdisciplinary collaboration within submitting universities than would otherwise be possible.

Evidence: * NSF Performance and Accountability Report, FY 2002 (http://www.nsf.gov/od/gpra/start.htm) * Nanoscale Science and Engineering (NSE) Program Solicitation for FY 2003 (NSF 02-148); July 2002

4.4   **Does the performance of this program compare favorably to other programs, including government, private, etc., with similar purpose and goals?**

Answer: YES   Question Weight:18%

Explanation: As discussed in Question 1.1, NS&E is NSF's participation in the National Nanotechnology Initiative (NNI), and NSF's participation is pivotal to the success of the overall program goals. A number of external evaluation entities have assessed NS&E in this context, and affirmed progress toward NS&E's goals.

Evidence: * Small Wonders, Endless Frontiers: A Review of the NNI; National Academies Press; 2002

4.5   **Do independent evaluations of sufficient scope and quality indicate that the program is effective and achieving results?**

Answer: YES   Question Weight:25%

Explanation: Independent external evaluations of the NNI have been conducted by high-level entities such as the National Academies and PCAST. These have indicated the program's effectiveness. A number of external evaluation entities have assessed NS&E in this context, and affirmed progress toward NS&E's goals. (The weight of this question has been increased to reflect the importance of independent evaluations in assessing effectiveness of basic research programs.)

Evidence: * Small Wonders, Endless Frontiers: A Review of the NNI; National Academies Press; 2002 * Examples of NS&E-supported research can be found at the Nanobusiness alliance website (http://www.nanobusiness.org/) * Examples of NS&E-supported research can be found at the Small Times website (http://www.smalltimes.com/) * Annual and final project reports * Annual NSEC reviews

4.CA1   **Were program goals achieved within budgeted costs and established schedules?**

Answer: YES   Question Weight:18%

Explanation: As reported through requirements identified in Section 3.CA1, the NNUN facility did achieve its objectives within budgeted costs and established schedules.

Evidence: * NNUN COV

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Measure: Qualitative assessment by external experts that program is responsible for a broad-based and capable interdisciplinary research community that advances fundamental nanotechnology knowledge, with impact on other disciplinary fields.

Additional Information: Relates to three objectives, as listed in the NSF GPRA Strategic Plan: •"•encouraging collaborative research and education efforts..."; •"...accelerating progress in selected S&E areas of high priority..."; and •"...increasing opportunities for underrepresented individuals..."•Results within the NS&E priority area have been validated by existing Committees of Visitors (COVs).

Year	Target	Actual	**Measure Term:** Long-term
2004	On-track		
2007	On-track		
2010	Success		
2005			
2006			

Measure: Percent of proposals that are multi-investigator proposals.

Additional Information: All proposals received as a result of the NS&E solicitation. NS&E strives to foster collaborations among investigators that may not have otherwise occurred.

Year	Target	Actual	**Measure Term:** Annual
2001		75%	
2002		75%	
2003		73%	
2004	75%		
2005	75%		

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Measure: As qualitatively evaluated by external experts, the successful development of a knowledge base for systematic control of matter at the nanoscale that will enable the next industrial revolution for the benefit of society.

Additional Information: Relates to at least one priority area objective in the NSF GPRA Strategic Plan: "Foster connections between discoveries and their use in the service of society."

Year	Target	Actual	**Measure Term:** Long-term
2004	On-track		
2007	On-track		
2010	Success		
2005			
2006			

Measure: Average annualized new research grant award size (in dollars) within NS&E solicitation. This measure promotes increasing award size, rather than supporting a greater number of smaller grants, which helps improve the efficiency of researcher time.

Additional Information: Larger award sizes allow the research community to spend more time conducting research, and less time preparing multiple proposals to accomplish a research goal. An average annualized award size of $330,000 is an ambitious target; significantly greater than NSF's current average annualized award size of $115,000, and even larger than NSF's long-term goal of $250,000.

Year	Target	Actual	**Measure Term:** Annual
2001		$362,705	
2002		$323,000	
2003	$330,000	$315,000	
2004	$330,000		
2005	$330,000		

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	1	**2**	**3**	**4**	Effective
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Measure: Average duration (in years) of new research grant awards within Nanoscale Science and Engineering solicitation.

Additional Information: Longer award durations allow the research community to spend more time conducting research, and less time preparing proposals to continue funding ongoing projects. An average award duration of 3.8 years is an ambitious target; significantly greater than NSF"s current average duration of 3.0 years.

Year	Target	Actual	**Measure Term:** Annual (Efficiency Measure)
2001		4	
2002		3.7	
2003	3.8	3.8	
2004	3.8		
2005	3.8		

Measure: External advisory committee finding of that research infrastructure is appropriate to enable major discoveries.

Additional Information: Relates to all priority area objectives in NSF GPRA Strategic Plan.

Year	Target	Actual	**Measure Term:** Long-term
2004	On-track		
2007	On-track		
2010	Success		

Measure: Number of users accessing National Nanofabrication Users Network/National Nanotechnology Infrastructure Network (NNUN/NNIN) and Network for Computational Nanotechnology (NCN) sites.

Additional Information: An indicator of access to infrastructure. Estimates are based upon current budget estimates.

Year	Target	Actual	**Measure Term:** Annual
2001		1,300	
2002		1,700	

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Year			
2003	3,000	3,000	
2004	4,000		
2005	4,000		
2006	4,500		
2007	5,000		

Measure: Number of nodes that comprise infrastructure.

Additional Information: An indicator of program maintaining and enhancing infrastructure. NNIN nodes are defined as both large and small individual user facilities, geographically distributed and with diverse and complementary capabilities to design, create, characterize, and measure novel nanoscale structures, materials, devices, and systems.

Year	Target	Actual	**Measure Term:** Annual
2001		5	
2002		5	
2003	12	12	
2004	14		
2005	14		
2006	17		
2007	20		

Measure: Successful development of workforce, as qualitatively evaluated by external experts.

Additional Information: An interdisciplinary workforce for nanotechnology to meet industry's future needs. Relates to two priority area objectives in NSF GPRA Strategic Plan: •
"•providing people with new skills and perspectives•" and •"•increasing opportunities for underrepresented individuals and insitutions..."

Year	Target	Actual	**Measure Term:** Long-term
2004	On-track		

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<tr><td>100%</td><td>100%</td><td>100%</td><td>90%</td><td></td></tr>
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Type(s): Research and Development   Competitive Grant   Capital Assets and Service Acquisition

2007	On-track
2010	Success

Measure: Percent of proposals with at least one female PI or Co-PI.

Additional Information: All proposals received as a result of the NS&E solicitation. While there were no past targets in this area, NSF has shown a continued commitment to increasing participation of female investigators.

Year	Target	Actual	**Measure Term:** Annual
2001		25%	
2002		25%	
2003		22%	
2004	25%		
2005	25%		
2006			

Measure: Percent of proposals with at least one minority PI or Co-PI.

Additional Information: All proposals received as a result of the NS&E solicitation. While there were no past targets in this area, NSF has shown a continued commitment to increasing participation of investigators from underrepresented minority groups.

Year	Target	Actual	**Measure Term:** Annual
2001		10%	
2002		10%	
2003		13%	
2004	13%		
2005	13%		

PROGRAM ID: 10001147

PART Performance Measurements

Program: Polar Tools, Facilities and Logistics

Agency: National Science Foundation

Bureau:

Section Scores				Rating
1	2	3	4	Effective
100%	100%	100%	91%	

Type(s): Research and Development   Capital Assets and Service Acquisition   Competitive Grant

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1.1   **Is the program purpose clear?**   Answer: YES   Question Weight 20%

Explanation: The purpose of the Polar Tools, Facilities and Logistics program is to support world-class science at both Poles. This support is provided through objectives for transportation, communications and infrastructure. The program includes logistics, facilities construction, operations, and research support for research in the Antarctic and the Arctic. Research support in the Arctic is provided either through centralized support services or through competitive grants. In some cases the grants are handled through the program being reviewed here (e.g., Long Term Observations in the Arctic) or are selected competitively by merit review through other NSF programs.

Evidence: Evidence to explain the purpose of the Polar Tools, Facilities and Logistics program can be found in several documents: the NSF Strategic Plan FY 2003-2008 (http://www.nsf.gov/od/gpra/Strategic_Plan/FY2003-2008.pdf); National Science Foundation Act of 1950, 42 USC 1861 et. seq.; Presidential Memorandum 6646; Antarctic Treaty; Arctic Research and Policy Act; National Security Directives 71 and 318; Presidential Decision Directive 26; National Science and Technology Council report on U.S. Antarctic Program (1996); The U.S. in Antarctica: Report of the U.S. Antarctic Program External Panel (1997); U.S. Antarctic Program: Summary and Background (http://www.nsf.gov/od/opp/antarct/treaty/opp04001/nsf04013_full.htm).

1.2   **Does the program address a specific and existing problem, interest or need?**   Answer: YES   Question Weight 20%

Explanation: The United States is a leading nation in polar science, and research results have global significance. This program provides scientists in the Arctic and Antarctica with logistics and operational support as well as laboratory and infrastructure support. The program responds to National policy to have a U.S. presence in Antarctica, manifested by three year-round research stations. The program also responds to the need for improved logistical coordination and support for Arctic Research, as promulgated in the Arctic Research and Policy Act.

Evidence: Evidence is found in the NSF Strategic Plan FY 2003-2008 (http://www.nsf.gov/od/gpra/Strategic_Plan/FY2003-2008.pdf); National Science Foundation Act of 1950, 42 USC 1861 et. seq.; Presidential Memorandum 6646; Antarctic Treaty; Arctic Research and Policy Act; National Security Directives 71 and 318; Presidential Decision Directive 26; National Science and Technology Council report on U.S. Antarctic Program (1996); and The U.S. in Antarctica: Report of the U.S. Antarctic Program External Panel (1997).

1.3   **Is the program designed so that it is not redundant or duplicative of any other Federal, state, local or private effort?**   Answer: YES   Question Weight 20%

Explanation: Polar Tools, Facilities and Logistics includes logistics, operations, and research support for research in the Antarctic and the Arctic. In the Antarctic, NSF has the responsibilities as mandated in Presidential Memoranda and other documents. In the Arctic, NSF is the lead agency responsible for implementing Arctic research policy and chairs the Interagency Arctic Research Policy Committee, which is tasked with coordinating research among the twelve federal agencies supporting Arctic research and facilitating cooperation between the federal programs and other organizations. This helps ensure that efforts are not duplicative.

Evidence: Relevant information can be found in Presidential Memorandum 6646; Antarctic Treaty; Arctic Research and Policy Act; National Security Directives 71 and 318; and Presidential Decision Directive 26.

PROGRAM ID: 10002326

PART Performance Measurements

Program: Polar Tools, Facilities and Logistics
Agency: National Science Foundation
Bureau:

Type(s): Research and Development   Capital Assets and Service Acquisition   Competitive Grant

	Section Scores			Rating
1	2	3	4	Effective
100%	100%	100%	91%	

1.4   **Is the program design free of major flaws that would limit the program's effectiveness or efficiency?**   Answer: YES   Question Weight 20%

Explanation: The program continuously examines itself in order to provide scientists in the Arctic and Antarctic with logistics and operational support as well as laboratory and infrastructure support. Committees of Visitors regularly provide feed-back on management-related concerns and an overall assessment of the effectiveness of the program and program structure. The program also receives advice on program effectiveness and efficiency by User Committees for each Antarctic station and marine operations. User Committees meet at least once a year and are comprised of external scientists and researchers who use the facility under review. These groups provide input on whether the program is performing effectively.

Evidence: Evidence of the program's efficiency and effectiveness may be found in Committee of Visitor reports, User Committee Reports, Annual Performance Evaluation, and at the Annual Planning Conference.

1.5   **Is the program effectively targeted, so that resources will reach intended beneficiaries and/or otherwise address the program's purpose directly?**   Answer: YES   Question Weight 20%

Explanation: Support for program beneficiaries, polar researchers, is targeted to fields of science consistent with NSF's mission. An Annual Performance Evaluation Committee reviews the prime support contractor; input is provided by 'user' organizations, grantees, and Federal operations and science managers. The program has a conference every year after the operating season with all program partners (NSF, Raytheon Polar Services Co., New York Air National Guard, USAF, Navy/SPAWAR, U.S. Coast Guard, Interior, Petroleum Helicopters Inc. and Kenn Borek Air) to review lessons learned, analyze ways to improve operations and operational efficiencies, create short- and long-term plans, and develop new initiatives. User Committees, comprised of scientists and researchers who use the facility under review, and Committees of Visitors, which review the overall program, provide a continuous feedback loop to ensure the design is appropriate.

Evidence: Evidence of Polar Tools being effectively targeted can be found in the NSF Budget Requests to Congress, User Committee Reports, and in Committee of Visitors reports.

2.1   **Does the program have a limited number of specific long-term performance measures that focus on outcomes and meaningfully reflect the purpose of the program?**   Answer: YES   Question Weight: 8%

Explanation: The program's long-range performance measures focus on transportation, communications and infrastructure.

Evidence: Performance measures can be found in the Measures tab.

2.2   **Does the program have ambitious targets and timeframes for its long-term measures?**   Answer: YES   Question Weight: 8%

Explanation: The program's long-term measures focus on providing a diversified transportation network, 24/7 communications capabilities at all operating locations, and world-class infrastructure for science and operations.

Evidence: Performance measures can be found in the Measures tab.

PROGRAM ID: 10002326

PART Performance Measurements

Program: Polar Tools, Facilities and Logistics

Agency: National Science Foundation

Bureau:

Type(s): Research and Development   Capital Assets and Service Acquisition   Competitive Grant

Section Scores				Rating
1	2	3	4	Effective
100%	100%	100%	91%	

2.3   **Does the program have a limited number of specific annual performance measures that can demonstrate progress toward achieving the program's long-term goals?**   Answer: YES   Question Weight: 8%

Explanation: The program annually evaluates the performance of its prime support contractor in achieving the program's long-term goals.

Evidence: Evidence is provided through the Annual Performance Evaluation Committee which reviews the prime support contractor; input is provided by 'user' organizations, grantees, Federal operations and science managers.   There is an Annual Planning Conference for reviewing lessons learned, creating short- and long-term plans, and developing new initiatives.

2.4   **Does the program have baselines and ambitious targets for its annual measures?**   Answer: YES   Question Weight: 8%

Explanation: The program conducts an annual review of the performance of its prime support contractor in achieving annual goals. Goals are reviewed each year and revised to ensure they address emerging issues and challenges. Even when goals remain the same, the target performance may be increased.

Evidence: Evidence of baselines and ambitious targets is determined by the Annual Performance Evaluation Committee.

2.5   **Do all partners (including grantees, sub-grantees, contractors, cost-sharing partners, and other government partners) commit to and work toward the annual and/or long-term goals of the program?**   Answer: YES   Question Weight: 8%

Explanation: Partners include contractors, other federal agencies, and other awardees. Contractors are bound by the terms of their contracts and are evaluated by a Performance Evaluation Committee consisting of NSF personnel; by Committees of Visitors; and by user groups. Other agencies and other awardees providing support to the program commit to program goals through Memoranda of Understanding/Agreement. These participants are also evaluated by Committees of Visitors and through the use of performance measures used to target areas for improvement.

Evidence: Evidence of partners' commitments to the long-term goals of Polar Tools can be found in end of season reports, in the Annual Performance Evaluation of support contractor by NSF staff, and by external Committees of Visitors reports.

2.6   **Are independent evaluations of sufficient scope and quality conducted on a regular basis or as needed to support program improvements and evaluate effectiveness and relevance to the problem, interest, or need?**   Answer: YES   Question Weight: 17%

Explanation: The Program is evaluated every three years by an external Committee of Visitors. NSF responds to recommendations in writing. Support contractors are evaluated annually to determine their performance incentive awards.   In addition, other ad hoc evaluations are conducted by the NSF Inspector General, and workshops are conducted (e.g., workshop on Antarctic communications). User Committeees comprised of external scientists and researchers who use the facilities meet at least once a year. NOTE: The weight of this question has been doubled to reflect the relative importance of external review in verifying the relevance, quality, and performance of NSF's investments.

Evidence: Evidence of evaluations being of sufficient scope and quality can be found in the Committee of Visitors Report, Inspector General reports, and User Committee reports. In addition, Memoranda of Agreement with several Federal agencies that provide expertise in several areas of importance to the program; their services include consulting, oversight, special studies.

PROGRAM ID: 10002326

PART Performance Measurements

Program: Polar Tools, Facilities and Logistics
Agency: National Science Foundation
Bureau:

	Section Scores				Rating
	1	**2**	**3**	**4**	**Effective**
	100%	100%	100%	91%	

Type(s): Research and Development   Capital Assets and Service Acquisition   Competitive Grant

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2.7   **Are Budget requests explicitly tied to accomplishment of the annual and long-term performance goals, and are the resource needs presented in a complete and transparent manner in the program's budget?**

Answer: YES   Question Weight: 8%

Explanation: Performance information is used to make informed decisions and is incorporated into Polar programs budget requests to the Congress. Performance information is gathered through various means (such as Performance Evaluation Committee, Committees of Visitors, user groups), and decisions regarding funding priorities are made based on this information. This process ensures alignment between performance funding priorities, and that management decisions are based on performance. Significant priority areas are highlighted in Polar programs' budget requests to the Congress. The NSF FY 2005 Budget Request to Congress was built around major goals for Polar Tools, Facilities and Logistics and clearly presents the resource requests and outlines the activities that will be supported with the funds.

Evidence: The FY 2005 NSF Budget Request to Congress, as well as previous budget requests, indicate the long-term goals of the Polar Tools program and presents the resources needed in a complete and transparent manner (pages 325-341, http://www.nsf.gov/bfa/bud/fy2005/pdf/fy2005.pdf).

2.8   **Has the program taken meaningful steps to correct its strategic planning deficiencies?**

Answer: YES   Question Weight: 8%

Explanation: The program has no strategic planning deficiencies, and a process is in place for long-term strategic planning for the program. No long-term strategic deficiencies have been identified by Committees of Visitors, the Inspector General, or other external groups.

Evidence: Evidence demonstrating that the Polar Tools program has no strategic planning deficiencies can be found in the McMurdo Long-Range Development Plan, the National Science Technology Council report on U.S. Antarctic Program (1996) and The U.S. in Antarctica: Report of the U.S. Antarctic Program External Panel (1997).

2.CA1   **Has the agency/program conducted a recent, meaningful, credible analysis of alternatives that includes trade-offs between cost, schedule, risk, and performance goals and used the results to guide the resulting activity?**

Answer: YES   Question Weight: 8%

Explanation: The program conducts analyses of alternatives, such as lease-or-buy or competitive selection of contractors, for major expenditures. Examples include the decision to lease the RV Gould and RV Palmer; whether to commercialize LC-130 operations; and use of different aircraft (Twin Otters and the Basler). The program has also been reviewed by external groups (e.g., Augustine Panel in 1997) to assess management decisions on alternatives.

Evidence: Evidence of meaningful and credible analyses for the Polar Tools program may be found in quarterly audits attended by other federal agencies (e.g., U.S. Army Cold Regions Research and Engineering Lab, U.S. Navy SPAWAR (meteorological and air traffic support services), U.S. Navy PACDIV (engineering design and inspection)). Other evidence may be found in ad hoc program reports and in The U.S. in Antarctica: Report of the U.S. Antarctic Program External Panel (1987).

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PART Performance Measurements

Program: Polar Tools, Facilities and Logistics

Agency: National Science Foundation

Bureau:

	Section Scores			Rating
1	2	3	4	Effective
100%	100%	100%	91%	

Type(s): Research and Development   Capital Assets and Service Acquisition   Competitive Grant

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2.RD1   **If applicable, does the program assess and compare the potential benefits of efforts within the program to other efforts that have similar goals?**   Answer: YES   Question Weight: 8%

Explanation: The program is unique in its setting, but not in its operations. Therefore, the program is able to use competition as a method to compare the cost, schedule and performance of several potential service providers. Where competition is not used, recognized experts in federal agencies are retained through memoranda of understanding, and they use their knowledge, expertise, and skills to compare the program's operation with similar operations. Within the program, the Antarctic and Arctic activities have similar goals (i.e., supporting research in polar regions), and assess and compare where efficiencies can be gained by consolidating resources (e.g., contracting for Twin Otter services, Ice Core Drilling services, UV Monitoring, and UNAVCO (satellite use)).

Evidence: The Prime Support Contract is competed every ten years; contracted fixed- and rotary-wing aircraft contractors are competed every five years. Additional evidence may be found in Memoranda of Understanding with other Federal agencies.

2.RD2   **Does the program use a prioritization process to guide budget requests and funding decisions?**   Answer: YES   Question Weight: 8%

Explanation: Established priorities are the basis for building the budget request that is forwarded through NSF to OMB and the Congress. Priorities are structured around four overarching areas: science support, infrastructure, transportation/logistics, and communications. Outside groups influence the process of priority setting through workshops, the Committee of Visitors, and User Committees. As an operational program, priorities may change depending on unforeseen circumstances. For example, difficult ice conditions over the past several years made it clear that providing fuel storage for at least two years at McMurdo Station should be a priority for safety of operations.

Evidence: Relevant information regarding the prioritization process for Polar Tools may be found in Annual Program Plans and the McMurdo Long-Range Development Plan. Various long-range plans focusing on transportation and communications issues.

3.1   **Does the agency regularly collect timely and credible performance information, including information from key program partners, and use it to manage the program and improve performance?**   Answer: YES   Question Weight: 8%

Explanation: The Annual Performance Evaluation Committee reviews the prime support contractor; input is provided by 'user' organizations, grantees, and federal operations and science managers. The program has a conference every year after the operating season with all program partners (NSF, Raytheon Polar Services Co., New York Air National Guard, USAF, Navy/SPAWAR, U.S. Coast Guard, Interior, Petroleum Helicopters Inc. and Kenn Borek Air) to review lessons learned, analyze ways to improve operations and operational efficiencies, plan for the short-and long-term, and develop new initiatives. The program evaluates cost, schedule, risk, and performance goals for the South Pole Station Modernization project on a quarterly basis. A recent review focused on the trade-off between increasing the number of construction personnel deployed in order to try to reduce the planned schedule. These reviews are being instituted for all major projects funded by the program, and documentation standards are being developed that will be applied as well.

Evidence: Evidence of Polar Tools collection of performance information can be found in the Performance Evaluation Committee report and the Award Fee Board report.

PROGRAM ID: 10002326

Program: Polar Tools, Facilities and Logistics

Agency: National Science Foundation

Bureau:

	Section Scores				Rating
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Type(s): Research and Development   Capital Assets and Service Acquisition   Competitive Grant

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3.2 **Are Federal managers and program partners (including grantees, sub-grantees, contractors, cost-sharing partners, and other government partners) held accountable for cost, schedule and performance results?**

Answer: YES   Question Weight: 8%

Explanation: The program holds the prime support contractor accountable for cost, schedule, and performance through an annual evaluation that results in either having funds withheld in the event of non-performance or having the contractor's fee reduced for poor performance. Budgets based on services to be provided are developed with other performing organizations, and budgets and performance are monitored appropriately.

Evidence: Evidence demonstrating accountability for cost, schedule and performance results can be found in the Performance Evaluation Committee report and the Award Fee Board report.

3.3 **Are funds (Federal and partners') obligated in a timely manner and spent for the intended purpose?**

Answer: YES   Question Weight: 8%

Explanation: NSF routinely obligates its funds in a timely manner. An FY 2001 study conducted by PricewaterhouseCoopers found no erroneous payments. NSF has pre-award internal controls to reduce the risk of improper payments. Funds are incrementally obligated for contracts following negotiation of annual budgets. Performance is monitored on an ongoing basis and on-site oversight is maintained during the operational season in Antarctic and by periodic site visits in the Arctic.

Evidence: Evidence of the agency's financial obligations may be found in the NSF FY 2001 Risk Assessment for Erroneous Payments, Data on NSF Carryover (found in the NSF Budget Request to Congress), Risk Assessment and Award Monitoring Guide, NSF's clean opinion on financial statements for past 6 years; the NSF Financial System, the Polar Financial Management System, and the Weekly Situation Reports from on-site NSF representatives in Antarctica.

3.4 **Does the program have procedures (e.g. competitive sourcing/cost comparisons, IT improvements, appropriate incentives) to measure and achieve efficiencies and cost effectiveness in program execution?**

Answer: YES   Question Weight: 8%

Explanation: Prime Support Contractor is competed every ten years; contracted fixed- and rotary-wing aircraft contractors are competed every five years. Logistic and operational services required have been analyzed and Memoranda of Understanding with other Federal agencies have been negotiated to obtain services to achieve program efficiencies. The Prime Support Contractor earns a fee based on performance and achievement of stated goals. Performance incentives are measured qualitatively and quantitatively (e.g., a qualitative assessment is how well the contractor integrates across the company divisions; a quantitative assessment is how much cargo is received onsite by a required date). Each year the goals set for the contractor are negotiated and revised to ensure the contractor is continually seeking improvement. The program also uses NSF GPRA goals for both operations (how many science days on ice are supported) and construction (use of Earned Value Management analysis).

Evidence: Evidence demonstrating appropriate procedures to measure and achieve efficiencies and cost effectiveness can be found in the Award Fee Board report, in individual contract documents, in contractor documentation, in the Annual Program Plan, and in GPRA Facilities and Operations reports.

PROGRAM ID: 10002326

Program: Polar Tools, Facilities and Logistics

Agency: National Science Foundation

Bureau:

Section Scores				Rating
1	2	3	4	Effective
100%	100%	100%	91%	

Type(s): Research and Development   Capital Assets and Service Acquisition   Competitive Grant

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3.5   Does the program collaborate and coordinate effectively with related programs?   Answer: YES   Question Weight: 8%

Explanation: The Polar Tools, Facilities and Logistics program includes logistics, operations, and research support for research in the Antarctic and the Arctic. In the Antarctic, NSF has the responsibilities mandated in Presidential Memoranda and other documents, and accordingly, this program supports research conducted or sponsored by other mission agencies (e.g., NASA, NOAA, USGS). In the Arctic, NSF is the lead agency responsible for implementing Arctic research policy and chairs the Interagency Arctic Research Policy Committee, which is tasked with coordinating research among the twelve federal agencies supporting Arctic research and facilitating cooperation between the federal programs and other organizations. This helps ensure that efforts are not duplicative.

Evidence: Evidence relevant to demonstrating the Polar Tools program's coordination and collaboration with similar programs may be found in Presidential Memorandum 6646, the Antarctic Treaty, the Arctic Research and Policy Act, National Security Directives 71 and 318, Presidential Decision Directive 26, and in various memoranda of understanding.

3.6   Does the program use strong financial management practices?   Answer: YES   Question Weight: 8%

Explanation: NSF uses strong financial management practices. NSF was the first federal agency to receive a 'green light' for financial management on the President's Management Agenda scorecard. NSF has received a clean opinion on its financial audits for the last six years.   The NSF is committed to providing quality financial management to all its stakeholders. It honors that commitment by preparing annual financial statements in conformity with generally accepted accounting principles in the U.S. and then subjecting the statement to independent audits. Supplementary statements are also prepared including Budgetary Resources by Major Accounts, Intragovernmental Balances, Deferred Maintenance, and Stewardship Investments. In addition, monthly status and progress reports are submitted to the program by every organization funded (e.g., Raytheon Polar Services Co., New York Air National Guard, Navy/SPAWAR). The program uses sound project management techniques, including Earned Value Analysis to track progress on large projects.

Evidence: Evidence of strong financial management practices in the Polar Tools program can be found in POFMS (Polar Financial Management System) and in the monthly reports status reports.

3.7   Has the program taken meaningful steps to address its management deficiencies?   Answer: YES   Question Weight: 8%

Explanation: Committees of Visitors provide feedback on management-related concerns. In addition, the Foundation conducts an annual review to assess administrative and financial systems and procedures to ensure that effective management controls are in place and that any deficiencies are identified and addressed. No management deficiencies have been identified for the program in the above reviews or in other external reviews (Augustine Report, 1997; Inspector General reports).

Evidence: Reports indicating no significant management deficiencies in the annual Performance and Accountability Reports (http://www.nsf.gov/pubsys/ods/getpub.cfm?par), the NSF Business Analysis, the 2001 Committee of Visitors Report for the Polar Research Support Section, Advisory Committee review of Committee of Visitors reports, the Annual report to senior management, and IG reports and NSF responses.

PROGRAM ID: 10002326

PART Performance Measurements

Program: Polar Tools, Facilities and Logistics

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Bureau:

Section Scores				Rating
1	2	3	4	Effective
100%	100%	100%	91%	

Type(s): Research and Development   Capital Assets and Service Acquisition   Competitive Grant

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3.CA1 **Is the program managed by maintaining clearly defined deliverables, capability/performance characteristics, and appropriate, credible cost and schedule goals?**

Answer: YES   Question Weight: 8%

Explanation: The Budget Request for the program provides clearly defined deliverables (e.g., complete the power plant at McMurdo Station by a given fiscal year). The Earned Value Management system used to manage projects provides ongoing oversight of the defined deliverables, and reporting on facilities for GPRA provides an annual assessment of progress on deliverables. On a micro level, awards made as contracts or cooperative agreements have clearly defined deliverables and cost and schedule goals.

Evidence: Documentation is contained in individual contracts and cooperative agreements.

3.CO1 **Are grants awarded based on a clear competitive process that includes a qualified assessment of merit?**

Answer: YES   Question Weight: 8%

Explanation: Most of the funding under Polar Tools, Facilities and Logistics is handled by contracts. The contracts are competitively bid based on a variety of factors, including merit. Grants that are made under this program rely upon NSF's competitive, merit review process that includes external peer evaluation.

Evidence: Evidence of grants awarded through a clear competitive process may be found in the FY 2003 Report on NSF Merit Review System (http://www.nsf.gov/nsb/documents/2004/MRreport_2003_final.pdf). Additional information may be found in NSF's Annual Acquisition Plan which includes Polar Facilities plans (http://www.nsf.gov/bfa/dacs/contracts/acquisitionplan04.htm) and the annual Performance and Accountability Reports (http://www.nsf.gov/pubs/2004/nsf0410/start.htm). An example of an RFP can be reviewed at http://www1.eps.gov/spg/NSF/DCPO/CPO/DACS%2D030057/listing.html.

3.CO2 **Does the program have oversight practices that provide sufficient knowledge of grantee activities?**

Answer: YES   Question Weight: 8%

Explanation: In FY 2002, NSF established a formal Award Monitoring and Technical Assistance Program (AM&TAP) based on financial and administrative risk assessment of NSF awardee institutions and with a primary focus to on-site monitoring. AM&TAP is a collaborative effort between administrative and financial managers/technical staff and NSF program managers.   NSF maintains scientific oversight of all awards through annual and final project reports, and funds are tracked (via reporting systems) to ensure that funds are used for their designated purpose. This program specifically evaluates cost, schedule, risk and performance goals for the South Pole Station Modernization project on a quarterly basis. These reviews are being instituted for all major projects funded by the program, and documentation standards are being developed that will be applied as well. The program deploys federal agencies as on-site representatives during the operating season (e.g., Navy/PACDIV). Contract employees also provide oversight during the entire year.

Evidence: Oversight activities which demonstrate a sufficient knowledge of grantee activities may be found in the annual, interim and final project reports; FY 2003 Report on NSF Merit Review System (http://www.nsf.gov/nsb/documents/2004/MRreport_2003_final.pdf); Risk Assessment and Award Monitoring Guide; clean audit opinions for past six years; President's Management Agenda Scorecard for Financial Management; South Pole Station Modernization quarterly audits; reports from Federal agencies of activities reviewed or examined; SPSM quarterly review books; and RPSC Project Procedures.

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PART Performance Measurements

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Section Scores				Rating
1	2	3	4	Effective
100%	100%	100%	91%	

Type(s): Research and Development   Capital Assets and Service Acquisition   Competitive Grant

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3.CO3 **Does the program collect grantee performance data on an annual basis and make it available to the public in a transparent and meaningful manner?**

Answer: YES   Question Weight: 8%

Explanation: The Polar Tools, Facilities and Logistics program makes possible the research conducted by grantees/awardees in Antarctica and the Arctic. Information on the support available is posted on public websites (see Evidence). NSF Grant General Conditions require that results of NSF-supported research be published in the open literature and that NSF support is appropriately referenced/cited. NSF's annual Performance and Accountability Report and its annual Budget Request contain highlights of NSF-supported research. Principal Investigators provide annual progress reports to NSF, which are examined and approved/disapproved by the program officers.

Evidence: Information on the support available in the Arctic and Antarctic is available at: http://www.nsf.gov/od/opp/support/start.htm; http://www.polar.org/; http://www.nsf.gov/od/opp/arctic/suplog.htm; http://www.vecopolar.com/.   Grantee information is provided in annual Performance and Accountability Reports (http://www.nsf.gov/pubs/2004/nsf0410/start.htm); NSF Summary of the FY 2005 Budget Request to Congress; Grant General Conditions (http://www.nsf.gov/home/grants/gc102.pdf); Budget Internet Information Site (http://dellweb.bfa.nsf.gov/).

3.RD1 **For R&D programs other than competitive grants programs, does the program allocate funds and use management processes that maintain program quality?**

Answer: YES   Question Weight: 8%

Explanation: Over three-fourths of program funds are awarded competitively. Performance management techniques are used throughout the Program. Funds are incrementally obligated following negotiation of annual budgets. Performance is monitored on an ongoing basis and on-site oversight is maintained during the operational season. Periodic reviews are performed by program personnel.

Evidence: Evidence of program quality for Polar Tools can be found in the end of season reports and in the Annual Performance Evaluation of support contractor.

4.1 **Has the program demonstrated adequate progress in achieving its long-term performance goals?**

Answer: YES   Question Weight:14%

Explanation: The program has demonstrated progress in all three of its long-term performance goals -- infrastructure, communications, and transportation.

Evidence: Evidence of adequate progress in achieving Polar Tools' long-term performance goals can be found in the South Pole Overland Traverse progress and in the telemedicine capabilities at all operating stations and research vessels. In addition, the McMurdo Long-Range Development Plan was developed and several projects have already been implemented (Waste Water Treatment Plant, T-Site Replacement and Joint Space Operations Center) or are in-process (Power Plant).

4.2 **Does the program (including program partners) achieve its annual performance goals?**

Answer: LARGE EXTENT   Question Weight:14%

Explanation: The program annually sets goals for performance by the prime support contractor and by other organizations (e.g., number of flights, accuracy of weather forecasting). The program achieves its annual goals relating to infrastructure, transportation, and communications.

Evidence: Evidence of goal achievement in Polar Tools is from the Performance Evaluation Committee and in Performance Statistics for airlift providers and weather forecasters.

PROGRAM ID: 10002326

Program: Polar Tools, Facilities and Logistics

Agency: National Science Foundation

Bureau:

Section Scores				Rating
1	2	3	4	Effective
100%	100%	100%	91%	

Type(s): Research and Development   Capital Assets and Service Acquisition   Competitive Grant

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4.3   **Does the program demonstrate improved efficiencies or cost effectiveness in achieving program goals each year?**

Answer: LARGE EXTENT   Question Weight:14%

Explanation: The recent report on Arctic research support and logistics commented, "substantial progress has been made in year-round access for researchers, in protecting health and safety, and in improving collaboration and communication between researchers and arctic residents.' Each year, the percentage of fee earned by the prime support contractor has risen, direct evidence of demonstrated improvement. The program is beginning to use earned-value management to maintain efficiency in construction of facilities. The program has also begun measuring improvement in energy use at McMurdo based operations through enhanced reliance on alternative energy sources.

Evidence: Evidence supporting Polar Tools performance is included in "Arctic Research Support and Logistics," report of the Arctic Research Consortium of the U.S. (2003) and in "The U.S. in Antarctica: Report of the U.S. Antarctic Program External Panel" (1997). Cost effectiveness can be found in the Performance Evaluation Committee report and the Award Fee Board report.

4.4   **Does the performance of this program compare favorably to other programs, including government, private, etc., with similar purpose and goals?**

Answer: YES   Question Weight:14%

Explanation: The program has a unique mission ' support of world-class science at both Poles, so comparisons are not easily made. The recent report on Arctic research support and logistics commented, "substantial progress has been made in year-round access for researchers, in protecting health and safety, and in improving collaboration and communication between researchers and arctic residents.' The 1997 External Panel report on USAP indicated "...many of the U.S. assets and programs in Antarctica are unparalleled in scope or capability."

Evidence: Evidence supporting Polar Tools performance is included in "Arctic Research Support and Logistics," report of the Arctic Research Consortium of the U.S. (2003) and in "The U.S. in Antarctica: Report of the U.S. Antarctic Program External Panel" (1997).

4.5   **Do independent evaluations of sufficient scope and quality indicate that the program is effective and achieving results?**

Answer: YES   Question Weight:29%

Explanation: Activities are reviewed by Committees of Visitors. The latest COV indicated: "performance ... is most directly judged by assessing the effectiveness of the Office of Polar Programs in accomplishing its primary mission ~ conducting science in Antarctica. While research support operations can and will be judged on metrics of efficiency, productivity, on-time performance, and cost effectiveness, it is the more intangible measures related to the quality, impact, and relevance of Antarctic science that the success of Polar Research Support Section (PRSS) should ultimately be judged against. In all measures of performance, it is the COV's assessment that Antarctic science is strong, it is relevant, it is cutting edge, and it is by far the best being performed in the world today. The Committee, therefore, concludes that PRSS is accomplishing its major objectives as reflected in the state and health of U.S. Antarctic science."

Evidence: Independent evaluations of sufficient scope and quality are performed by the Performance Evaluation Committee. Additional information can be found in Performance Statistics and in the Committee of Visitors Reports. NOTE: The weight of this question has been doubled to reflect the importance of independent evaluation in verifying relevance, quality and performance of NSF's investments.

PROGRAM ID: 10002326

PART Performance Measurements

Program: Polar Tools, Facilities and Logistics

Agency: National Science Foundation

Bureau:

	Section Scores			Rating
1	2	3	4	Effective
100%	100%	100%	91%	

Type(s): Research and Development   Capital Assets and Service Acquisition   Competitive Grant

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4.CA1   **Were program goals achieved within budgeted costs and established schedules?**   Answer: YES   Question Weight:14%

Explanation: The program has an excellent track record operating within budgeted costs and established schedules. However, the program's operating locations impose obstacles that are not found in other programs, such as weather delays and recent delays caused by unusually thick ice in McMurdo Sound. In the latter case funds were reprogrammed from other accounts in NSF in FY 2003 to help defray the costs.

Evidence: Evidence is contained in end-of-season reports and monthly cost and schedule reports by WBS level which are submitted to NSF.

PROGRAM ID: 10002326

PART Performance Measurements

Program: Polar Tools, Facilities and Logistics

Agency: National Science Foundation

Bureau:

	Section Scores			Rating
1	**2**	**3**	**4**	Effective
100%	100%	100%	91%	

Type(s): Research and Development   Capital Assets and Service Acquisition   Competitive Grant

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Measure: Qualitative assessment by external experts that the Polar Tools, Facilities and Logistics program has an appropriate balance between research support and investment on infrastructure improvements.

Additional Information: This is a measure of decision making of the program and the ability to meet national needs for research in the polar regions.

Year	Target	Actual	**Measure Term:** Long-term
2001	Success	Success	
2004	Success	Success	
2007	Success		

Measure: Percent of person-days planned for Antarctic research for which the program is able to provide the necessary research support

Additional Information: This accounts for all days any researcher is in Antarctica (or on the research vessels). Lost time due to items outside of the program's control (e.g. severe weather) is excluded. This measure is a proxy for efficiency and compares results to original estimates.

Year	Target	Actual	**Measure Term:** Annual
2002	>90%	95.2%	
2003	>90%	96.1%	
2004	>90%	94.3%	
2005	>90%		
2006	>90%		

Measure: Qualitative assessment by external experts that the Polar Tools, Facilities and Logistics program provides appropriate logistics, facilities, and science support to meet science community needs.

Additional Information: This is a measure of the extent to which the program meets researcher requirements.

Year	Target	Actual	**Measure Term:** Long-term
2001	Success	Success	

PROGRAM ID: 10002326

PART Performance Measurements

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Agency: National Science Foundation

Bureau:

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Type(s): Research and Development   Capital Assets and Service Acquisition   Competitive Grant

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2004	Success	Success
2007	Success	

Measure: Qualitative assessment by external experts that the Polar Tools, Facilities and Logistics program provides appropriate protection for the health, safety, and welfare of polar program participants.

Additional Information: This is a measure of the allocation of resources to ensure health and safety of researchers, contractors, and other USAP participants while they are in Antarctica and the Arctic.

Year	Target	Actual	**Measure Term:** Long-term
2001	Success	Success	
2004	Success	Success	
2007	Success		

Measure: Qualitative assessment by external experts that the Polar Tools, Facilities, and Logistics program effectively addresses other mission agencies' needs in their operations in the Arctic and the Antarctic.

Additional Information: The program has national responsibilities with regard to any U.S. research undertaken in Antarctic. This is a measure of how well the program responds to and coordinates with other agencies on research in both polar regions.

Year	Target	Actual	**Measure Term:** Long-term
2001	Success	Success	
2004	Success	Success	
2007	Success		

Measure: Percent of construction cost and schedule variances of major projects as monitored by Earned Value Management.

Additional Information: This is a measure against planned cost and schedule for construction projects with a total project cost of at least $5M. The result is an average of cost and schedule variances.

Year	Target	Actual	**Measure Term:** Annual
2003	<10%	5.1%	

PROGRAM ID: 10002326

PART Performance Measurements

Program: Polar Tools, Facilities and Logistics

Agency: National Science Foundation

Bureau:

Section Scores				Rating
1	2	3	4	Effective
100%	100%	100%	91%	

Type(s): Research and Development   Capital Assets and Service Acquisition   Competitive Grant

2004	<10%	9.8%
2005	<9%	
2006	<8%	
2007	<7%	

PROGRAM ID: 10002326