Performance Results

In assessing the return on NSF's investments, the Foundation is guided by the *NSF GPRA (Government Performance and Results Act of 1993) Strategic Plan FY 2001–2006* (*www.nsf.gov/od/gpra*). In this plan, NSF seeks to clearly communicate its vision and ideals and to provide a framework for the future. This framework is informed by NSF's mission, as set out by Congress in the National Science Foundation Act of 1950, and by the Foundation's unique role as the only federal agency charged with strengthening the overall health of U.S. science and engineering across a broad and expanding frontier.

NSF's Strategic Plan emphasizes three areas of focus—People, Ideas, and Tools. It describes the three core strategies—developing intellectual capital, integrating research and education, and promoting partnerships—that, together with its core values, guide NSF in achieving its mission. The Strategic Plan provides the basis for both NSF's FY 2002 Annual Performance Plan and NSF's FY 2002 Budget, which were developed concurrently to ensure a direct link between programmatic activities and achievement of strategic goals.[1]

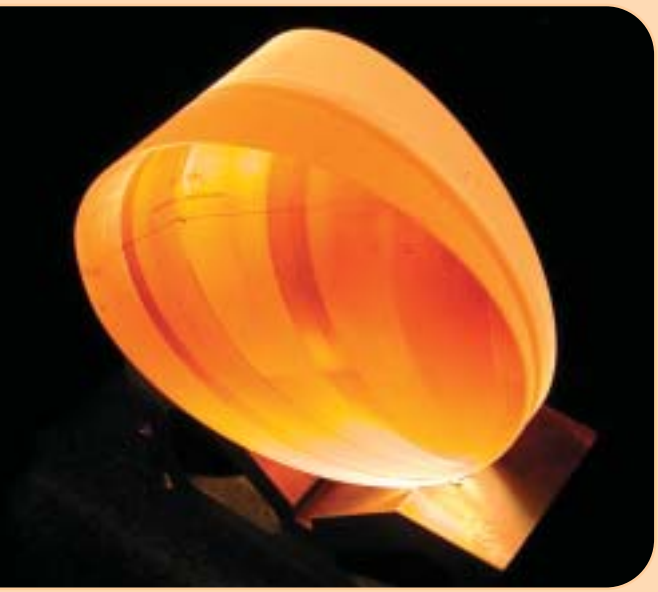
GPRA implementation has been a particular challenge for agencies like NSF, whose mission involves research activities. This is primarily due to (1) the difficulty of linking research outcomes to annual investments and the agency's annual budget, because it is not unusual for research outcomes to appear years or decades after the initial investment and (2) the fact that assessing the results of research is inherently retrospective and requires the qualitative judgment of experts. NSF developed an alternative format, approved by OMB, using external expert review panels to assess research results qualitatively. The use of external expert panels to review research results and outcomes is a common, long-standing practice used by the academic research community.

This photograph of Kitt Peak National Observatory shows the southern latitudes of the United States being treated to a bright and colorful auroral display. This display was related to the height of the 11-year solar cycle, which occurred in 2001 and created intense magnetic storms. NSF-supported scientists are working to better understand such eruptions, which can cause significant disturbances in Earth's own magnetic field and wreak havoc with telecommunications and satellite systems.

[1] NSF's FY 2002 Annual Performance Plan (*www.nsf.gov/od/gpra*) and NSF's FY 2002 Budget Request (*www.nsf.gov/bfa/*) are available on NSF's website.

NSF's FY 2002 Performance Scorecard

For FY 2002, NSF's annual performance goals are organized into two categories—Strategic Outcome Goals and Management Goals. The Strategic Outcome Goals focus on the long-term results of NSF grants and programs. They represent what the agency seeks to accomplish with the investments that are made in science and engineering research and education. To accomplish the NSF mission of promoting the progress of science, NSF invests in the best people with the best ideas and provides them with the tools they need. NSF's outcomes from its awards provide evidence of the success of those investments. NSF's Management Goals focus on the factors and strategies that enable the Foundation to successfully implement and attain its strategic outcomes. They relate to the procedures that the agency uses to make awards, fund and manage capital projects, and otherwise serve its customers. The Management Goals also address the internal management of the organization.



The Volume Phase Holographic (VPH) grism pictured above is a combination of a diffraction grating and a prism. This advanced optical technology is used in the new Multi-Aperture Red Spectrometer (MARS) at Kitt Peak National Observatory near Tucson, Arizona. The grism gives astronomers an even clearer picture of the universe. Kitt Peak, part of the NSF-funded National Optical Astronomy Observatory, supports the most diverse collection of astronomical observatories on Earth for nighttime optical and infrared astronomy and daytime study of the sun.

In FY 2002, NSF was successful for 78 percent (18 out of 23) of its GPRA performance goals. There was a notable improvement in the agency's performance; in the prior two years, NSF achieved about 65 percent of its GPRA goals. NSF successfully achieved all four of its strategic outcome goals focused on People, Ideas, and Tools. The Management Goals that NSF was not successful in achieving were related to broadening participation in the review process, the proposal process, award duration, and facilities oversight. Plans are already under way to address how each can be successfully achieved in FY 2003. For a comprehensive discussion of NSF's performance goals, results, and related issues, see NSF's *FY 2002 Performance and Accountability Report* (*www.nsf.gov/od/gpra*).

STRATEGIC OUTCOME GOALS

Strategic Outcome	Performance Goal	Result
PEOPLE Develop a diverse, internationally competitive, and globally engaged workforce of scientists, engineers, and well-prepared citizens.		
Workforce, Student and Teacher Development	Demonstrate significant achievement in the majority (4 of 7) of the following indicators: • Development of well-prepared scientists, engineers, or educators whose participation in NSF activities provides them with the capability to explore frontiers and challenges of the future. • Improved science and mathematics performance for U.S. K–12 students involved in NSF activities. • Professional development of the science, mathematics, engineering, and technology (SMET) instructional workforce involved in NSF activities. • Contributions to the development of a diverse workforce hrough participation of underrepresented groups (women, under-represented minorities, persons with disabilities) in NSF activities. • Participation of NSF-supported scientists and engineers in international studies, collaborations, or partnerships. • Enhancement of undergraduate curricular, laboratory, or instructional infrastructure. • Awardee communication with the public in order to provide information about the process and benefits of NSF-supported science and engineering activities. Result: Reports prepared by external experts provide assessments and retrospective examples of NSF-supported projects that document significant achievement in all the indicators.	
K–12 Education Reform	After three years of NSF support, more than 80 percent of schools participating in Systemic Initiative (SI) programs will (1) implement a standards-based curriculum in science and mathematics with at least one-third of their teachers; (2) provide professional development for at least one-third of their teachers; and (3) improve student achievement on a selected battery of math and science tests at one or more of three educational levels (elementary, middle, and high school). Result: SI projects reported that 93 percent of their schools met the GPRA goal for mathematics curriculum implementation and 91 percent met the goal for science curriculum implementation. For professional development, 96 percent of the SI schools reported meeting the goal for mathematics professional development and 95 percent met the goal for science professional development. Finally, SI projects reported that at the middle school level, 87 percent of participating schools met the goal of improved student achievement in math, and 86 percent met the goal of improved student achievement in science.	

KEY:
- Indicates goal was achieved in FY 2002.
- Indicates goal was not achieved in FY 2002.

STRATEGIC OUTCOME GOALS

Strategic Outcome	Performance Goal	Result
IDEAS Enable discovery across the frontier of science and engineering, connected to learning, innovation, and service to society.		
	Demonstrate significant achievement in the majority (4 of 6) of the following indicators: • Discoveries that expand the frontiers of science, engineering, or technology. • Discoveries that contribute to the fundamental knowledge base. • Leadership in fostering newly developing or emerging areas. • Connections between discoveries and their use in service to society. • Connections between discovery and learning or innovation. • Partnerships that enable the flow of ideas among the academic, public, or private sectors. Result: Reports prepared by external experts provide assessments and retrospective examples of NSF-supported projects that document significant achievement in all the indicators.	●
TOOLS Provide broadly accessible, state-of-the art, and shared research and education tools.		
	Demonstrate significant achievement in one or more of the following indicators: • Provision of facilities, databases, or other infrastructure that enable discoveries or enhance productivity by NSF research or education communities. • Provision of broadly accessible facilities, databases, or other infrastructure that are widely shared by NSF research or education communities. • Partnerships, e.g., with other federal agencies, national laboratories, or other nations, to support and enable development of large facilities and infrastructure projects. • Use of the Internet to make SMET information available to the NSF research or education communities. • Development, management, or utilization of very large data sets and information bases. • Development of information and policy analyses that contribute to the effective use of science and engineering resources. Result: Reports prepared by external experts provide assessments and retrospective examples of NSF-supported projects that document significant achievement in all the indicators.	●
	KEY: ● Indicates goal was achieved in FY 2002. ● Indicates goal was not achieved in FY 2002.	

MANAGEMENT GOALS[2]

Performance Area	Performance Goal	Result
PROPOSAL AND AWARD PROCESS		
Merit Review	Allocate at least 85 percent of basic and applied research funds to projects that undergo merit review.	
Implementation of Merit Review Criteria: Reviewers	Reviewers address the elements of both generic review criteria—intellectual impact and broader impact—at a level above that of FY 2001.	
Implementation of Merit Review Criteria: Program Officers	Consider elements of both generic review criteria in making funding decisions.	
Customer Service: Time to Prepare Proposals	Ninety-five percent of NSF program announcements available to relevant individuals and organizations at least three months prior to the proposal deadline or target date. Result: In FY 2002, 94 percent (111 of 118) of program announcements and solicitations were made available at least 90 days before the proposal deadline or target date. In FY 2003, NSF will work toward this goal by planning for competitions requiring individual announcements and solicitations as far in advance as possible and initiating the clearance processes in a timely manner. In addition, NSF has recently implemented the electronic Program Information Management System (PIMS), which is expected to improve the efficiency of announcement preparation.	
Customer Service: Time to Decision	For 70 percent of proposals, inform applicants about funding decision within six months of receipt.	

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[2] The Investment Process Goals of previous years have been subsumed within the Managment Goals.

MANAGEMENT GOALS

Performance Area	Performance Goal	Result
PROPOSAL AND AWARD PROCESS (continued)		
Diversity-Reviewer Pool	Establish a baseline for participation of members of underrepresented groups in NSF proposal review activities. Result: NSF cannot legally require reviewers to provide demographic information. Provision of such data is voluntary. NSF requested and collected demographic data from reviewers but given the low response rate, there is not enough information to establish a baseline. A total of 37,943 distinct reviewers returned their reviews on proposals decided upon in FY 2002. Demographic information is available for 3,507 of these reviewers and 1,168 (33 percent) of these 3,507 reviewers are members of an underrepresented group. In FY 2003, NSF will continue to request demographic information from reviewers.	●
AWARD PORTFOLIO		
Award Size	Increase average annualized award size for research projects to a level of $113,000, compared with a goal of $110,000 in FY 2001.	●
Award Duration	Maintain the FY 2001 goal of 3.0 years' duration for research projects. Result: Achieved 2.9 years; resource limitations negatively impacted NSF's ability to achieve both the award size and award duration goals. NSF focused its efforts on increasing average annualized award size. In FY 2003, NSF will continue to focus on increasing award size and duration in order to improve the efficiency of the research process.	●
AWARD OVERSIGHT AND MANAGEMENT		
Award Oversight	Develop and initiate a risk assessment/risk management plan for awards.	●

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MANAGEMENT GOALS

Performance Area	Performance Goal	Result
FACILITIES OVERSIGHT		
Construction and Upgrade of Facilities: Annual Expenditure	Keep construction and upgrades for 90 percent of facilities within the annual expenditure plan, not to exceed 110 percent of estimates.	
Construction and Upgrade of Facilities: Scheduling	Meet all annual scheduled milestones for 90 percent of facilities. Result: Of the 27 construction and upgrade projects, 13 (48 percent) met all annual schedule milestones. In FY 2001, milestones reached at any time within the fiscal year were considered successful. In FY 2002, milestones had to be reached by the specified date determined during project development. In some instances, contract negotiations caused project delays. In FY 2003, NSF will continue to work with awardees to identify obstacles to successful performance and implement plans to avoid or mitigate their consequences in the future. NSF is also modifying goal statements to more accurately address these measures.	
Construction and Upgrade of Facilities: Cost	Keep total cost within 110 percent of estimates made at the initiation of construction for all projects initiated after 1996.	
Operations and Management of Facilities	Keep operating time lost due to unscheduled downtime to less than 10 percent of the total scheduled operating time for 90 percent of facilities. Result: Of the 31 reporting facilities, 26 (84 percent) met the goal of keeping unscheduled downtime to below 10 percent of the total scheduled operating time. Some causes of failure were outside the control of the facility, such as unfavorable weather or interruption of the electric power supply. Other causes of failure were related to technical problems such as sub-par performance of new instrumentation early in its commissioning stage. In FY 2003, NSF will continue to work with awardees to identify obstacles to successful performance and develop plans to avoid or mitigate their consequences in the future. NSF is also modifying goal statements to more accurately address these measures.	

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MANAGEMENT GOALS

Performance Area	Performance Goal	Result
BUSINESS PRACTICES		
Electronic Business	Continue to advance the role of "E-business" in review, award, and management processes, by doubling the FY 2001 number of paperless projects that manage the competitive review process in an electronic environment.	●
Security Program	Implement an agency-wide security program in response to the Government Information Security Reform Act.	●
HUMAN RESOURCES AND WORKPLACE		
Staff Diversity	Increase the total number of hires to NSF science and engineering positions from underrepresented groups.	●
Workforce Training	Establish an internal NSF Academy to promote continuous learning for NSF staff.	●
Business Analysis	Initiate a strategic business analysis to provide a comprehensive perspective on its future workforce requirements.	●
Work Environment	Establish various baselines to enable management to better assess the quality of work life and environment by developing an employee survey.	●

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