OTHER INFORMATION

Management Reviews
Each quarter, NSF senior leadership reviews progress towards all performance goals of the agency in a data-driven review meeting led by the Chief Operating Officer and Performance Improvement Officer. The quarterly progress of the Agency Priority Goals (APGs) and performance goals are reviewed.

Alignment of Human Capital Efforts with Organizational Performance
In order to drive individual and organizational performance, NSF requires that the performance plans of all employees, executives, and the general workforce contain individual goals aligned with the agency's mission and strategic goals. NSF provides training and makes tools and templates available for all supervisors and employees on linking performance plans to agency mission, as well as providing assistance and training on the policies, processes, requirements, and timeframes for the development of performance plans and appraisals.

NSF also directly aligns its strategic human capital and accountability efforts to the agency goals identified in the NSF Strategic Plan. Agency performance goals currently outline specific human capital goals, and NSF uses HRStat as the agency reporting mechanism to articulate the nexus between NSF's strategic goals/objectives, including agency performance goals, and human capital initiatives at the agency. Senior leaders are briefed quarterly regarding the status of agency performance goals and the human capital initiatives aligned to those goals.

Strategies and Collaborations
No one standard strategy is used across NSF for achievement of goals. Goal leaders at NSF choose strategies tailored to their stakeholders' needs and their institutional capabilities. NSF goals often involve testing the impacts of new activities or new approaches to existing activities, so feedback mechanisms are built in. Use of analysis, evidence, and evaluation findings is also at the discretion of each individual goal leader, as is the decision to collaborate with other agencies or external entities or to invest in contract support for their activities. Performance at NSF is reviewed quarterly by NSF's Performance Improvement Officer, who reports on goal progress to NSF senior management.

Advisory Committees and Committees of Visitors
Each directorate and office has an external advisory committee that typically meets twice a year to review and provide advice on program management, discuss current issues, and review and provide advice on the impact of policies, programs, and activities in the disciplines and fields encompassed by the directorate or office. In addition to directorate and office advisory committees, NSF has several committees that provide advice and recommendation on specific topics: astronomy and astrophysics; environmental research and education; equal opportunities in science and engineering; direction, development, and enhancements of innovations; polar programs; advanced cyberinfrastructure; international and integrative activities; the agency's merit review processes; and business and operations.

Committees of Visitors (COVs) are subcommittees of NSF directorate advisory committees. COV reviews provide NSF with external expert judgments in two areas: (1) assessments of the quality and integrity of program operations and program-level technical and managerial matters pertaining to proposal decisions; and (2) comments on how the outputs and outcomes generated by awardees have contributed to the attainment of NSF's mission and strategic outcome goals. COV reviews are conducted at regular intervals of approximately three years for programs and offices that recommend or award grants, cooperative agreements, and/or contracts and whose main focus is the conduct or support of NSF research and education in science and engineering. Approximately one-third of NSF's divisions are assessed each year.

A COV typically consists of up to 20 external experts, selected to ensure independence, programmatic coverage, and geographic balance. COV members come from academia, industry, government, and the public sector. They meet for two or three days to review and assess program priorities, program management, and award accomplishments or outcomes. Each COV prepares a report and the division or program that is being reviewed must prepare a response to the COV recommendations. These reports and responses are submitted to the parent advisory committee and to the Director of NSF. All reports and responses are public and posted on NSF's website.[2]

In FY 2016, six directorates and offices convened nine COVs, covering all or part of nine divisions and one cross-cutting program. A list of the COVs performed is provided on the next page. The chapters of the directorates also contain information on these COVs, as well as information on *ad hoc* reports.

Evaluations and Research
Evaluations at NSF are currently performed at the discretion of the individual directorate, office, or program being evaluated. For discussion of how NSF uses planned, current, and recently completed evaluations in its program decisions, refer to individual directorate and office chapters. A list of the evaluations completed in FY 2016 follows. For more details about how the results of these specific evaluations are being used to shape agency decisions, see the chapter of the sponsoring directorate. Directorate chapters also contain a list of selected high-impact events (workshops, symposia, or other meetings resulting in publications) that inform their decision-making. For more information about program evaluation and collection and management of NSF programmatic data, see the Office of Integrative Activities chapter's section on NSF's Evaluation and Assessment Capability.

External Evaluations Completed in FY 2016

DIR	Program, Topic, or Area Evaluated	Name of Evaluation	Evaluator	Link to report
CISE	CEMMS and SaTC	Feasibility Evaluations	Science and Technology Policy Institute	Not available
CISE	Advanced computing infrastructure	Future Directions for NSF Advanced Computing Infrastructure to Support U.S. Science in 2017-2020	National Academies	www.nap.edu/catalog /21886
MPS	Astronomy	Review of Progress Toward the Decadal Survey Vision in New Worlds, New Horizons in Astronomy and Astrophysics	National Academies	www.nap.edu/catalog/ 23560

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[2] www.nsf.gov/od/oia/activities/cov/covs.jsp

List of Committees of Visitors Meetings, FY 2014-FY 2017

DIR	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018 (planned)
BIO	Molecular and Cellular Biosciences Integrative Organismal Systems Emerging Frontiers	Environmental Biology	Biological Infrastructure	-	Molecular and Cellular Biosciences Integrative Organismal Systems
CISE	-	Computing and Communication Foundations Computer and Network Systems Information and Intelligent Systems	-	-	Advanced Cyberinfrastructure
EHR	Human Resource Development: ADVANCE	Research on Learning in Formal and Informal Settings Graduate Education: GK-12/IGERT/SfS Undergraduate Education: ATE Undergraduate Education: Noyce/S-STEM	-	Human Resource Development EHR Core Research Undergraduate Education: TUES, STEP, WIDER, IUSE: EHR	Graduate Education Undergraduate Education: ATE, IUSE: EHR, S-STEM, Noyce
ENG	Electrical, Communications and Cyber Systems Emerging Frontiers in Research and Innovation	Chemical, Bioengineering, Environmental and Transport Systems Civil, Mechanical and Manufacturing Innovations	Engineering, Education and Centers Industrial Innovation and Partnerships	-	Electrical, Communications and Cyber Systems Emerging Frontiers and Multidisciplinary Activities

Other Information

DIR	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018 (planned)
GEO (including OPP)	Atmospheric and Geospace Sciences: Geospace Section Earth Sciences Ocean Sciences: Integrative Programs Section	Atmospheric & Geospace Sciences: NCAR and Facilities Section Ocean Sciences: Research and Education	Atmospheric and Geospace Sciences: Atmosphere Section Polar Programs: Antarctic Sciences and Arctic Sciences Sections	Atmospheric and Geospace Sciences: programs TBD Earth Sciences: programs TBD	Atmospheric and Geospace Sciences: programs TBD Ocean Sciences: programs TBD
MPS	-	Astronomy Materials Research Physics	Chemistry Mathematical Sciences	-	Physics
SBE	-	Office of Multidisciplinary Activities Behavioral and Cognitive Sciences	Social and Economic Sciences	-	-
OIA and OISE	International Science and Engineering	Experimental Program to Stimulate Competitive Research (EPSCoR)	Major Research Infrastructure	-	International Science and Engineering

Data Verification and Validation

It is NSF's practice to follow Government Accountability Office (GAO) guidance and engage external contractors to conduct an independent validation and verification (V&V) review of its annual performance information, data, and processes. The guidance from GAO indicates that agencies should "…describe the means the agency will use to verify its performance data…" and "…provide confidence that [their] performance information will be credible."[3] NSF will continue this process in FY 2017 and FY 2018.

In FY 2016, IBM Global Business Services (IBM) assessed the validity of NSF data and verified the reliability of the methods used to collect, process, maintain, and report that data, and reviewed NSF's information systems based on GAO standards for application controls. IBM's FY 2016 report concluded:

> Based on the Fiscal Year (FY) 2016 Full Year Verification and Validation (V&V) review, IBM was able to fully verify the reliability of the processes and validate the accuracy of results reported for eight of NSF's nine annual performance goals. NSF was not able to complete the remaining goal in FY 2016 because the survey instrument was not available; IBM confirms that NSF did not achieve the goal.

> Overall, IBM verifies that NSF relies on sound business practices, internal controls, and manual checks of system queries to ensure accurate performance reporting. NSF maintains adequate documentation of its processes and data to allow for an effective V&V review. Based on the V&V assessment, IBM has confidence in the systems, policies, and procedures used by NSF to calculate results for its performance measures that contained targets. NSF continues to take concerted steps to improve the quality of its systems and data. IBM confirms NSF's commitment to ensuring the accuracy of its reported GPRA results, and the reliability of its processes for collecting, processing, maintaining, and reporting data for its performance goals.[4]

The data and information required to measure progress towards NSF's performance goals fall into three broad categories.

1. NSF automated administrative systems. Performance monitoring can be a valuable secondary function of such systems. Reporting can include data from systems that:
   - Store and approve publications such as solicitations announcements, and Dear Colleague Letters;
   - Collect transactional data about proposal and award management;
   - Perform financial transactions;
   - Store human resources data; or
   - Permit keyword search of abstract or full texts of proposals and awards.

   The data were used either directly or for achieving milestones that involve the writing of a report. While not all goals require a high level of accuracy, data from these systems are highly reliable.

2. Reports on internal activities. Milestone achievement is often determined from review of records of certain activities and events. Records of this sort tend to be compiled from review of the evidence provided by goal leaders.

3. Data requests of external parties. Qualitative or quantitative information is solicited directly from awardees.

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[3] GAO, The Results Act: An Evaluator's Guide to Assessing Agency Annual Performance Plans, GAO/GGD-10.1.20 (Washington, D.C.: April 1998), pp. 40-41.

[4] IBM Global Business Services, *National Science Foundation Performance Measurement Verification and Validation Report, Fiscal Year 2016 Full Year Report*. October 21, 2016.

Lower-Priority Program Activities
The President's Budget identifies the lower-priority program activities, where applicable, as required under the GPRA Modernization Act (31 U.S.C. 1115(b)(10)). The public can access the volume at www.whitehouse.gov/omb/budget.

Use of Non-Federal Parties
No non-federal parties were involved in preparation of this Annual Performance Report.

Classified Appendices Not Available to the Public
None