FY 2021 ANNUAL PERFORMANCE REPORT

About this Report

For FY 2021, NSF issues three reports to provide financial management and program performance information to demonstrate accountability to our stakeholders and the American public. These reports are produced in accordance with the Office of Management and Budget (OMB) Circular A-136, *Financial Reporting Requirements,* and meet the requirements of the Chief Financial Officers Act, as amended by the Government Management Reform Act of 1994, the Federal Managers' Financial Integrity Act of 1982, the Reports Consolidation Act of 2000, and the Government Performance and Results Act Modernization Act of 2010.

- This report, the ***Annual Performance Report*** (APR), provides information on the progress NSF has made toward achieving its goals and objectives as described in the agency's strategic plan and Annual Performance Plan, including the strategic objectives, performance goals, and Agency Priority Goals. Most years, this report is published with the agency's Budget Request to Congress.
- In November 2021, NSF published the ***Agency Financial Report*** (AFR), which focuses on financial Report management and accountability.
- The third report is NSF's ***Performance and Financial Highlights*** report, which summarizes key financial and performance information from the *AFR* and *APR*.

All three reports are made available on NSF's website as they are completed at:
https://www.nsf.gov/about/performance/annual.jsp

We welcome your suggestions on how we can make these reports more informative. You can reach us at: accountability@nsf.gov or call (703) 292-8200.

FY 2021 Performance Framework

In FY 2018, NSF released its Strategic Plan for FYs 2018-2022: Building the Future: Investing in Discovery and Innovation. This Plan lays out two strategic goals that embody the dual nature of NSF's mission to advance the progress of science while benefitting the Nation: Expand knowledge in science, engineering, and learning and advance the capability of the Nation to meet current and future challenges. A third goal, Enhance NSF's performance of its mission, directs NSF to hold itself accountable for achieving excellence in carrying out its mission. Each goal has two Strategic Objectives which together encompass all areas of agency activity. This goal structure (below) enables NSF to link its investments to longer-term outcomes.

NSF Strategic Goals and Objectives: FY 2018 to FY 2022

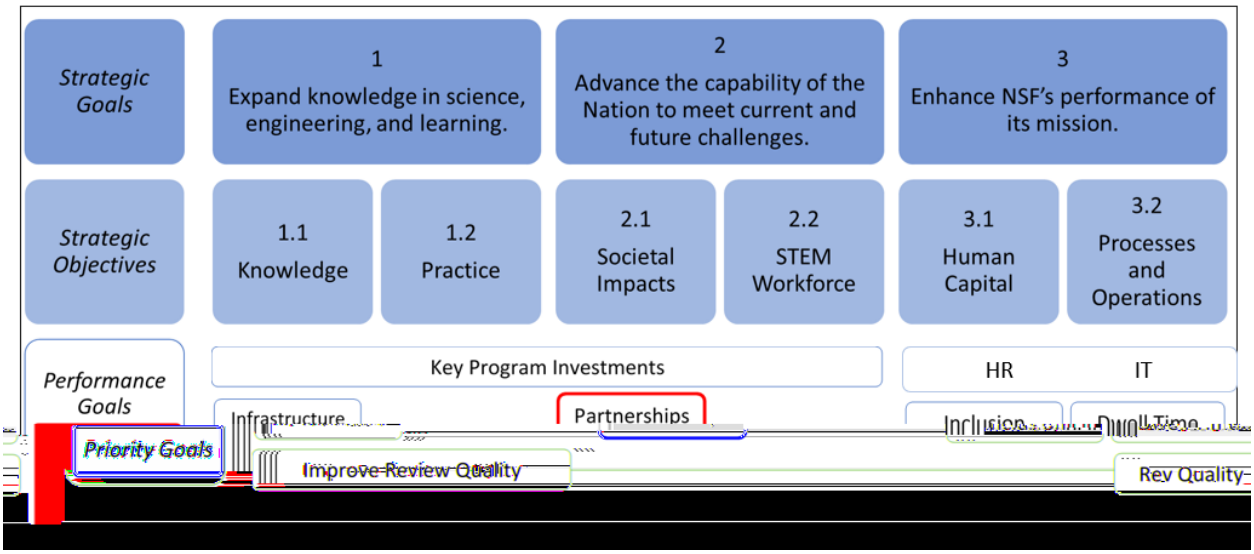
1. Expand knowledge in science, engineering, and learning.	**1.1 Knowledge:** Advance knowledge through investments in ideas, people, and infrastructure.
	1.2 Practice: Advance the practice of research.
2. Advance the capability of the Nation to meet current and future challenges.	**2.1 Societal Impacts:** Support research and promote partnerships to accelerate innovation and to provide new capabilities to meet pressing societal needs.
	2.2 STEM Workforce: Foster the growth of a more capable and diverse research workforce and advance the scientific and innovation skills of the Nation.
3. Enhance NSF's performance of its mission.	**3.1 Human Capital:** Attract, retain, and empower a talented and diverse workforce.
	3.2 Processes and Operations: Continually improve agency operations.

FY 2021 Performance and Results

In this FY 2021 APR, results for each performance goal are presented in strategic context, with reference to strategic goals, objectives, and targets from NSF's 2018-2022 Strategic Plan, as shown below. In FY 2021, NSF tracked progress toward its three strategic goals using eight performance goals, one of which was a 2-year Agency Priority Goal in its second and final year of activity.

Overall, seven of the eight goals achieved all or some of their targets. As is detailed below, NSF partially achieved two goals.

- For the major facilities and infrastructure goal (Goal 3), one of two targets was achieved: the target for mid-scale investments was achieved, but for major construction projects, three of five projects experienced schedule delays (largely due to pandemic-related factors).
- For the IT systems goal (Goal 8), of its three targets, the one for streamlining externally facing merit review systems was not achieved. This area was affected by key decisions to reprioritize IT investments to focus on external customer experience enhancements, such as developing a demonstration and training environment for the research community, and to improve the collection of data needed to inform strategies for improving equity and inclusion among principal investigators.
- The goal for timely award decisions (Goal 4) was also not achieved due in part to the need to focus the NSF response to the pandemic among existing awardees and the activities required to plan, allocate, and distribute the relief funding made available through the American Rescue Plan. Consistent with previous years, when unique events such as the agency's FY 2017 relocation disrupted normal operations, agency leadership determined that meeting this goal should be considered secondary to meeting more mission-critical responsibilities in the wake of the pandemic.



FY 2021 PERFORMANCE GOAL	RESULT
1. Agency Priority Goal: Developing an Agency-Wide Partnerships Strategy. (Partnerships)	Achieved
2. Ensure that key NSF-wide program investments are implemented and on track. (Key Program Investments)	Achieved
3. Ensure program integrity and responsible stewardship of major research facilities and infrastructure. (Infrastructure)	Partially Achieved
4. Divisions and Offices will make timely proposal decisions. (Dwell Time)	Not Achieved
5. Improve the quality of written reviews of NSF proposals. (Improve Review Quality)	Achieved
6. Foster a culture of inclusion through change management efforts resulting in change leadership and accountability. (Inclusion)	Achieved
7. Ensure that employee job requirements are aligned with competencies and skills needed for the future. (HR)	Achieved
8. Streamline and simplify user interactions with IT systems and functions that support the merit review process, reducing non-value-added steps and reducing the time spent managing the proposal and award lifecycle. (IT)	Partially Achieved

Goal 1, Agency Priority Goal (APG): Strategic Engagement in Partnerships

Lead Organizations: Directorate for Computer and Information Science and Engineering, Directorate for Education and Human Resources, Directorate for Geosciences.

Goal Statement

Strategically engage in public and private partnerships to enhance the impact of NSF's investments and contribute to American economic competitiveness and security.

Measure, Milestone, or Deliverable

Reporting Year		
FY	**Target Summary**	**Result**
2020-2021	To benefit the U.S. scientific and engineering research and education enterprise, by September 30, 2021, NSF will develop and pursue an agency-wide partnerships strategy, components of which will include targeted outreach, implementation of process improvements, and improvement of internal and external communications.	Achieved. Established and accomplished 14 milestones in the development of NSF's agency-wide partnership strategy.
Previous Years		
FY	**Target Summary**	**Result**
2018-2019	Expand public and private partnerships to enhance the impact of NSF's investments and contribute to American economic competitiveness and security. By September 30, 2019, NSF's number of partnerships and award actions with other federal agencies, private industry, and foundations/philanthropies will grow by five percent, relative to the FY 2017 baseline, to make available infrastructure, expertise, and financial resources to the US scientific and engineering research and education enterprise.	Achieved. FY 2017 baseline = 57 partnerships 70 partnerships in FY 2019, an increase of 23 percent over FY 2017 baseline.

Strategic Alignment

Strategic Goal 2: Advance the capability of the Nation to meet current and future challenges. Objective 2.1, Societal Impacts: Support research and promote partnerships to accelerate innovation and to provide new capabilities to meet pressing societal needs.

About This Goal

This goal incorporates principles from Renewing NSF, the agency operational reform plan initiated in FY 2017 in response to OMB Memorandum M-17-22, "Comprehensive Plan for Reforming the Federal Government."[1]

Private industry, foundations, and non-profits, together with other federal agencies and international

[1] OMB Memorandum M-17-22 www.whitehouse.gov/sites/whitehouse.gov/files/omb/memoranda/2017/M-17-22.pdf

funding organizations, bring additional expertise, resources, and capacity to NSF-funded research. NSF is a sought-after partner, and the range of partnership opportunities present different needs, goals, and priorities. Developing partnerships requires significant time and intellectual capital, as well as strategic foresight.

Assessing and prioritizing partnership opportunities often happens at the directorate or office level. Efficiencies could be better realized through greater harmonization across the agency. Consequently, pursuing partnership opportunities in a strategic and coordinated manner will allow NSF to accelerate discovery and translation of research to products and services, and enhances preparation of the future workforce to benefit society and grow the American economy.
Developing a consistent agency-wide partnerships strategy and improving internal processes will result in partnerships that will allow NSF to maximize the scientific, economic, and societal impacts of its investments.

Discussion of FY 2021 Results
Over FY 2020 and FY 2021, this APG established and accomplished 14 milestones in the development of NSF's agency-wide partnership strategy. This effort focused agency-wide attention on identifying the intellectual foundations of partnerships, standardizing, and streamlining the business processes for partnership activities, and creating tools for agency-wide communications.[2]

[2] For more information, see:
https://trumpadministration.archives.performance.gov/NSF/APG_nsf_1.html

Goal 2, Ensure that Key Program Investments are on Track

Lead Organization: Office of Budget, Finance, and Award Management.

Goal Statement

Ensure that key NSF-wide program investments are implemented and on track.

Measure, Milestone, or Deliverable

Reporting Year		
FY	**Target Summary**	**Result**
2021	NSF will obligate 100 percent of designated funding targets for all identified NSF-wide priority investments.	Achieved
Previous Years		
FY	**Target Summary**	**Result**
2020	NSF will obligate 100 percent of designated funding targets for all identified NSF-wide priority investments.	Achieved
2019	1. Monitor the progress of the following NSF-wide investments using a common set of milestones and indicators: Big Ideas. 2. Review the results with senior leaders quarterly in data-driven performance reviews.	Achieved
2018	1. Monitor the progress of the following NSF-wide investments using a common set of milestones and indicators: NSF INCLUDES, INFEWS, Risk and Resilience, and UtB. 2. Review the results with senior leaders quarterly in data-driven performance reviews.	Achieved
2017	1. Monitor the progress of the following NSF-wide investments using a common set of milestones and indicators: NSF INCLUDES, INFEWS, Risk and Resilience, and UtB. 2. Review the results with senior leaders quarterly in data-driven performance reviews.	Achieved
2016	Monitor the progress of the following NSF-wide investments using a common set of milestones and indicators: NSF INCLUDES, INFEWS, and UtB.	Achieved
2015	Monitor the progress of Cognitive Science and Neuroscience, CEMMSS, CIF21, SaTC, and SEES using a common set of milestones and indicators.	Achieved

Strategic Alignment

- Strategic Goal 1: Expand knowledge in science, engineering, and learning (all Objectives)
- Strategic Goal 2: Advance the capability of the Nation to meet current and future challenges (all Objectives)

About This Goal

NSF instituted the Key Program Investments goal in FY 2014 to track the interim progress of major investments towards their long-term goals. Each year, NSF highlights several cross-agency investments in its Budget Request to Congress. Most are described in the NSF-Wide Investments chapter of the Budget Request. Although the overall impact of these investments might not be measurable for many years, tracking near-term indicators of progress can help the agency make formative changes or course corrections.

NSF selects a subset of these investments for closer quarterly tracking by agency leadership, based on internal assessments of the value that tracking is likely to add. For example, new programs, programs with recent changes, or high-profile programs may benefit from the attention of leadership, and programs that are stably operating or sunsetting have reduced need for monitoring.

Discussion of FY 2021 Results

Beginning in FY 2020, and on the recommendation of NSF's independent verification and validation team, the unit of measurement was adjusted to simplify quarterly tracking and the determination of achievement (from a qualitative approach, where the unit of analysis was a program, to a quantitative approach that tracks spending against a target). The goal now tracks the extent to which funding is obligated in accordance with the annual operating plan, and the percentages, by program, are reported to leadership each quarter.

In FY 2021, the targets for this goal focused on 1) continued monitoring of the NSF-wide priorities known as the Big Ideas and 2) funding provided through the American Rescue Plan, in keeping with the Administration's commitment to the effective implementation and stewardship of ARP funds, as outlined in M-20-21, issued by OMB on March 19, 2021. Internally, tracking of ARP began in FY 2021, but the 100 percent funding target will not be applied until FY 2022 since these funds have a 2-year period of availability for obligation. For the Big Ideas, total obligations for the year exceeded the target by 4 percent; funding above the target was obligated in three areas: Convergence Accelerator, Navigating the New Artic, and Quantum Information Science.

Goal Change History

The intended purpose of tracking these key investments is to ensure that these projects meet internal milestones and issue funding adequate to achieve the desired advances in science and engineering. NSF's independent verification and validation team has pointed out weaknesses in the measurability, and therefore utility, of this goal. The measurement method was established in FY 2014 to accommodate programs with different structures, which were not all tracked the same way within NSF's systems—a common issue at that time. Starting in FY 2019 NSF has monitored the Big Ideas as the "key NSF-wide program investments" of this goal, and since the Big Ideas are defined and tracked similarly, NSF is changing from a qualitative approach (where the unit of analysis is a program) to a quantitative approach (unit of analysis is the percentage of funds obligated relative to a target). This change makes the goal more quantifiable and meaningful.

By design, this goal's monitored programs change annually to match the funding priorities of the year. In addition to the annual change in the list of monitored programs, described in the narrative and the table below, the Goal Statements have changed slightly each year for this goal, as follows:

- FY 2020/FY 2021: Ensure that key NSF-wide program investments are implemented and on track.
- FY 2019: Ensure that key FY 2019 NSF-wide program investments are implemented and on track.
- FY 2018: Ensure that key FY 2018 NSF-wide program investments are implemented and on track.
- FY 2017: Ensure that key FY 2017 NSF-wide program investments are implemented and on track.
- FY 2016: Ensure that key FY 2016 NSF-wide program investments are implemented and on track.
- FY 2015: Meet critical targets for key program investments.

FY	CEMMS	SaTC	CIF21	SEES	UtB	INFEWS	NSF INCLUDES	Risk and Resilience
2015	√	√	√	√	√			
2016					√	√	√	
2017			sunset	sunset	√	√	√	√
2018	sunset				√	√	√	√

CEMMS: Cyber-enabled Materials, Manufacturing, and Smart Systems

SaTC: Secure and Trustworthy Cyberspace

CIF21: Cyberinfrastructure Framework for 21st Century Science and Engineering

SEES: Science, Engineering, and Education for Sustainability

UtB: Understanding the Brain

INFEWS: Innovations at the Nexus of Food, Energy and Water Systems

NSF INCLUDES: Inclusion across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science

Goal 3, Ensure that Infrastructure Investments are on Track

Lead Organization: Large Facilities Office, Office of Budget, Finance, and Award Management.

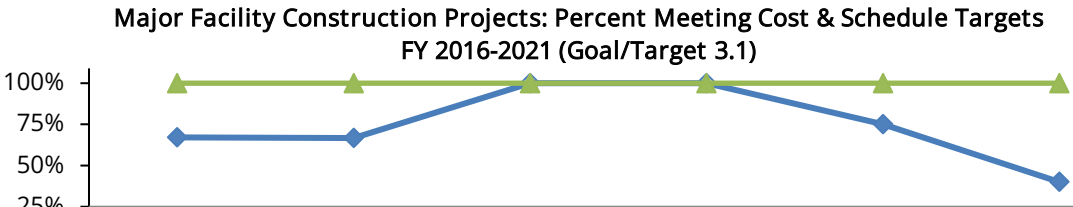
Goal Statement

Ensure program integrity and responsible stewardship of major research facilities and infrastructure.

Measure, Milestone, or Deliverable

Reporting Year		
FY	**Target**	**Result**
2021	1. Keep negative cost and schedule variance at or below 10 percent for 100 percent of Major Facilities in the Construction Stage that are over 10 percent complete. 2. Track cost and schedule performance for Mid-scale Research Infrastructure in the Construction Stage with a Total Project Cost above $20.0 million that are over 10 percent complete and using Earned Value Management (EVM) principles.	Not Achieved. 3 of 5 projects were behind schedule as of 9/30/2021. Achieved. Of the 5 ongoing projects, 3 are above the reporting threshold and all 3 are reporting cost/schedule data using EVM principles.

Measure Information for All Years



	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Result	67%	67%	100%	100%	75%	40%
Target	100%	100%	100%	100%	100%	100%

Strategic Alignment

Strategic Goal 1: Expand knowledge in science, engineering, and learning. Objective 1.1, Knowledge: Advance knowledge through investments in ideas, people, and infrastructure.

About This Goal

The Major Research Equipment and Facilities Construction (MREFC) account supports the acquisition, construction, and commissioning of major research facilities and equipment that provide unique capabilities at the frontiers of science and engineering. Performance of major facility construction projects funded by the MREFC account is monitored using the Earned Value Management System (EVMS). EVMS is an integrated management control system for assessing, understanding, and quantifying what a contractor or field activity is achieving with program dollars. Monitoring cost and schedule is a standard measure of performance for construction projects.

A second element for this goal was added in FY 2020 to track mid-scale research infrastructure projects and monitor whether these projects are tracking cost and schedule performance using EVM principles.

For both targets, projects that are under 10 percent complete are not considered eligible because EVM data is less meaningful statistically in the very early stages of a project.

Discussion of FY 2021 Results and Explanation of Unmet Goal

For the tracking of major facility construction projects (Target 3.1), five projects[3] were tracked in FY 2021: the Vera C. Rubin Observatory (Rubin), Regional Class Research Vessels (RCRV), Antarctic Infrastructure and Modernization for Science (AIMS), Compact Muon Solenoid (CMS), and A Toroidal LHC Apparatus (ATLAS).[4] As of September 30, all five reported being on-track for cost performance, and two (ATLAS and Rubin) reported also being on-track for schedule performance. Three projects reported not being on-track for schedule performance (RCRV, AIMS, and CMS), largely due to pandemic-related delays, and expect to see improved performance in FY 2022 and future years. (For additional information, please see the MREFC chapter.)

For the tracking of mid-scale infrastructure projects (Target 3.2), five projects over $20 million and using EVM were underway in FY 2021; three were more than 10 percent complete and therefore constitute the FY 2021 portfolio for this target: the Ice Cube Neutrino Observatory Upgrade (ICNO-U), the Laser Interferometer Gravitational-Wave Observatory A+ Upgrade (LIGO A+), and the High Magnetic Field Beamline (HMF). All three projects reported cost and schedule performance using EVM principles.

[3] The sixth project in this portfolio, the Daniel K. Inouye Solar Telescope (DKIST), was near completion in FY21 and was no longer reporting EVM metrics. NSF tracked final progress against milestones. DKIST completion was in first quarter FY22.

[4] CMS and Atlas are two projects with separate awards within the Large Hadron Collider High Luminosity Upgrade program. The EVM metrics are tracked separately for each project within this program.

Goal 4, Make Timely Proposal Decisions

Lead Organization: Office of Integrative Activities.

Goal Statement

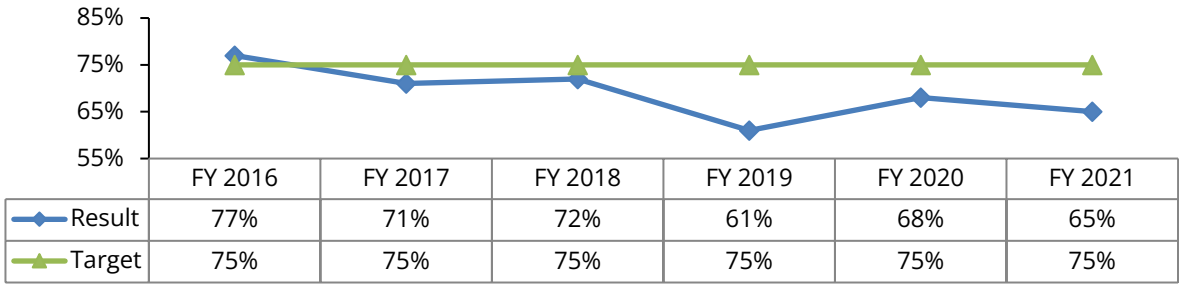
Inform applicants whether their proposals have been declined or recommended for funding within 182 days, or six months, of deadline, target, or receipt date, whichever is later.

Measure, Milestone, or Deliverable

Reporting Year		
FY	**Target**	**Result**
2021	75 percent.	Not Achieved. Result = 65 percent.

Measure Information for All Years

Time to Decision Performance Trend, FY 2016-2021



	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Result	77%	71%	72%	61%	68%	65%
Target	75%	75%	75%	75%	75%	75%

Strategic Alignment

Strategic Goal 3, Enhance NSF's performance of its mission. Objective 3.2, Processes and Operations: Continually improve agency operations.

About This Goal

Time to decision or "dwell time" is the amount of time that passes between receipt of a proposal and notification to the principal investigator (PI) about the funding decision. At the time of this goal's establishment in the early 2000s, one of the most significant issues raised in customer satisfaction surveys was the time it took NSF to process proposals, with only around 50 percent of proposals receiving responses within 6 months of submission or deadline. Too long a time inhibits the progress of research as it delays the funding process, but too short a time may inhibit review quality. The 75 percent target seeks to strike a balance between the need of the PI for timely action and the need of NSF for a credible and efficient merit review system. Since this goal was introduced, NSF's response times have improved, with over 70 percent of proposals receiving responses in under 6 months for much of the past two decades. Years in which the target was missed were affected by significant external factors.[5] More recent surveys have shown that this is now the second most common concern mentioned by PIs (see Goal 5, Improve Review Quality, for more recent survey results).

[5] As discussed below, the agency's response to the COVID-19 pandemic has affected the timeliness of proposal decisions. In FY 2019, this goal was affected by a 35-day lapse in appropriations that shut down most of NSF's operations.

Discussion of FY 2021 Results and Explanation of Unmet Goal

The major factors that led to NSF missing this goal in FY 2021 included the need to focus the NSF response to the pandemic among existing awardees and the activities required to plan, allocate, and distribute the relief funding made available through the American Rescue Plan. Consistent with previous years, when unique events such as the agency's FY 2017 relocation disrupted normal operations, agency leadership determined that meeting this goal should be considered secondary to meeting more mission-critical responsibilities in the wake of the pandemic.

Goal 5, Improve Review Quality

Lead Organization: Office of Integrative Activities, Office of the Director.

Goal Statement

Improve the quality of written reviews of NSF proposals.

Measure, Milestone, or Deliverable

Reporting Year		
FY	**Target**	**Result**
2021	In FY 2021, assess the feasibility of and develop the strategy and plan for measuring and piloting activities to improve the quality of written reviews.	Achieved. 5 of 5 milestones met.
Previous Years		
FY	**Target**	**Result**
2020	By September 30, 2020, 1. 140 NSF programs will have had reviewers view the presentation "Tips on how to write better reviews." 2. 10,000 reviewers of NSF proposals will have viewed "Tips on how to write better reviews" prior to preparing written reviews.	1. Achieved. Result = 313 programs. 2. Achieved. Result = 14,434 reviewers.
2019	By September 30, 2019, 1. 60 NSF programs will have had reviewers view the presentation "Tips on how to write better reviews." 2. 8,000 reviewers of NSF proposals will have viewed "Tips on how to write better reviews" prior to preparing written reviews. 3. Improve the perceptions reported by survey respondents in a repeat survey of proposers and reviewers. a. Increase the percentage of PI survey respondents who agree that written reviews are thorough from a baseline of 55 percent (2015) to 57 percent in FY 2019. b. Increase the percentage of PI survey respondents who agree that written reviews are technically sound from a baseline of 63 percent (2015) to 65 percent in FY 2019.	Achieved. Achieved. Achieved.
2018	By September 30, 2018, 1. 50 NSF programs will have held orientation sessions that include "Tips on how to write better reviews." 2. 5000 reviewers of NSF proposals will have viewed "Tips on how to write better reviews" prior to preparing written reviews.	Achieved. Not achieved.

Strategic Alignment

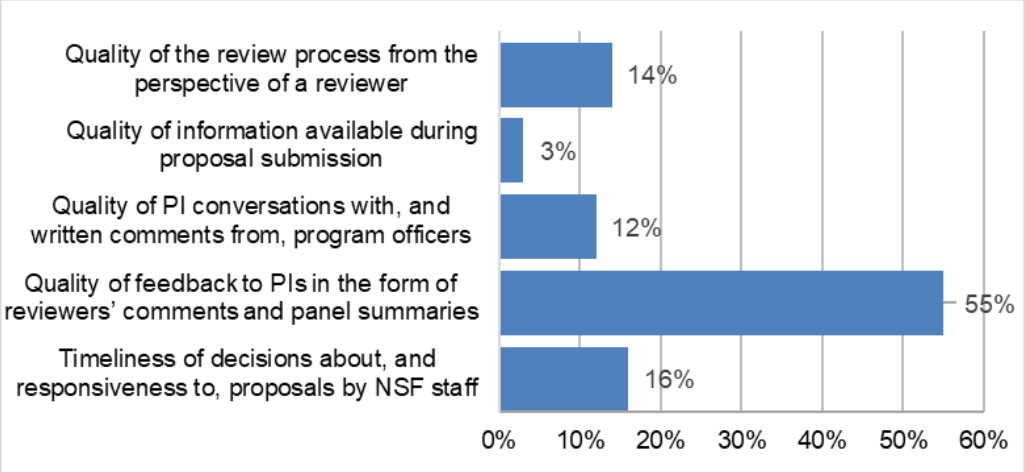
- Strategic Goal 1: Expand knowledge in science, engineering, and learning (all Objectives)
- Strategic Goal 3: Enhance NSF's performance of its mission. Objective 3.2, Processes and Operations: Continually improve agency operations.

About This Goal

This goal addresses and incorporates feedback NSF has received about its customer service. Committees of Visitors, program officers, and principal investigators (PIs) frequently note that the quality of individual written reviews is variable. In 2015, NSF conducted a survey of researchers who were submitting and/or reviewing proposals. Survey respondents identified the quality of reviews as the factor that would have the most significant effect on improving their proposals and fostering science (see chart below, n=22,174 respondents). A strategic review in the spring of 2015 recommended that NSF apply what was learned from the PI and reviewer survey to inform a new performance goal aimed at improving customer service. This goal was designed in response to that recommendation.

This goal highlights steps NSF has taken to improve the quality of written reviews. In previous years, it has focused on the implementation of a pilot program, initiated in December 2016, to improve the quality of written reviews of NSF proposals. That pilot encouraged NSF programs to use the video presentation "Tips on how to write better reviews" early in the review process to orient reviewers and provide information on how to write more effective reviews. In FY 2021, activities associated with this goal focused on assessing and piloting a range of activities to improve the quality of written reviews, such as automated scoring of review quality. This work will inform the development of a new target in future years, ensuring that the new target is aligned with the agency's new strategic plan.

Percentage of respondents identifying each item as the most significant improvement that could be made in the merit review process.[6]



Discussion of FY 2021 Results

The FY 2021 target for this goal encompassed five milestones that broke down into three sub-initiatives: management and governance of the proposal review process (Milestone 1), piloting a new panel review system (Milestones 2 & 3), and implementing improvements to an experimental automated process to assess review quality (Milestones 4 & 5). All five milestones were achieved during FY 2021.

[6] FY 2015 Merit Review Report, p.126. www.nsf.gov/nsb/publications/2016/nsb201641.pdf

Goal 6, Foster a Culture of Inclusion

Lead Organization: Office of Equity and Civil Rights (OECR), Office of the Director.[7]

Goal Statement

Foster a culture of inclusion through change management efforts resulting in change leadership and accountability.

Measure, Milestone, or Deliverable

Reporting Year		
FY	**Target**	**Result**
2021	All NSF leaders will participate in culture change activities.	Achieved. Result = 100 percent.
Reporting Year		
FY	**Target**	**Result**
2020/ 2021	All NSF leaders will participate in culture change activities.	Not Achieved. Result = 96.2 percent.
2019	In FY 2019, 100 percent of NSF leaders will participate in culture change activities.	Not Achieved
2018	By September 30, 2018, the Office of Diversity and Inclusion (ODI) will conduct the New Inclusion Quotient (New IQ) process with four organizational units. Improve the four NSF organizational units' New IQ Self-Survey Scores by five percent above established baseline.	Achieved. Achieved.
2017	By September 30, 2017, ODI will conduct the New IQ process with three additional organizational units. Improve the three NSF organizational units' New IQ Self-Survey Scores by seven percent above established baseline.	No targets achieved.
2016	By September 30, 2016, ODI will conduct the New IQ process with two NSF organizational units. Improve the two NSF organizational units' New IQ Self-Survey Scores by five percent above established baseline.	No targets achieved
2015	Attain six of six essential elements of a model Equal Employment Opportunity (EEO) agency and perform two compliance desk reviews under antidiscrimination laws.	Not Achieved

[7] During FY 2021, the ODI changed its name to the Office of Equity and Civil Rights; this change does not signify a change in goal ownership.

Strategic Alignment

Strategic Goal 3, Enhance NSF's performance of its mission. Objective 3.1, Human Capital: Attract, retain, and empower a talented and diverse workforce.

About This Goal

This goal incorporates principles from Renewing NSF, the agency operational reform plan initiated in FY 2017 in response to OMB Memorandum M-17-22, "Comprehensive Plan for Reforming the Federal Government."

Fostering inclusive work environments and realizing the full potential of the workforce's diversity requires agencies to employ effective management practices. NSF values diversity and inclusion: by engaging the talent of all our workforce, individuals are empowered to realize their full potential; by ensuring that our workforce is diverse, our collective ability to deliver on our scientific mission is enhanced. NSF looks for ways to intensify and innovate diversity efforts through active leadership and including and engaging everyone in the workplace. This goal will encourage leaders to participate in engagement initiatives being used around the Foundation, including, but not limited to:

- New IQ workshops,
- Diversity and Inclusion Dialogues,
- Workforce Inclusiveness Assessment,
- Special Emphasis observances,
- Employee Resource Groups,
- Unconscious bias awareness training, and
- Inclusion learning activities for all employees.

Beginning in FY 2019, NSF expanded this goal's scope in two ways: to include all leaders, and to include participation in activities other than the New IQ that might contribute to culture change. Unrelated to this goal, NSF took steps in FY 2018 to help ensure that all NSF-funded research and learning environments are free from harassment by bolstering policies, guidelines, and communications so that organizations clearly understand expectations and individuals understand their rights. Internally, the agency has promoted an identical set of expectations for its staff and leaders. In relating anti-harassment efforts to the aims of this goal, NSF determined that leadership's participation in anti-harassment and anti-bullying training had the potential to contribute to culture change, since it could not only help them identify and stop harassment and bullying but could actively promote an environment and a culture where all contributions are valued, and everyone can reach their full potential.

Discussion of FY 2021 Results

In FY 2021, NSF maintained the same framework for this goal and target as in FY 2020: "culture change activities" are defined as participation in anti-harassment and anti-bullying training; and the target requires that all managers and executives on board more than 30 days complete the training by the end of the fiscal year. For this year, the target population of managers and executives totaled 248 people, and all of them completed the required training before September 30, 2021.

Goal Change History

While NSF has had a performance goal relating to diversity and inclusion since FY 2011, throughout the years, new directions have emerged under its umbrella. For five years, goals were largely focused on NSF's efforts to attain "Model EEO Agency" status. Starting in FY 2016, this goal focused on inclusion,

and New IQ workshops were made available to NSF staff. The focus on leadership represented another new direction for this goal in FY 2019, when NSF expanded this goal's scope in two ways: to include all leaders, and to include participation in activities other than the New IQ that might contribute to culture change.

For more information on the Model EEO Agency formulation of this goal, refer to the FY 2015 Annual Performance Report in the FY 2017 NSF Budget Request:
(www.nsf.gov/about/budget/fy2017/pdf/56_fy2017.pdf).

For more information on the New IQ formulation of this goal, refer to the FY 2018/FY 2020 APPR in the FY 2020 NSF Budget Request (www.nsf.gov/about/budget/fy2020/pdf/67_fy2020.pdf).

Goal 7, Align Job Requirements with Competencies

Lead Organization: Division of Human Resource Management, Office of Information and Resource Management

Goal Statement

Ensure that employee job requirements are aligned with competencies and skills needed for the future.

Measure, Milestone, or Deliverable

Reporting Year		
FY	**Target Summary**	**Result**
2021	Eliminate 100 obsolete position descriptions in FY 2021.	Achieved. Result = 1,742 PDs eliminated.
Previous Year		
FY	**Target Summary**	**Result**
2020	In FY 2020, the Division of Human Resource Management will review, modernize, or eliminate 10 percent of the existing position descriptions requiring review.	Not applicable.
2019	In FY 2019, the Division of Human Resource Management will review, modernize, or eliminate 10 percent of the existing position descriptions requiring review.	Achieved.
2018	This goal was initiated in FY 2019 to replace a retired goal entitled *"Use Evidence to Guide Management Decisions,"* in which agency leaders used data-driven reviews to inform decision making.	

Strategic Alignment

Strategic Goal 3, Enhance NSF's performance of its mission. Objective 3.1, Human Capital: Attract, retain, and empower a talented and diverse workforce.

About This Goal

This goal incorporates principles from Renewing NSF, the agency operational reform plan initiated in FY 2017 in response to OMB Memorandum M-17-22, "Comprehensive Plan for Reforming the Federal Government."

Technological improvements have automated many tasks once performed by NSF staff. Requirements for NSF's administrative staff have evolved from the more traditional competencies related to general clerical and office tasks such as categorizing, processing, and tracking paper forms to more advanced competencies related to the use of multiple automated data systems. Further, NSF is promoting transdisciplinary and convergent research and will need to ensure its current and future workforce can adapt to this convergent approach. As technological systems increase in complexity, greater

support is needed in data processing, data mining, analytics, and use of automated processes. NSF will review and realign its workforce to ensure its greatest resource–NSF staff–are equipped with the knowledge, skills, and abilities for success now and in the future. Ultimately, this will result in increased alignment between NSF's organizational structure, its core mission, and strategic plan.

NSF will improve performance and increase accountability by systematically reviewing the NSF workforce from top to bottom. This review will allow NSF to revise position descriptions that are outdated or do not reflect current and future work responsibilities. This position description modernization effort will enable NSF to identify the skills needed in today's work environment and will establish more relevant opportunities for training and developing NSF's existing workforce, while also enabling hiring managers to better target recruitment and outreach efforts to obtain the highest caliber of external candidates.

Goal Change History

This goal was initiated in FY 2019 to replace a retired goal entitled "*Use Evidence to Guide Management Decisions*," in which agency leaders used data-driven reviews to inform decision making in the IT and HR domains.

In FY 2019, NSF had identified a pool of 400 position descriptions that had the potential for being either updated or eliminated, based on vacancy rate or consolidation with other types of positions. The 10 percent target was measured against that denominator in FY 2019. In mid-FY 2020, NSF revisited this limitation and determined that limiting the review to 400 predefined position descriptions no longer effectively supported the goal (Ensure that employee job requirements are aligned with competencies and skills needed for the future) or the priority from the Renewing NSF effort that motivated the goal (Adapting the NSF Workforce to the Work). Rather than continue tracking and reporting against the previous measure, NSF switched to a broader review of several thousand NSF position descriptions. This rendered the 10 percent target inapplicable since it was devised in relation to a smaller denominator, and the target of 100 PDs was established for FY 2021.

Discussion of FY 2021 Result

As is noted above, FY 2021 was the first year where the focus of this goal was the broader review of several thousand position descriptions. The target of 100 PDs eliminated was therefore set conservatively in recognition of the general uncertainty associated with the resources required to implement this process. The result achieved for FY 2021 (1,742 PDs retired) reflects efficiencies that were achieved during the year.

Goal 8, Improve User Interactions with IT Systems

Lead Organization: Office of the Chief Information Officer and the Division of Information Systems, Office of Information and Resource Management

Goal Statement

Streamline and simplify user interactions with IT systems and functions that support the merit review process, reducing non-value-added steps and reducing the time spent managing the proposal and award lifecycle.

Measure, Milestone, or Deliverable

Reporting Year		
FY	**Target Summary**	**Result**
2021	By the end of FY 2021, 1. NSF IT systems will have been available 99.6 percent of the time, excluding 469 hours of planned downtime. 2. 86 percent of internal merit review functions will be accessible through a single portal. 3. 50 percent of external merit review functions will be accessible through a single portal.	1. Achieved. Result = 99.8 percent. 2. Achieved. Result = 86 percent. 3. Not Achieved. Result = 41 percent.
Previous Year		
FY	**Target**	**Result**
2020	By the end of FY 2020, 1. NSF IT systems will have been available 99.6 percent of the time, excluding 469 hours of planned downtime. 2. 86 percent of internal merit review functions will be accessible through a single portal. 3. 50 percent of external merit review functions will be accessible through a single portal.	Achieved. Result = 99.8 percent . Not Achieved. Result = 79 percent. Not Achieved. Result = 41 percent
2019	By the end of FY 2019, 1. NSF IT systems will have been available 99.5 percent of the time, excluding 469 hours of planned downtime. 2. 72 percent of internal merit review functions will be accessible through a single portal. 3. 32 percent of external merit review functions will be accessible through a single portal.	1. Achieved 2. Achieved 3. Achieved
2018	This goal was initiated in FY 2019 to replace a retired goal entitled *"Use Evidence to Guide Management Decisions,"* in which agency leaders used data-driven reviews to inform decision making.	

Strategic Alignment

Strategic Goal 3, Enhance NSF's performance of its mission. Objective 3.2, Processes and Operations: Continually improve agency operations.

About This Goal

This goal incorporates principles from Renewing NSF, the agency operational reform plan initiated in FY 2017 in response to OMB Memorandum M-17-22, "Comprehensive Plan for Reforming the Federal Government."

As part of the Renewing NSF principle to make IT Work For All, NSF will focus on leveraging state-of-the-art IT solutions to develop flexible tools and improve upon current service offerings to streamline and simplify the interactions that staff and the research community have with NSF's IT systems. This will help ensure that their time is spent on activities where they can add the most value instead of administrative activities, thereby helping the agency more effectively carry out its mission. As part of this effort, NSF will offer single points of access to both internal and external users for the IT services that they need, ensure that IT services have close to 100 percent availability with downtime for critical maintenance and service releases carefully coordinated to minimize disruption. In addition, NSF will utilize new IT solutions for automating non-value-added steps for users, through services like robotic process automation.

Discussion of FY 2021 Result

Target 1, measuring system uptime, was exceeded. Targets 2 and 3 encompass a multi-year effort to establish single portals for NSF's internal and external merit review functions, to streamline and simplify user interactions with systems supporting the NSF mission. The effort began in FY 2017, and multi-year targets were set for 86% (25 of 29) of internal merit review functions and 64% (14 of 22) of external merit review functions to be accessible via single portals by the end of FY 2021. Intervening-year targets were established to monitor the overall progress of the effort and ensure it remained on track. In FY 2021, of its three targets, the one for streamlining externally facing merit review systems was not achieved. This area was affected by key decisions to reprioritize IT investments to focus on external customer experience enhancements, such as developing a demonstration and training environment for the research community, and to improve the collection of data needed to inform strategies for improving equity and inclusion among principal investigators.