The National Science Foundation

Open Government Plan

4.0

September 2016

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I. EXECUTIVE SUMMARY

The National Science Foundation (NSF) is committed to meeting President Barack Obama's goal of transparency as specified in the January 21, 2009 memorandum, "Transparency and Open Government." This memorandum was reinforced by the Office of Management and Budget (OMB) memorandum of December 8, 2009 to the heads of executive departments, directing specific actions to be executed to implement the principles of transparency, participation and collaboration. In April 2010 the NSF Open Government Plan version 1.0 was released. The current version of the plan, NSF Open Government Plan 4.0, represents our fifth continued commitment to the tenants of open government.

This document represents the NSF Government Plan 4.0, and reflects adherence to new guidelines subsequent to April 2012 including May 2016 guidelines and reinforces NSF's commitment to open government policies and interests.

Since its creation in 1950, NSF has viewed openness and transparency as critical to achieving the agency's mission: "To promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense" (NSF Act of 1950). Consequently, the agency has built a strong foundation of openness policies and practices that guide its research and education activities. NSF has always been an open agency, making all of its data--within the constraints of confidentiality and privacy -- openly available via its website and other media. New technologies, many of which received their basic funding from NSF, now provide a means for the agency to take these openness practices to the next level.

Since the release of the NSF Open Government Plan 1.0 in April 2010, the agency has connected the plan to its then most recent strategic plan. Consequently, "Investing in Science, Engineering and Education for the Nation's Future -- NSF Strategic Plan for 2014-2018"[1] is reflected in this most recent version of the NSF Open Government Plan.

With respect to making its data and information available, NSF's key principle in executing all of the elements of the NSF Open Government Plan is: Unless shown otherwise, the default position will be *to make NSF data and information available in an open machine-readable format.*

This updated version of the plan (released in September 2016) is the result of NSF's continued commitment to open government, and reflects the agency's intent to revise and improve the original, Version 1.0 plan, including new flagship initiatives. To ensure steady progress, NSF welcomes comments and suggestions on this version of the open government plan at opengov@nsf.gov. NSF, from its senior management through the entire Foundation staff, is committed to the principles set forth in this plan. Indeed, this is reflected in the NSF strategic plan for 2014-2018 where it states: "NSF is committed to the principles underlying open government, including transparency, public participation, and collaboration with other government agencies and private institutions."

[1] http://www.nsf.gov/pubs/2014/nsf14043/nsf14043.pdf

II. NSF OPEN GOVERNMENT IN CONTEXT

Open Government Directive: Overview

In one of his first actions after taking office, President Obama issued a memorandum[2] stating the administration's commitment to "creating an unprecedented level of openness in government." The key principles of open government are:

- Transparency-- Promotes accountability by providing the public with information about what the government is doing,
- Participation-- Allows members of the public to contribute ideas and expertise so that their government can make policies with the benefit of information that is widely dispersed in society, and
- Collaboration-- Improves the effectiveness of government by encouraging partnerships and cooperation within the Federal Government, across levels of government, and between the government and private institutions.

On December 8, 2009, OMB issued M-10-06, the Open Government Directive (OGD), requiring agencies to take specific steps toward the goal of creating a more open government. The directive specified a timetable for agencies to complete actions such as publishing in an open format at least three high-value datasets and creating an open government Web page. In March 2011, the administration announced that agencies should make the following available on their websites: Congressional testimony; agency reports to Congress required by statute and staff directories. In February 2014, the Federal CTO issued a memo to heads of executive departments and agencies: "2014 Open Government Plans." In July 2016, the U.S. Chief Information Officer issued M-16-16[3] requesting agencies to submit updated agency open government plans. The NSF Open Government Plan 4.0 reflects the agency's latest commitment to the administration's open government goals as described in these documents.

NSF's Chief Technology Officer was assigned as the Senior Accountable Official (SAO) for NSF's open government activities among his other duties and responsibilities. The CTO is located within the Office of the Director (OD), and is a member of NSF's Senior Management Advisory Roundtable (SMART). In that capacity, as-needed reports are made to SMART and to the Office of the Director (OD) on matters related to NSF open government activities, including related matters such as prizes and challenges.

[2] http://www.whitehouse.gov/the_press_office/TransparencyandOpenGovernment/
[3] https://www.whitehouse.gov/sites/default/files/omb/memoranda/2016/m-16-16.pdf

The NSF Open Government Plan is a roadmap for the agency's efforts to:

- Improve transparency through identifying, and making available to the public, high-value data;
- Expand opportunities for public participation and better integrate public input into NSF programs and policies; and
- Seek out new or expanded opportunities for collaborations with other agencies throughout government and with private institutions through public-private partnerships.

NSF provided the public with an opportunity to comment on Versions 1.0, 2.0, 3.0 and 3.5 of the plan and continues to encourage the public to provide comments and suggestions on this version 4.0 of the plan at opengov@nsf.gov.

NSF and NSB: Organizational Structures and Governance

NSF is an independent Federal agency created by Congress in 1950. The NSF's mission is:

> *"To promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense; and for other purposes."*
> *(NSF Act of 1950)*

NSF is the only Federal agency whose mission includes support for all non-medical fields of fundamental science and engineering (S&E). With a budget of approximately $7.5 billion, NSF is the major source of Federal funding for research in areas such as mathematics, computer science and the social sciences, in addition to providing approximately 15 percent of all Federal funding in basic research[4]. NSF funds research and education in most fields of S&E, and agency support goes to more than 1,800 colleges, universities, K-12 school systems, businesses, informal science organizations and other research organizations throughout the U.S. In 2015, NSF completed action on approximately 50,000 proposals resulting in more than 12,000 awards. Approximately 350,000 senior researchers, postdoctoral associates, teachers and students across all levels were directly involved in NSF research and education programs and activities. During this same period NSF hosted thousands of visitors, and conducted over 185,400 reviews by more than 35,400 panelists and ad hoc reviewers from across the Nation and the world.[5]

NSF leadership has two major components: A director, who oversees NSF staff responsible for program creation and administration, merit review, planning, budget and day-to-day operations; and a 24-member National Science Board (NSB), composed of eminent individuals who meet in person five times a year to establish the overall policies of the agency. The director and all board members serve six-year

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[4] per Tables 30-32 *Federal Funds for Research and Development: Fiscal Years 2014-16* nsf.gov - NCSES Federal Funds for Research and Development: Fiscal Years 2014–16 - US National Science Foundation (NSF)

[5] http://www.nsf.gov/nsb/publications/2016/nsb201611.pdf

terms. Both the director and a deputy director are appointed by the president and confirmed by the U.S. Senate. The president appoints members of the NSB, drawn from industry and universities representing a variety of S&E disciplines and geographic areas. At present, NSF has a total staff of approximately 2100 individuals at its Arlington (VA) headquarters, consisting of approximately 1400 federal employees, 200 scientists on rotational assignments from research institutions, 450 contract workers and the staff of the NSB Office and the Office of Inspector General (OIG).

NSF's program staff is organized into the following directorates and offices supporting S&E research and education:

- Biological Sciences (BIO)
- Computer and Information Science and Engineering (CISE)
- Education and Human Resources (EHR)
- Engineering (ENG)
- Geosciences (GEO)
- Mathematical and Physical Sciences (MPS)
- Social, Behavioral and Economic Sciences (SBE)
- Office of Integrative Activities (OIA)
- Office of International Science and Engineering (OISE)

An assistant director or an office head leads each of these NSF organizational units. The OD is responsible for executive, business and administrative management functions and includes the Office of Diversity and Inclusion (ODI), the Office of the General Counsel (OGC) and the Office of Legislative and Public Affairs (OLPA). Two additional administrative offices are the Office of Budget, Finance and Award Management (BFA) and the Office of Information and Resource Management (OIRM). These organizational units are devoted to financial management, award processing and monitoring, information technology (IT), human resource management, outreach and other functions.

The Office of Inspector General (OIG) provides independent oversight and is responsible for promoting efficiency and effectiveness in agency programs and operations, and for preventing and detecting fraud, waste, and abuse. By statute, the NSF OIG is independent from the agency, with the IG reporting directly to the NSB and Congress.

Key Stakeholders

The NSF stakeholders consist of:

- The American public;
- Academic institutions, including graduate/undergraduate colleges and universities, two-year and community colleges, and K-12 schools;
- The faculties in the above institutions;
- The students in the above institutions;
- Nonprofit institutions such as aquariums, zoos and museums;

- Businesses conducting S&E research;
- The news media (as a conduit to the public);
- Federal, Congress, state and other government agencies, and
- NSF staff.

The informational needs of these stakeholders consist of being informed of funding opportunities available through NSF as they develop; information on awards made; results of studies, reports and workshops supported by NSF; publications that resulted from NSF funding; results of meetings and various evaluation reports; data generated by NSF funded facilities, and the discoveries, breakthroughs and other outcomes of NSF-supported research and education and their impact on society.

III. NSF STRATEGIC PLAN AND THE OGD

Overview of the NSF Strategic Plan and Key Principles

In 2014, NSF published a new strategic plan, "Investing in Science, Engineering and Education for the Nation's Future--NSF Strategic Plan for 2014-2018."[6] In this document, five core values are identified: scientific excellence, organizational excellence, learning, inclusiveness and accountability for public benefit. Organizational excellence, inclusiveness and accountability for public benefit are particularly germane to the OGD. As stated in the NSF strategic plan:

- **Organizational Excellence** – Investing the resources entrusted to us optimally and efficiently, and realizing the full potential of our people in managing a capable, motivated, inclusive, and positive work environment;
- **Inclusiveness** – Seeking and embracing contributions from all sources, including underrepresented groups, regions, and institutions; and
- **Accountability for Public Benefit** – Operating with integrity and transparency, and maintaining the highest standards of performance in administration, business processes, management, and oversight, thereby providing the best value to the U.S. taxpayer.

Clearly, these core values are consistent with the open government goals of transparency (accountability), participation (inclusiveness) and collaboration (excellence/inclusiveness). As a result, incorporating the OGD into the NSF culture has been relatively straightforward.

The NSF 2014-2018 strategic plan states the following vision:

> *"A Nation that creates and exploits new concepts in science and engineering and provides global leadership in research and education."*

This vision is supported by three interrelated strategic goals:

(1) Transform the frontiers of S&E -- NSF supports fundamental, interdisciplinary, high-risk and potentially transformative research in S&E and the education of the next generation of the science, technology, engineering and mathematics (STEM) workforce to continue this transformation.

(2) Stimulate innovation and address societal needs through research and education -- Through its targeted solicitations and core programs, the agency is able to focus the attention of the broader S&E community on fundamental aspects of high priority national challenges. This strategic goal echoes the "broader impacts" merit review criterion that was developed by the NSB, and explicitly requires NSF to engage the community in addressing particularly urgent

[6] http://www.nsf.gov/pubs/2014/nsf14043/nsf14043.pdf

challenges. The agency's educational dimension is a key aspect of this strategic goal. NSF supports research and development (R&D) on STEM education and learning to prepare a diverse, globally competent STEM workforce and a STEM-literate citizenry.

(3) Excel as a Federal science agency -- NSF will integrate mission, vision, and core values to efficiently and effectively execute agency activities and provide the flexibility and agility required to meet the quickly evolving challenges associated with the first two strategic goals. Accomplishing goal three entails blending strong scientific leadership with robust organizational leadership, both characterized by vision and flexibility, and also supporting staff with the information and other resources that are essential to carry out the agency's activities.

Open government activities more readily enable NSF to engage stakeholders and keep them informed about agency initiatives, directions and accomplishments. The key principle that will be applied in executing the elements of the NSF Open Government Plan is: To maximize information that will be made available within the constraints of confidentiality and privacy concerns. *Unless shown otherwise, the default position will be to make NSF data and information available in an open machine-readable format.* NSF is committed to publishing its data and information in this manner and seeks public input and review on a regular basis.

This key principle is complemented by the agency's commitment to maintaining an open and active dialog with the public at large and with various NSF stakeholders, as well as encouraging all NSF staff to actively participate in open government undertakings.

NSF's Open Government Strategic Goals and Outcomes

The NSF Open Government Plan serves as a roadmap to improve transparency and better integrate public participation and collaboration into NSF's core mission, thereby enabling the agency to become more innovative and efficient. NSF has a long history of making its data readily available to the public via its website and other means, and the agency will continue to do so. NSF's strategic open government goal is to make its data and information available in machine-readable format or in more innovative and productive ways, keeping up with and using evolving technology to further enhance NSF's openness.

NSF's open government strategic goal recognizes the importance of increased public awareness and appreciation of NSF's mission and the agency's contributions to the American citizenry. This will be accomplished by providing data that inform the public about national scientific priorities, NSF funding opportunities, NSF grants awarded, Freedom of Information Act (FOIA) results, S&E advances generated with NSF support, and statistical data related to funding and funding outcomes, as well as data on the state of STEM education, to name a few.

IV. OPEN GOVERNMENT OPPORTUNITIES AND STRATEGIES

Transparency Initiatives

Description	Notes
Average Dwell Time by Directorate	FY2004 – FY2015
Budget History by Account since 1951	FY1951 – FY2015
Early and Later Career Principal Investigators' (PIs') Count and Funding Rates	FY2001 – FY2015
Existing Contracts and a Forecast of New Contracting Opportunities	FY2016
Federal Information Technology Acquisition Reform Act (FITARA) Implementation Plan and OMB Mandated Materials	FY2015
NSF FITARA Annual Review	FY2016
FOIA Reports	FY1998 – FY2016
Funding Rate by Principal Investigator Demographic	FY2001 – FY2015
NSF Funding Rate History	FY2001 – FY2016
Graduate Research Fellowships Award Recipients	FY2000 – FY2016
Graduate Research Fellowships Honorable Mention Recipients	FY2000 – FY2016
NSF IT Policy Archive	FY2016
Key Science and Engineering Indicators Digest	FY2014 – FY2016
NSF Award Search Tool	FY2007 – FY2015
NSF Spending Data	FY2000 – FY2015
Obligations for Top 200 Institutions by Fiscal Year	FY2001 – FY2015
Performance and Financial Highlights	FY2009 – FY 2015
Public Access Repository (NSF-PARBETA)	FY 2015
Research Grant Funding Rates: Most Recent Year	FY 2015
Research Grant Funding Rate History	FY2004 – FY2015
Research Spending and Results	FY 2007 – FY 2015
Science and Engineering Indicators	FY2012 – FY2016
Science and Engineering Indicators State Data Tool	FY2016
SESTAT (S&E statistics)[7]	FY1993 – FY2013
Social Media RSS Feeds	Selected data from FY2016
State Obligations by Fiscal Year	FY2001 – FY2015
Statistical data resource for S&E and U.S. academic institutions (WebCasper)	Selected data from 1951 – 2016

Table 1 - NSF Available Datasets

(with the exception of SESTAT data each of the items is either new or has been updated)

[7] The SESTAT tool with data beyond 2013 is currently unavailable per this announcement: http://www.nsf.gov/statistics/sestat/start.cfm

All NSF data and information will be made available consistent with confidentiality and privacy constraints. NSF will continue to inventory data collected or generated by the foundation, building on the eGov content inventory (found at http://www.nsf.gov/policies/egov_inventory.jsp) and records retention schedule (found at http://www.nsf.gov/policies/records/index.jsp). NSF will continue to provide opportunities for its stakeholders and the public to determine which datasets are high-value data collections. NSF will then prioritize the conversion to open formats, based on stakeholder and public interest.

Openness is an inherent part of NSF culture. As a result, NSF does not have any issues with what should be "open" because the default is that all NSF data and information are openly available within the constraints of confidentiality and privacy concerns. The challenge is in determining which of the already available open data are of sufficiently high value to warrant converting from existing formats to machine-readable formats such as comma-separated values (CSV), JSON and extensible markup language (XML) or other accepted open formats as specified in the OGD. In addition, the agency continues to explore the development of application programming interfaces (API) to provide more robust, friendlier and readily available access to some of its data. The strategy will therefore be to prioritize among these items using their potential as high-value data as the principal criteria as well as requests from the public. FOIA reports, award data, spending data and the results of federally funded research continue to receive the most interest from the public and therefore are of high value.

As noted earlier, NSF makes public a wide variety of agency information via the NSF website (http://www.nsf.gov). This includes: NSB meeting announcements and minutes; NSF solicitations; NSF funding trends data; NSF budget information; NSF-related statistical information; lists of publications available for download; award and funding information; minutes from the various directorate, office and NSF-wide advisory committees; committee of visitor reports for the various directorates and offices; an events calendar; texts of speeches given by the NSF director and deputy director; a list of NSF-related congressional hearings with testimonies made by NSF personnel; news releases and media advisories; factsheets about NSF programs and priorities; feature articles; audio podcasts and videos about NSF-supported research results; and the NSF Multimedia Gallery which provides images and other visual media for educational and informational use. These and other items constitute materials for consideration in the context of the OGD.

To further enhance transparency, NSF is actively supporting and participating in key government-wide, open government-related initiatives to provide the public with insight into NSF-funded research, spending and investments. These initiatives include:

- **Data.gov** -- http://catalog.data.gov/dataset?publisher=National%20Science%20Foundation. Provides the public with easy access to NSF data in open and machine-readable formats. The original datasets made available at the initiation of the NSF open government activity continue to be updated and maintained as new data become available (e.g., FOIA, Science and Engineering Indicators, etc.) NSF also offers easy, application-driven access to additional NSF data, such as important statistics regarding employment and education information for scientists and engineers, trend information across S&E indicators, and key information about

NSF-funded awards, through three simple-to-use tools. Additionally, NSF continues to look for opportunities to provide additional high-value data through Data.gov based on input received from the public and NSF staff. APIs that provide easier access to some of this information may be found at: http://www.nsf.gov/developer/.

- **Science and Engineering Indicators (SEI) State Data Tool -- The SEI State Data Too**l (http://www.nsf.gov/statistics/2016/nsb20161/#/stateind) allows for an interactive visual exploration of 58 different state indicators covering the role of science and technology (S&T) in state and regional economic development. It covers state trends in S&T education, the employed workforce, finance, and R&D. The tool allows for in-depth exploration of a single indicator, comparisons of multiple indicators, and the ability to customize the graphics. Exploring a single indicator can be done using "table," "chart" or "map" view. Comparisons of indicators can be done across states or across years. The tool contains up to 20 years of data.

- **Science and Engineering Indicators (SEI) Digest** -- The U.S. holds a preeminent position in S&E in the world, derived in large part from the Nation's long history of public and private investment in S&E, R&D and education. Investment in R&D, science, technology and education correlate strongly with economic growth, as well as the development of a safe, healthy, and well-educated society. The SEI Digest (http://www.nsf.gov/statistics/indicators/) highlights key trends and data points and provides an interactive introduction to the types of data and information available in *Science and Engineering Indicators 2016*.

- **USASpending.gov** -- Provides financial transparency, at the transaction level, into NSF financial assistance, including grants and contracts. Through this resource, the public can view key details about NSF awards and contracts for free in compliance with requirements set by the Federal Funding Accountability and Transparency Act of 2006. NSF has actively supported USASpending.gov and its mission since its inception and was the first agency to accurately match 100 percent of major investment contracts to USASpending. https://www.usaspending.gov/DownloadCenter/Pages/DataDownload.aspx

- **Federal IT Dashboard** -- Offers insight and transparency into NSF's IT portfolio as a whole, as well as into the significant individual technology investments that are critical in supporting NSF's mission and work. Through the IT Dashboard (http://www.itdashboard.gov/), the public can view plain language descriptions and comprehensible ratings for NSF technology investments, including ratings on tracking to cost and schedule, evaluation of the investment by the foundation's Chief Information Officer (CIO), and an overall rating for the investment based on a combination of the other three ratings. The IT Dashboard also offers information on how NSF technology investments align with the foundation's mission and an objective outlined in the strategic plan, and provides clear performance indicators for evaluating whether investments are meeting their targets. Additionally, the IT Dashboard offers easily accessible links to

investment Exhibit 300s, offering the public a transparent view of NSF investments at the granular level.

- NSF IT Policy -- New for FY2016 is NSF's issuance of its IT policy which provides information on NSF's IT rules, guidelines and procedures. (https://catalog.data.gov/dataset/nsf-it-policy-archive-c28be)

- **Recovery.gov** -- Provides a central, online location for taxpayers to track NSF spending and activities related to the American Recovery and Reinvestment Act (Recovery Act) of 2009. Easily accessible, high-value NSF information available through Recovery.gov includes summaries of overall Recovery Act spending with progress tracked weekly, detailed weekly financial reports.

In support of these initiatives, NSF has made data easily accessible to the public in machine-readable and open formats that can be shared via a variety of mechanisms (email, Facebook, Twitter, etc.), printed, or downloaded for use with data mining and extraction tools. Additionally, mechanisms are provided to allow the public to provide feedback, share assessments of the quality of information available, and make suggestions for additional NSF information they would like to see made available.

Participation and Public Outreach

NSF's task of identifying and funding work at the frontiers of S&E is not a "top-down" process. Instead, NSF primarily operates from the "bottom up," keeping close track of research in the U.S. and around the world, maintaining constant contact with the S&E community to identify ever-moving horizons of inquiry, monitoring which areas are most likely to result in spectacular progress, and choosing the most promising people to conduct research and enhance education and learning.

Participation and citizen engagement are at the core of the way NSF conducts its business and fulfills its mission. One of the cornerstones of NSF's success is its merit review process. In making award decisions, in 2015, NSF collected more than 185,400 reviews from more than 35,400 experts from the worldwide S&E community. Subject matter experts drawn from the S&E academic and private-public communities provide these reviews. NSF program officers draw on these experts' insights to make informed decisions about the most promising projects to fund. Consistent with the open government principle of participation, NSF is constantly striving to increase both the size and diversity (gender, disabilities, ethnic, geographic, race, institutional, etc.) of the pool of reviewers to ensure that the merit review process benefits from broad input provided by individuals with a wide range of perspectives. This merit review process, recognized as a "gold standard" internationally, continues to be a key element of NSF's public outreach and participation activities.

Each of the research directorates has an advisory committee whose membership is drawn from the academic and public-private sector communities and represents the stakeholders of that particular directorate. Each advisory committee meets twice a year. Advisory committees often create task forces to focus on specific directorate issues. These task forces usually meet on a more frequent basis, complementing the twice-yearly meetings.

The National Science Board, which sets policy for the Foundation and advises the White House and Congress on matters important to the health of the nation's scientific enterprise, conducts its business in public, with advance notice, per the strictures of the Government in the Sunshine Act. Its in person meetings are publically webcast. The Board also engages with the public in working meetings as it develops and issues reports on matters relevant to science, technology, engineering and mathematics (STEM) and STEM education. For example, the Board recently released "Revisiting the STEM Workforce: A Companion to Science and Engineering Indicators 2014." This report outlines how the understanding of STEM workers and how they matter to innovation and competitiveness has changed over the lifetime of the NSF. It offers insights into how analyses of this workforce need to be adjusted to reflect conditions more accurately.

There also are advisory committees that cut across the entire foundation. An example of this type of advisory committee would be the NSF-wide Advisory Committee for Cyberinfrastructure (ACCI). Collecting ideas and input from researchers, industry, and educators, the ACCI established six task forces and asked them to address long-term cyberinfrastructure issues. By incorporating webcasts, video telecoms, wikis and document-sharing technologies, the task forces explored, discussed and generated a collection of recommendations and ideas that are being used by NSF in developing new programs and/or guiding existing activities. The impact of this particular activity can be found in NSF's FY 2013 CyberInfrastructure Framework for 21st Century Science and Engineering (CIF21), a major initiative that incorporated many recommendations from those task forces.

A recent example of NSF's public engagement was its active participation at the fourth annual USA Science and Engineering Festival held at the Washington Convention Center in Washington, D.C., in April 2016. At this event, NSF featured nearly two dozen exhibits as well as live stage shows designed to educate, entertain, and reflect the diverse research the Foundation supports across all fields of S&E. Approximately 365,000 people attended the Festival over the course of three days and over 1000 organizations participated with thousands of hands-on activities on display. NSF had 26 exhibits within its space, representing all NSF directorates and 15 different states, plus the District of Columbia. An estimated several tens of thousands of people came through the NSF space.

In December 2011, the NSB released a report, "National Science Foundation's Merit Review Criteria: Review and Revisions," on the merit review criteria. The report's recommendations were the result of a thorough examination by NSB's Task Force on Merit Review. In looking at the effectiveness of the two merit review criteria (intellectual merit and broader impacts), the task force solicited and received input from several stakeholder groups, both inside NSF and external to the agency, involving several thousand individuals. Based on the task force's analyses and recognizing the provision in the America COMPETES Reauthorization Act of 2010 mandating the retention of the broader impacts criterion, the NSB determined that the two current merit review criteria remain appropriate for evaluation of NSF proposals and should be retained. In April 2012, NSF published a notice in the Federal Register giving the public an opportunity to provide comments on proposed changes.

NSF's approach to soliciting input and feedback from the scientific community and the public has always been "early and often." To support this approach, NSF provides a variety of mechanisms both proactive

(where the public can actively contact the Foundation) and direct (where NSF reaches out directly to share information and solicit input) for the community and the public to interact with the agency and provide feedback. Examples of proactive forums the Foundation is employing to engage the public and the academic community and solicit their input include:

Open Innovation Methods

- **Public Participation in Science, Technology, Engineering, and Mathematics Research (PPSR)** -- In October 2015, NSF embarked on a two-year agency priority goal focused on PPSR, which includes crowdsourcing and citizen science. PPSR is of interest to NSF because PPSR can enable R&D that is entirely new or otherwise not practical or possible without involving the public. In addition to advancing science, PPSR expands and deepens engagement of the public in research endeavors. NSF has also contributed to the Federal Community of Practice for Crowdsourcing and Citizen Science as well as development of citizenscience.gov, including both the citizen science toolkit and the OSTP-led citizen science catalog.

- **Prizes/Challenges** -- In 2011, NSF kicked-off its inaugural prize/challenge activity, US IGNITE. NSF continues to pursue and expand the use of prizes/challenges as a mechanism for both seeking innovative solutions and for public engagement. During FY2015, NSF conducted five prize/challenge competitions covering areas in astronomy, biology, education, engineering and visualization of scientific data. NSF will continue to explore the use of prizes/challenges where most appropriate and consistent with NSF's mission.

- **Solicitations** -- A principal mechanism NSF uses to make the academic community aware of funding opportunities are solicitations. Frequently, these solicitations provide for opportunities that enable interested parties to ask solicitation-specific questions. In addition, solicitation-specific frequently asked questions (FAQ) websites are created, where appropriate.

  Feedback and inquiries received through online feedback mechanisms are monitored and suggestions are compiled for review and consideration. NSF representatives respond directly to inquiries received through feedback aliases and questions that appear frequently are incorporated into FAQ documents, which are subsequently posted online and distributed during outreach activities.

- **Feedback email aliases** -- NSF has multiple email aliases that the public and research community can use to reach out to the foundation with questions or provide feedback on a variety of topics. These include NSF policy (policy@nsf.gov), NSF services (info@nsf.gov and feedback@research.gov), and NSF's participation in open government (opengov@nsf.gov, opendata@nsf.gov).

These online feedback mechanisms are complemented by a variety of interactive forums for direct outreach to the academic community, the general public, and NSF staff. NSF frequently promotes awareness and provides updates about the agency, its policies and initiatives, and the information and

services it provides to the research community. It does this through presentations and exhibit booths at key outreach events such as meetings and conferences held by research administration associations, and at meetings of NSF's core S&E community (for example, the Federal Demonstration Partnership, the National Council of University Research Administrators, and the Society of Research Administrators).

Additionally, NSF holds twice yearly grants conferences around the country to provide an opportunity for smaller academic institutions to learn more about the agency and its programs. The agency also sponsors "NSF Day" workshops focused on pre-award topics and targeted at junior faculty and others beginning a research career.

Complementing its in-person outreach, NSF interacts directly with the research community and public through online outreach mechanisms. One example of this activity is the increased use of interactive webinars. These webcasts allow NSF to share key information and updates with a larger audience as well as provide an opportunity for viewers to interact directly with the Foundation through email or phone inquiries, which are then answered on air. A list of previous and upcoming webinars can be found at: http://nsf.gov/events/event_group.jsp?group_id=20018&org=NSF.

Providing live webcasts of meetings was one of the more popular requests that NSF received during its initial open government public feedback. Consequently, the NSB began webcasting its meetings in 2011 and continues to do so. NSF has increased its use of video teleconferencing for public outreach. To engage the community on NSF systems and services, NSF offers WebEx and videoconferences training for its staff. These training sessions allow institutions and individuals at locations all across the country to easily and conveniently learn about the Foundation firsthand.

In order to ensure that NSF staff members are armed with the background needed to disseminate information to the research community and the public about participation opportunities, NSF fosters a culture of education. The foundation holds interactive outreach activities to educate staff such as town halls, "brown bags," and demonstrations, and provides detailed information online about participation opportunities and NSF initiatives (such as open government efforts) in forums that are accessible to all staff. Examples of this are the IT Innovation Forums which provide NSF staff with an opportunity to share experiences regarding IT services or tools that they've found to be particularly helpful.

V. COLLABORATIONS AND PARTNERSHIPS

Collaboration is not new to NSF. Indeed, collaboration is intrinsic to NSF's culture and the way that the agency conducts its business. NSF encourages both inter- and intra- Foundation collaboration initiatives. NSF is actively engaged in activities that involve collaboration with other agencies and citizens, as well as across NSF organizational units.

Social Media Tools

NSF's commitment to utilizing social media can be seen in the multifaceted approach it takes to communicating the discoveries, innovations and other impacts related to the fundamental research NSF funds. NSF established a Facebook page (https://www.facebook.com/US.NSF) to connect with public audiences interested in science, technology, engineering and mathematics (STEM) and STEM education, and to engage with the public about NSF's activities. NSF's Facebook page has more than 416,000 "fans"(people who have self-indicated they like the site). There is also a NSF Division of Polar Programs Facebook page: https://www.facebook.com/pages/Division-of-Polar-Programs-National-Science-Foundation/1392901317615113. NSF has a number of Twitter accounts, including the main NSF account (http://www.twitter.com/NSF), to extend its communication and outreach activities. The main NSF Twitter account has more than 866,000 followers.

NSF launched a Tumblr blog (http://nationalsciencefoundation.tumblr.com/) to facilitate engagement with a younger audience interested in STEM. More recently, NSF launched Director France Córdova's Tumblr blog, *Field Notes* (http://nsfdirectorfieldnotes.tumblr.com/).

NSF Directorate for Biological Sciences' (BIO) Division of Environmental Biology (DEB) launched a blog, DEBrief (http://nsfdeb.wordpress.com/), to encourage meaningful conversations about DEB-funded research. Other blogs within the BIO Directorate are: IOS in Focus (from the BIO Division of Integrative Organismal Systems, https://nsfiosinfocus.wordpress.com/), the Division of Molecular and Cellular Biosciences Blog (https://nsfmcb.wordpress.com/) and BIO BUZZ, the blog of BIO's Office of the Assistant Director (https://nsfbiobuzz.wordpress.com/). NSF also uses wikis; for example, the BIO Directorate is using a wiki to engage principal investigators (PIs) to provide ideas for tools and resources that could be used by their community. The Innovations at the Nexus of Food, Energy and Water Systems (INFEWS) initiative recently launched a new blog (https://foodenergywater.wordpress.com/) The Engineering (ENG) and the Mathematical and Physical Sciences (MPS) directorates have initiated blogs on their directorate websites, which periodically offer the perspectives of their assistant directors.

NSF's Flickr site (https://www.flickr.com/photos/nsf_beta) makes available research and education photos for others to use to illustrate science and engineering (S&E) topics. NSF has a YouTube Channel (https://www.youtube.com/user/VideosatNSF) where science-themed videos are available for viewing and comment. In addition, NSF has a Pinterest account (https://www.pinterest.com/USNSF/) to promote NSF research and programs through engaging and appealing images, illustrations and graphics. NSF also has a Vine account (https://vine.co/NSF) to highlight NSF-funded research in 6 seconds videos, a Medium account (https://medium.com/@NSF/) to feature longer and visually appealing stories, and an Instagram (https://www.instagram.com/nsfgov/) account for mobile photo- and video-sharing.

NSF has a LinkedIn page (https://www.linkedin.com/company/national-science-foundation) to engage

with audiences about careers at the foundation. A complete list of NSF's social media activities may be found at http://www.nsf.gov/social/. To guide NSF's further use of social media, the agency established a Policy for Social Media Use in January 2011, which was updated in 2015. In addition, the NSF Social Media Team developed in 2014 standard operating procedures for employees on the general use of social media, and the use of specific platforms such as Twitter, Facebook and Tumblr.

Inter-agency Collaborations

NSF partners with other federal agencies in numerous research and education programs and provides a list of these agency partnerships, arranged alphabetically by program title, on the NSF website at http://www.nsf.gov/about/partners/fedagencies.jsp. The agency has added a link to this list from the NSF open government page (http://www.nsf.gov/open/). NSF updates the list twice a year, in June and December.

A recent and important example of inter-agency collaboration is NSF collaboration with the Department of Energy (DOE). The collaboration resulted in NSF Public Access Repository (NSF-PAR^{BETA}), a component of NSF's Public Access solution. Additional examples of NSF collaboration with other federal agencies are: the Materials Genome Initiative, where NSF is working with NIST, DOD, DOE, NASA, and the private sector to " doubling the speed and reducing the cost of discovering, developing, and deploying new advanced materials [8]" and the administration's $100M BRAIN Initiative[9] a collaboration involving NSF, DARPA and NIH that seeks to better understand how the brain functions and how that understanding might be used for brain-related illnesses such as Parkinson's disease.

In addition, EPSCoR (Experimental Program to Stimulate Competitive Research), established by NSF in 1979, seeks to address the imbalance of distribution of Federal funds applied to research. In FY 1992, the Interagency Coordinating Committee[10] (EICC) was established among the Federal agencies with EPSCoR or EPSCoR-like programs. The major objectives of EICC focus on improving coordination among and between the Federal agencies in implementing EPSCoR and EPSCoR-like programs consistent with the policies of those agencies. Member agencies of EICC are: DOE, NASA, NIH, NSF, and USDA. The EICC serves as a working group for interagency coordination and communication and meets on a regular basis to pursue its goal. An NSF EPSCoR staff member serves as the chair and executive secretary of EICC.

A further example of NSF inter-agency collaboration is the interagency Networking and Information Technology Research and Development (NITRD) program (http://www.nitrd.gov/) co-chairs. Chartered by Federal law, NITRD is the primary mechanism by which the government coordinates its unclassified networking and IT R&D investments. Thirteen Federal agencies, including all of the large S&T agencies, are formal members of NITRD. These agencies work together to develop a broad spectrum of advanced networking and IT capabilities for Federal missions, U.S. science, engineering, and technology

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8 https://www.whitehouse.gov/sites/default/files/microsites/ostp/mgi_fact_sheet_05_14_2012_final.pdf

9 http://www.whitehouse.gov/share/brain-initiative

10 http://www.nsf.gov/od/iia/programs/epscor/nsf_oiia_epscor_epscor_eicc.jsp

leadership, and U.S. economic competitiveness. NITRD efforts increase the overall effectiveness and productivity of Federal networking and IT R&D investments, leveraging strengths, avoiding duplication, and increasing interoperability of networking and IT R&D products. NSF program officers participate in each of NITRD's Program Component Areas (PCAs). An interagency working group or a coordinating group of interagency program managers guides the work of each PCA. These groups meet monthly to coordinate planning and activities of the multiagency projects in their specialized research areas. In addition, PCAs hold workshops to solicit input from their respective stakeholder communities.

Staff Collaboration Tools

NSF is increasing its use of online technologies to support virtual participation in meetings with its stakeholders. Live webcasts and webinars are allowing NSF staff to participate in reviews of directorate and office programs, while other live webcasts available outside NSF bring program managers together with potential grantees. Additionally, staff use online collaboration tools internally during virtual panels, workshops, and peer review groups. Utilizing virtual participation technologies fosters broadening participation in addition to reducing costs.

- WebEx and BlueJeans – NSF utilizes several video conference tools that enable staff to meet/collaborate during virtual panels, distance learning, workshops, peer review groups, etc.
- Skype – NSF uses Skype for instant messaging between NSF staff. It is also used to support tele- and video conferencing for internal NSF communications.
- Sharepoint – Sharepoint is one of NSF's primary online staff collaboration tools. Sharepoint enables NSF staff to create document libraries, calendars, task and workflow lists as well as share and edit documents.

Research.gov

For many years, NSF has worked closely with the research community, gathering input to guide the direction of NSF's innovative technology solutions in support of NSF's mission and the research community's needs. NSF's approach to developing, updating, and improving the Research.gov website has been no different. NSF's active collaboration and partnership with the research community is evident through Research.gov's service delivery model. New Research.gov services are identified and prioritized based on input received from the research community.

When implementing new services, NSF collaborates with individual and institution volunteers from the community who pilot new services and provide feedback and input on their experience. These collaborations allow the Foundation to ensure that Research.gov services meet the needs of the community before being broadly released. Examples of this on Research.gov include:

- **Research Spending and Results** -- Displays information, available to the public, about how NSF and NASA award dollars are being spent, what research is being performed, and how the outcome of the research is benefiting society. NSF data is available for awards made from 1994 to the present, and NASA data is available for awards made from 2007 to the present. More

specific details are also available including location (including Congressional district) of the entity receiving the award. As part of the Research Spending and Results service, PIs of NSF-funded projects now also create for the public, a project outcome report that demonstrates the intellectual merit and broader impact on their project.

- **InCommon and Application Submission Web Service** -- In order to better meet the needs of and reduce the administrative burden on those doing business with NSF, Research.gov offers InCommon, an identity management service, and Application Submission Web Services, a grant application submission service. InCommon, which was developed by an NSF-funded research project, is offered by the InCommon Federation, a nonprofit organization. If an institution is part of the InCommon Federation, its researchers and sponsored program offices can use their institutional IDs and passwords to access Research.gov. The Application Submission Web Service now allows institutions to use their own systems to prepare and submit grant applications to NSF, enabling researchers to use a system they are familiar with while still providing a seamless submission process and complying with all relevant research and data standards used across the government. Currently, NSF supports 67 universities through the InCommon Service Provider framework with 777 users using the service in February 2016 via Research.gov and Fastlane.

- **Notifications and Requests** -- Core grants management functions that enable awardees to notify, and request approvals from NSF for program and cost related changes now reside in Research.gov and form a part of NSF's multi-year effort to modernize external user electronic business processes. Input from the research community was solicited during development and post roll out stages to identify business needs and solicit user experience feedback.

Currently, NSF is developing additional Research.gov services that will fulfill demand in the research community. As with previous services, initial business requirements are being gathered from volunteering individuals and institutions throughout the research community, and their input is being incorporated into the design of these services. For example, NSF sent a survey in June 2015 to 117,000 researchers and administrative staff with the goal of gauging the user experience during the current proposal process and to gather feedback on improvements for modernizing the NSF proposal submission service. NSF received more than 16,000 responses which were analyzed and are currently being applied to guide the planning and design of NSF's proposal submission modernization activities.

Throughout the process of designing and implementing new services, NSF will continuously seek feedback from members of the research community by speaking with them at events and conferences, encouraging them to contact NSF at feedback@Research.gov, and having discussions with them during the feedback/question and answer portion of all Research.gov webinars. NSF also encourages interested individuals or institutions to participate in pilot programs that test new or improved services. NSF uses this feedback, along with lessons learned from past service implementations, to ensure that services are designed and rolled out in such a way that they are consistent with government-wide standards, are reducing the administrative burden on researchers and institution staff, and are

addressing the dynamic needs of the research community on the cutting edge of scientific advancement and the public who want to know about the research.

In addition to partnering with individuals and institutions on service development, NSF actively promotes awareness about and participation in Research.gov. NSF gives institutions and the research community the opportunity to participate in the improvement and advancement of Research.gov, and to interact meaningfully and frequently with NSF staff about Research.gov. To date, NSF has conducted a Research.gov webinar series that has allowed members of the research community to learn about Research.gov services by interacting in real-time with NSF staff, asking questions, and providing feedback without having to travel. Individual or institution-specific webinars are also available at any time for any individual or institution. Moving forward, NSF will continue to invest in webinars in addition to standing up a forum to have conversations with researchers and institution users about NSF's electronic business processes.

Other outreach channels include online factsheets, demos, and conferences or events that educate stakeholders about the research mission, Research.gov, and its services. Additionally, NSF collaborates with research associations to raise awareness within the community of new Research.gov services. For example, Research.gov representatives speak at meetings of these associations to keep their members abreast of progress, collect feedback, answer questions, and explain how Research.gov is using previously collected input to improve the website.

NSF recognizes the value of collaboration at these various scales of activity and will continue to explore new and innovative methods of engaging the public and the research community in ways that enhance NSF's mission, support the science, engineering and education communities, and generate value to the American public.

VI. FOIA AND OTHER OPEN GOVERNMENT RELATED ACTIVITIES

Freedom of Information Act

NSF has a long tradition of making its FOIA responses openly available and accessible to the public. FOIA requests are received electronically – either directly to the NSF FOIA Officer or via the foia@nsf.gov alias. NSF FOIA policy is currently available at http://www.nsf.gov/policies/foia.jsp. The FOIA Annual Reports covering the fiscal years 1998 through 2015 inclusive are available in DOC, HTML, PDF and TXT formats at http://www.nsf.gov/policies/foia_annual_reports.jsp. Chief FOIA Officer Reports from 2010 to 2016 are available in PDF and XML formats at http://www.nsf.gov/policies/chief_foia_officer_reports.jsp.

Open Data

- **Process for systematically inventorying non-public, restricted and public data assets** -- Responsibility for ensuring transparency at NSF rests with the NSF OGD SAO and with the NSF Senior Management Advisory Roundtable (SMART). NSF's process for systematically inventorying non-public, restricted and public data assets is to conduct quarterly data and metadata inventory reviews, consulting with OGC to address privacy and confidentiality requirements related to non-public and restricted datasets to ensure the information is of high quality and serves the public interest. NSF's default position is to make data and information available and accessible in an open machine-readable format.

- **Making public data assets available for download and/or use through an application programming interface (API)** -- In compliance with the OGD, Digital Government Strategy, and Open Data Policy, NSF has invested resources to ensure more than 90 data assets are available for download and/or use through an API on Data.gov and the NSF public data inventory.
    - **NSF GRFP Awardees and Honorable Mentions (2000-2016) API** https://catalog.data.gov/dataset/nsf-grfp-awardees-and-honorable-mentions-web-api The Graduate Research Fellowship Program (GRFP) provides three years of support for graduate study leading to research-based masters or doctoral degrees in disciplines relevant to the mission of the Foundation. This dataset includes GRFP Awardees and Honorable Mention recipients for 1952 to 2016.
    - **NSF Funding Rate History API** (https://catalog.data.gov/dataset/nsf-funding-rate-history-web-api) Contains FY 2001-FY 2016 NSF funding rates for competitive research proposals by organizational unit. The funding rate is calculated by dividing the number of awards by the number of awards and declines.
    - **NSF Award Search API (**http://www.research.gov/common/webapi/awardapisearch-v1.htm**)** Provides a web API interface to the Research.gov's Research Spending and Results data, which provides NSF research award information from 2007. The award search API also provides information about how Federal research dollars are being spent and what research is being performed, in a format that allows developers to use NSF

data in new and unique ways (for example, by creating "mashups" of NSF data with data from other sources).

NSF is committed to exploring the development of APIs for other datasets. The public is encouraged to submit candidate ideas for APIs that have the potential for informing the public on NSF funding, programs and research initiatives to opengov@nsf.gov.

- **Encouraging public use of already released datasets** -- NSF encourages public use of released datasets to promote public knowledge of the agency's activities and outcomes, and to foster innovation related to S&E. NSF publicizes agency data sets on the agency's Open Government (https://www.nsf.gov/open/), Digital Strategy (https://www.nsf.gov/digitalstrategy/), Open Data (http://www.nsf.gov/data) and Developer (http://www.nsf.gov/developer/) Web pages, as well as through the agency's social media sites.

- **Identification of potential dataset and timelines for release** -- As previously described, NSF periodically inventories data assets not yet publicly available, by following the processes and goals outlined in the Open Data Policy inventory schedule (http://www.nsf.gov/data/).

  NSF will continue to provide opportunities for its stakeholders and the public to provide input on which datasets are high-value data collections. NSF will then prioritize the conversion to open formats, based on stakeholder and public interest.

- **Participation in Transparency Initiatives** -- To further enhance transparency, NSF is actively supporting and participating in key government-wide open government-related initiatives to provide the public with insight into NSF-funded research, spending and investments. These initiatives include:
  - **Public Access to Publications –** NSF's Public Access Repository (NSF-PAR), a recent NSF initiative, is intended to expand public access to the results of its funded research and aligns with the Foundation's long-standing commitment to clear and open communication of research results, which is central to fulfilling NSF's primary mission of promoting the progress of science, advancing the frontiers of knowledge, and helping to ensure the nation's future prosperity. NSF Public Access sites: https://catalog.data.gov/dataset/nsf-public-access-repository

    NSF makes its various documents and publications available to the public via http://www.nsf.gov/publications/. The site supports document searching and access by NSF organizations such as CISE, BIO, MPS, etc. The current document library contains over 3,150 entries and an archive document library contains over 5,670 documents. In addition NSF related news items may be found at http://www.nsf.gov/news/ and contains over 14,400 items.
  - **Public Access to Data generated from NSF Funding –** NSF requires applicants for funding to prepare a Data Management Plan (DMP). The current requirement, which was a January 18, 2011 implementation of the Foundation's long-standing data-sharing policy, specifies that proposals must include a supplementary document of no more

than two pages, labeled "Data Management Plan." This supplement should describe how the proposal will conform to NSF policy on the dissemination and sharing of research results as stated in the Grant Proposal Guide.

NSF will continue to refine implementation of the current DMP requirement in consultation with the research communities. Individual Directorates within NSF provide more detailed guidance and best practices for their research communities. In general, a DMP must identify relevant standards and data archiving plans, which vary by discipline and research topic, and the sufficiency of the DMPs is evaluated during merit review. NSF guidance for DMPs in the *Grant Proposal Guide* includes:

- The standards to be used for data and metadata format and content (where existing standards are absent or deemed inadequate, this should be documented along with any proposed solutions or remedies);
- Policies and provisions for re-use, re-distribution, and the production of derivatives; and
- Plans for archiving data, samples, and other research products, and for preservation of access to them

NSF is working with the community and with other Federal agencies to facilitate the establishment of standards for metadata and repository systems. NSF understands that issues of description and access as well as cost, use, and preservation are all elements of these discussions.

- **Open Source Software --** As the Federal Source Code Policy suggests, NSF evaluates and employs shared services and COTS products wherever feasible in our system architecture. In addition, NSF's contracts, that include the development of custom software, comply with the requirements of the policy that require delivery of the software and documentation to NSF, and rights to the custom source code including rights to reproduction, reuse, and distribution across the Federal Government. While we have shared software directly with other agencies, we have not yet made any source code available to the public. With the issuance of the official guidance[11] our next steps will be the development of policies and software development procedures to support the implementation of open source software, with the goal of making NSF's software available to the public as appropriate and following the procedures and guidelines in the Federal Source Code policy.
- **Data.gov --** Provides the public with easy access to NSF data in open and machine-readable formats. The original datasets made available at the initiation of the NSF open government activity continue to be updated and maintained as new data become available (e.g., NSF's annual FOIA report, Science and Engineering Indicators, etc.).
- **USASpending.gov --** Provides financial transparency, at the transaction level, into NSF financial assistance, including grants and contracts. Through this resource, the public can view key details about NSF awards and contracts for free in compliance with requirements set by the Federal Funding Accountability and Transparency Act of 2006.

[11] https://www.whitehouse.gov/sites/default/files/omb/memoranda/2016/m_16_21.pdf

- **Federal IT Dashboard --** (http://www.itdashboard.gov/) Offers insight and transparency into NSF's IT portfolio as a whole, as well as into the significant individual technology investments that are critical in supporting NSF's mission and work.
- **Recovery.gov --** Provides a central, online location for taxpayers to track NSF spending and activities related to the American Recovery and Reinvestment Act (Recovery Act) of 2009.
- **Regulations.gov --** Provides the research community and members of the public with a Web-based, central location to track regulations proposed by NSF and to provide comment when applicable.
- **DATA Act --** The DATA Act of 2014 is intended to not only expand the data currently available in USASpending.gov but to also provide for increased use of the information for use by federal agencies in management and decision making. Following Treasury and OMB's DATA Act Playbook,[12] NSF submitted its DATA Act Implementation Plan to OMB in Aug 2015. A cornerstone of the DATA Act is the standardization of data elements and formats across all federal government agencies. Such a capability can be used by NSF to support increased inter-agency collaboration; enable NSF to more readily assess science funding across the federal agencies. Further the DATA Act will enable the public to gain greater insight into, and assess, how the various agencies support the science and engineering enterprise.

- **Digital Strategy** -- NSF's Digital Strategy Web page (http://www.nsf.gov/digitalstrategy/) -- Describes the agency's approaches for enabling the American people and NSF's increasingly mobile workforce to access high-quality digital government information and services anywhere, anytime, and on any device.

  NSF's Digital Strategy compliance efforts have been focused in three broad areas: Building information-centric systems and tools, utilizing shared platforms to improve information dissemination across government, and delivering customer-centric, highly effective services. NSF engaged with customers to identify high-value datasets for increased openness, and implemented three new Web APIs featuring agency data. The agency also released several new mobile services for key information on NSF.gov. http://www.nsf.gov/mobile/

- Participation in AnalyticsUSA.gov – NSF is among the 400 executive branch government domains that participates in Analytics.USA.gov, part of the Digital Analytics Program (DAP). As of March 31, 2016 nsf.gov had 769,509 visits, NSF's NCSES had 4,934 visits and acpt.nsf.gov had 1,198 visits in the last 30 days.

[12] https://www.usaspending.gov/Documents/Summary%20of%20DATA%20Act%20Playbook.pdf

Proactive Disclosures

NSF is developing a plan to restructure the FOIA web page and the Open Government web page to allow a FOIA requester and the public to more easily find information. The NSF OGC is looking to expand NSF's online presence while consolidating multiple links to the same topic. The goal is to make both portals user friendly. NSF plans on adding a link to the NSF home page for open government next to the FOIA link. The NSF open government page will have the following links: NSF budget, obligations, ARRA, FOIA, privacy, fellowships (with links to GRFP, NOYCE and any other fellowships), NSF research area, learning resources, Research.gov, Data.gov, Recovery.gov, USASpending.gov, Science.gov and the NSF library (there are some items here that the public may not be aware of such as board minutes).

NSF is continually looking at ways to connect with the public. The agency is reviewing items that are frequently requested such as FOIA logs and major contracts in order to add these items to our NSF's Web page. An example of this is the NSF FOIA logs which are now available at: http://www.nsf.gov/policies/foia-logs.jsp

Privacy

NSF Privacy and Compliance Reports

Report	Recipient
Privacy Policy	http://www.nsf.gov/policies/privacy.jsp
Privacy Impact Assessments	http://www.nsf.gov/policies/pia.jsp
Privacy Act System of Records Notices	http://www.nsf.gov/policies/privacy_act.jsp
SAO for privacy reporting submitted with the annual Federal Information Security Management Act (FISMA) report	OMB Congress, Government Accountability Office
Privacy Breach Reports (as required)	Internal NSF recipients; US-CERT, law enforcement agencies, and the NSF IG as applicable

Whistleblower Protection

In 1994, Congress enacted 5 U.S.C. §2302(c) in response to reports of widespread unawareness in the Federal workforce of employees' right to be free from prohibited personnel practices (PPP), especially retaliation for whistle-blowing.

This provision charges "[t]he head of each agency" with responsibility for "ensuring (in consultation with the Office of Special Counsel (OSC)) that agency employees are informed of the rights and remedies available to them" under the prohibited personnel practice and whistleblower retaliation protection provisions of Title 5.

The OSC's 2302(c) Certification Program allows Federal agencies to meet the statutory obligation to inform their workforces about the rights and remedies available to them under the Whistleblower Protection Act (WPA) and related civil service laws. The program requires agencies to recertify every three years.

Under the 2302(c) Certification Program, OSC certifies an agency's compliance with 5 U.S.C. §2302(c) if the agency meets the following five requirements:

(1) Placing informational posters at agency facilities;
(2) Providing information about PPPs and the WPA to new employees as part of the orientation process;
(3) Providing information to current employees about PPPs and the WPA;
(4) Training supervisors on PPPs and the WPA; and
(5) Creating a computer link from the agency's website to OSC's web site.

The last item above is fulfilled via a link in NSF's intranet website.

On August 24, 2010, NSF obtained its initial 2302(c) certification from OSC, and was recertified effective August 15, 2013. In meeting these requirements, NSF joins more than 20 other agencies and/or subcomponents in obtaining such certification.

The Office of Personnel Management (OPM) recognizes 2302(c) certification as a "suggested performance indicator" for "getting-to-green" on the Strategic Management of the Human Capital element of the President's Management Agenda.

Specific details regarding NSF and whistle-blower protection can be found at http://www.nsf.gov/oig/whistleblower.jsp. This information is periodically reviewed and updated accordingly.

Records Management

NSF recognizes the importance of managing all of its records in compliance with applicable Federal requirements. The agency continuously reviews National Archives and Records Administration (NARA) approved records schedules to ensure the records correctly represent the organization's current business practices (http://www.nsf.gov/policies/records/index.jsp).

To meet the requirements of the President's November 28, 2011 Memorandum on Managing Government Records and the accompanying August 24, 2012 Managing Government Records Directive, NSF has met the following milestones: Designated an SAO to oversee a review of the records management program; transferred all permanent records over 30 years old to NARA; ensured that all NSF records officers received the NARA Certificate of Federal Records Management Training; and established an on-line records management training course for all employees. NSF is evaluating options for converting existing permanent records to electronic formats and is ensuring that capability in new agency enterprise systems that produce permanent official records. NSF will continue to look at best practices from across the Federal Government and research opportunities to identify the most appropriate and effective ways to leverage this technology for the ultimate benefit of the public. These accomplishments will position NSF to meet certain targets and requirements of the Managing Government Records Directive over the coming years.

NSF's largest permanent record group is the grant/proposal awards group. The schedule for these records was updated to reflect the agency's move from paper-based to electronic format. NSF is using the Electronic Records Archives to transfer eligible permanent electronic records to NARA for archiving. The NSF records office is working together with the IT office during the electronic records transfer process. These groups' collaborative efforts ensure that records and archival management functions are incorporated into the design of new electronic systems and are compliant with NARA guidelines.

NSF has implemented an Electronic Records Management System (ERMS) and is working to bring all legacy paper records and electronic records into it. The agency is analyzing every opportunity to transition its business practices from paper-based record keeping to electronic records management. These opportunities continue to present themselves as legacy systems are replaced and the life cycle of their record output is evaluated and brought into alignment with current organizational goals and practices.

Currently the process to archive permanent Award Records requires the Agency's Records Custodians to physically transfer paper records to the Federal Records Center and then to NARA. NSF has been active the past two years preparing to update its recordkeeping system, by leveraging the work done on the NSF ERMS. Implementation began in March 2016. This will eliminate the need for program staff to retain physical hard copy awards records. NSF created the Gate Review Team to manage this project consisting of NSF staff and NARA.

NSF plans to continue leveraging ERMS to electronically archive permanent Award Records eligible for retirement starting in February 2016. Further, the plan is to digitize all hard copy permanent records that are not Award Records by April 2017. Finally, the agency expects to develop a technical solution for the NSF staff to access digitized/scanned records by January 2017.

NSF also recognizes the importance of records management training for all agency staff. The agency is enhancing its training programs to make sure all employees are aware of their responsibility to identify and protect agency official records.

Congressional Requests for Information

Congressional requests for information typically are addressed to the NSF director in the OD. The Congressional Affairs Group in the Office of Legislative and Public Affairs (OLPA) assigns these requests to the organizational unit within NSF that has the necessary background and information consistent with providing a cogent response. The request is routed with a timeframe as to when a response is required, and then the response is sent to the requester following necessary clearance processes.

In keeping with the administration's statement for Sunshine Week in March 2011, NSF has developed a new Reports to Congress Web page (http://www.nsf.gov/about/congress/nsf-congress-reports.jsp) that provides links to agency reports that are required by statute. There is a link on the NSF open government Web page to the Reports to Congress page.

The Congressional Affairs Group in OLPA manages congressional requests for information. The public may locate a staff person for assistance at: http://www.nsf.gov/staff/staff_list.jsp?orgId=5210&subDiv=y&org=OLPA

Declassification of Documents

This is not applicable to NSF pursuant with Executive Order 13526 of December 2009 and with Chapter VIII, section 850 of the NSF "Grant Policy Manual" (http://www.nsf.gov/pubs/manuals/gpm05_131/gpm8.jsp#850), which states that NSF does not have classification authority and describes the steps that should be taken if NSF material is determined to possibly require classification. In this instance, the material would be sent to another agency that does have classification authority for a classification determination to be made.

Participation and Public Affairs

OLPA advances NSF's mission "to promote the progress of science…" through strategic communications aligned to the foundation's objectives. OLPA employs a wide variety of tools and techniques to engage the general public and key audiences including Congress, the news media, state and local governments, other federal agencies, and the research and education communities.

In addition to the multi-media tools and activities previously described, tools and techniques used to engage NSF's audiences include the following:

- **News From the Field --** By partnering with public information officers at research institutions, NSF provides links to selected news releases from universities, colleges and other NSF-funded institutions. Many of these items are selected to appear in the changing banner at the top of the home page of the NSF website. These News From the Field items bring together in one place a larger number of the discoveries made possible by NSF support. The public can receive automatic updates via an RSS feed or GovDelivery alert notification. NSF also uses its social media channels to disseminate News From the Field stories. With more than 9,750 news items published and the number increasing each day, News From the Field greatly enhances NSF's ability to inform the public about the results of taxpayer supported research. See the News From the Field Web page http://www.nsf.gov/news/news_list.jsp?nt=12 for News From the Field.

- **The Vizzies Science and Engineering Visualization Challenge --** Pictures, videos, posters, music, and interactive demonstrations can communicate research results and scientific phenomena in ways that mere words cannot. As the need to increase science literacy grows more urgent, visualizations can provide immediate and influential connections between scientists and the public, and may be the best hope for nurturing popular interest. For these reasons, NSF and *Popular Science* co-sponsor The Vizzies Visualization Challenge. The annual competition seeks to encourage and expand the participation of people engaged in communicating science, engineering and technology for education and journalistic purposes. Judges appointed by NSF

and *Popular Science* select winners in each of six categories: Photography, illustrations, posters and graphics, interactives, music, and videos. The winning entries appear in a special section in *Popular Science* magazine, PopSci.com, and on the NSF website. The challenge has resulted in a growing library of award-winning visualizations, available for use by teachers, students, and the public. The competition's first winners were announced in 2003, and the most recent winners were announced in 2016. The competition accepted entries online for the first time in 2011, with entries submitted via the Challenge.gov website. Judging rounds take place in October through November and once the entries have been narrowed to the top 10 in each category, the public is invited to vote for its favorites. The entries that receive the most public votes in each category are named the people's choice winners. The current competition will open on June 1, 2016 and will run through March 2017 with awards made in March 2017. For more information, see The Vizzies Visualization Challenge Special Report at http://www.nsf.gov/news/special_reports/scivis/index.jsp.

- **NSF Multimedia Gallery --** NSF maintains a collection of illustrations, photos, animations, videos and audio programs covering all areas of S&E supported by the agency. Content for the NSF Multimedia Gallery (MMG) consists of works created by staff and contractors (as works for hire), and also works contributed by others outside the agency who have granted NSF permission to make their materials available to the public for educational, non-commercial/nonprofit, and informational purposes. To date, the MMG collection includes more than 4,660 image, video and audio files. The NSF MMG may be found at http://www.nsf.gov/news/mmg/.

- **Science360.gov --** This multimedia Web portal immerses visitors in the latest wonders of NSF-funded discoveries and all things STEM: science, technology, engineering and mathematics. The site is rich with news, video, audio and images to engage the public in the cutting edge scientific and technological advances of our time and in the significance of NSF-funded science and engineering in our daily lives. The subscriber-based **Science360 News Service** provides current headlines, in depth stories and multimedia each weekday, as well as NSF's Science360 Super Science Show video on Saturdays. The **Science360 video library** now offers more than 2,000 videos, making it one of the largest STEM video collections in the federal government! Some of these are also highlighted on the **Science360 iPad app**, which has been downloaded more than 2.6 million times. The videos are generally provided by researchers, colleges and universities, science/engineering centers and organizations, government agencies, and the National Science Foundation. The **Science360 Radio** app has approximately 6,000 listeners each week and offers interviews with NSF-funded researchers and current stories on 100+ radio shows and podcasts in the U.S. and abroad.

- **Mobile** -- Appreciating the fact that today's citizenry are very mobile, NSF has developed free apps to extend the reach of Science360 into the mobile world. The Science360 Radio apps for iPhone and Android devices allow people to listen anytime, anywhere. The Science360 for iPad app provides easy access to engaging S&E videos and images produced by NSF and its partners,

or gathered from NSF-supported scientists, colleges and universities, and centers, and also breaking news stories about scientific discoveries by NSF-supported researchers. The Science360 Network website is located at http://science360.gov/files; Science360 Radio is located at http://science360.gov/radio/; information about the Science360 for iPad app, including how to download it for free, is available at http://science360.gov/ipad/. NSF now has an Android version of the Science360 app available at https://play.google.com/store/apps/details?id=gov.science360.radio.

The NSB's *Science and Engineering Indicators,* comprising high-quality, policy neutral, quantitative data on the U.S. and international science and engineering enterprise is now available in mobile form on tablet versions of Android and IOS: iPad-- https://itunes.apple.com/us/app/science-engineering-indicators/id688898067?mt=8&ls=1; Android-- https://play.google.com/store/apps/details?id=gov.nsf.sei.

VII. FLAGSHIP INITIATIVE

Open Government Plan 4.0 Flagship Initiative Science & Engineering Indicators

As in its previous open government plans, NSF is identifying multiple flagship initiatives for NSF's Open Government Plan 4.0.

NSF's first flagship initiative under this plan is the recently released digital version of Science and Engineering Indicators (SEI). This new initiative supports all three of open government goals of: Transparency, participation and collaboration.

By law, the NSB is required to *"prepare and transmit the biennial Science and Engineering Indicators (SEI) report to the President and to the Congress every even-numbered year*[13]*".* Under NSB guidance the report is prepared by NSF's National Center for Science and Engineering Statistics (NCSES). The report contains quantitative information (indicators) on the scope, quality and vitality of the S&E enterprise, both domestic and international.

Examples of the type of information that is available include:

- Americans' views of science,
- Americans' attitudes toward science by education level,
- S&E publications for U.S. public and private universities,
- Average net tuition by family income quartile and institution type, and
- Domestic R&D expenditures, selected countries

2016 is the first time that the SEI has been published as a Web-based digital report via www.nsf.gov/statistics/indicators/. Further, an interactive version of the information is being made available online at www.nsf.gov/statistics/digest/. Using these tools, users will be able to create their own charts/graphics, and thereby gain greater insight, suitable for their own individual needs. The data provided by the sites is available for download for subsequent analysis.

Readers are encouraged to explore the referenced sites and explore the information made available. Further, the new digital capability being made available provides the opportunity to gain greater insight into the S&E enterprise specific to a user's unique interests.

Our second flagship initiative is a collaboration between the participating agencies of the White House National Science and Technology Council. The initiative is a web portal for both undergraduate and graduate STEM students to enable them to search for opportunities funded by federal agencies. Users can search by STEM discipline, institutional location in addition to keyword searches. In addition to a direct link to the sponsoring agency's website the user is provided with a brief program description http://stemgradstudents.science.gov/ and http://stemundergrads.science.gov/.

[13] National Science Foundation (NSF) Act, 42 U.S.C. § 1863 (j)

Open Government Plan 3.0 Flagship Transparency & Accountability Initiative

NSF's Open Government Plan 3.0 identified Transparency and Accountability as one of its flagship initiatives. The effort to ensure that NSF award titles and abstracts "clearly convey to the public justifications of our actions" has led to new guidance and changes in practice within NSF. In addition to training that has been developed for program staff by the NSF Academy (as part of Merit Review Basics III, the third course of a four-course sequence), some directorates provide similar training directly to incoming Program Directors. Two directorates have created a formal *Titles and Abstracts Resource Guide* for program staff.

The new guidance and training has resulted in increased editing of award titles for clarity (excluding awards for workshops and conferences, up from 10% of titles changed in 2012 to 24% in 2015). Many more of the edited titles are found to be clear than those that are unchanged. In a study of ~200 recent titles read by scientifically trained fellows, 70% of edited titles were found to be clear while only 47% of those that had not been edited were found to be clear. In addition, 88% of the titles for conference or workshop awards were changed to include the location and dates of the event and thus increase transparency.

New policies require that award abstracts include a paragraph at the beginning that describes the nature of the project and justifies the public expenditure of funding to a lay audience. Our analyses have shown that these non-technical sections of the abstract are now ubiquitous and contain fewer technical terms. Where technical terms still exist, they are generally being explained for a general audience.

Details on these activities may now be found at the publicly available site: http://nsf.gov/od/transparency/transparency.jsp

NSF invites and encourages the public to submit ideas regarding this plan and how NSF might further improve its transparency, participation and collaboration efforts. Ideas may be submitted to transparency@nsf.gov.

NSF Open Government Plan 2.0 Open Data Access Flagship Initiative

NSF Open Government Plan 2.0 identified open access as its flagship activity, directly embracing transparency and openness.

NSF developed its public access plan (NSF 15-52) in response to the Office of Science and Technology Policy (OSTP) memorandum, *Increasing Access to the Results of Federally Funded Scientific Research.* It can be found at: http://www.nsf.gov/news/special_reports/public_access/index.jsp. The plan calls for deposit of journal articles and juried conference papers in the NSF Public Access Repository (NSF-PAR), which is hosted by the Department of Energy, Office of Scientific and Technical Information (DOE/OSTI). The plan builds on existing NSF policies, which require that NSF grantees will share their data with other scientists and will submit their findings for publication. The specific policy may be found at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=aag.

Changes to NSF policies to reflect requirements for deposit of journal publications and juried conference papers were announced through NSF's well-established, annual cycle of public notice and comment through the Federal Register and became effective on January 25, 2016. The new policy applies to eligible publications and papers based on awards resulting from proposals submitted on or after the effective January 2016 date. The data management plan requirement has been in place since January 18, 2011. NSF-PAR was released in stages between October and December 2015 and has been fully functional since the beginning of calendar 2016 at: http://par.nsf.gov. Awardee functions are available at http://www.research.gov as extension to existing reporting and award management requirements.

NSF has also entered into an agreement with CHORUS, a multi-publisher portal that provides access to metadata and journal articles resulting from government funding. As a result, citizens have access to over 14,000 records of research articles resulting from NSF funding. Finally, NSF is augmenting existing award search capabilities on nsf.gov and research.gov to identify articles in NSF-PAR, offering the public four avenues for searching NSF-funded research (FastLane, Award Search, CHORUS, and NSF-PAR).

Over time, the system will be expanded to engage other federal agencies in a federated system and to explore ways to capture information on publications funded by NSF but released after the period of the award. In addition, NSF has funded a number of supplements to existing awards, designed to encourage scientific communities to explore ways to improve data management and data management plans in support of public access goals. In the future, NSF expects to continue to stand up consultation activities associated with data management with the goal of increasing identification, description, and discoverability of data that result from research investments over the next year.

APPENDIX 1: NSF OGD DATA AND REPORTS COLLECTION

Below is a complete listing of NSF data collections available either via the NSF open government website (http://www.nsf.gov/open) or Data.gov (http://www.data.gov), along with brief descriptions of their contents. These will be augmented periodically as new, high-value datasets are identified and converted to the necessary machine-readable format.

- **Comprehensive Information on Federal Spending by Agency and Spending Type**
  http://www.usaspending.gov/

- **NSF Research Grant Funding Rates: Current Year**
  An XML file containing current year NSF funding rates for competitive research proposals by organizational unit. The funding rate is calculated by dividing the number of awards by the number of awards and declines.
  http://catalog.data.gov/dataset/nsf-research-grant-funding-rates-current-year

- **NSF Research Grant Funding Rate History**
  An XML file containing FY 2004 - FY 2013 NSF funding rates for competitive research proposals by organizational unit.
  http://catalog.data.gov/dataset/nsf-research-grant-funding-rate-history

- **NSF Obligations for Top 200 Institutions by Fiscal Year**
  An XML file containing FY 2001 through FY 2011 NSF obligations by institution for the top 200 recipients defined in terms of total NSF funding received in the fiscal year.
  http://catalog.data.gov/dataset/nsf-obligations-for-top-200-institutions-by-fiscal-year

- **NSF State Obligations by Fiscal Year**
  An XML file containing FY 2001 through FY 2013 NSF obligations by state and account.
  http://catalog.data.gov/dataset/nsf-state-obligations-by-fiscal-year

- **NSF Budget History by Account from FY 1951**
  An XML file containing NSF budget history by account from FY 1951.
  http://catalog.data.gov/dataset/nsf-budget-history-by-account-from-fy-1951

- **NSF Average Dwell Time by NSF and Directorate, FY 2004 - FY 2013**
  An XML file containing FY 2001 through FY 2011 NSF Average Dwell Time by NSF and Directorate.
  http://dellweb.bfa.nsf.gov/xml/AverageDwellTime.xml

- **Early and Later Career Principal Investigator Count Percentage and Funding Rates**
  An XML file containing Count and Funding Rates for NSF Early and Later Career Principal Investigators (PIs).
  http://catalog.data.gov/dataset/nsf-early-and-later-career-principal-investigators-pis-count-and-funding-rates

- **NSF Funding Rates by Principal Investigator Demographic**
  An XML file containing a history of NSF Funding Rates per Fiscal Year (FY) with Principal Investigator (PI) Demographics.
  http://catalog.data.gov/dataset/nsf-funding-rates-by-principal-investigator-pi-demographic

- **NSF Freedom of Information Act Report for the fiscal years listed below**
  Statistical information on the number of FOIA requests received and processed by NSF beginning with FY 1998, including response times for FOIA requests, the number of appeals received, and other statistics on NSF's FOIA program.

    - **Reports for October 1, 1998 through March 30, 2016** http://www.nsf.gov/pubs/2016/ogc16001/ogc16001.pdf

- **NSF Graduate Research Fellowship Program Award Recipients, 2000-2016**
  NSF's Graduate Research Fellowship Program (GRFP) provides three years of support for graduate study leading to research-based masters or doctoral degrees in disciplines relevant to the mission of the Foundation. This dataset includes GRFP award recipients from 1952 – 2016.
  https://www.fastlane.nsf.gov/grfp/AwardeeList.do?method=loadAwardeeList

- **NSF Graduate Research Fellowship Program Honorable Mention Recipients, 2000-2016**
  NSF's Graduate Research Fellowship Program (GRFP) provides three years of support for graduate study leading to research-based masters or doctoral degrees in disciplines relevant to the mission of the Foundation. This dataset includes GRFP Honorable Mention recipients from 1994-2016. https://www.fastlane.nsf.gov/grfp/AwardeeList.do?method=loadAwardeeList

- **NSF Grants Management and Information on Research Spending and Results**
  http://www.research.gov/

- **NSF Spending Under the American Recovery and Reinvestment Act of 2009**
  http://www.nsf.gov/recovery/

- **Performance of NSF Major IT Investments**
  https://catalog.data.gov/dataset/nsf-performance-data-for-major-it-investments

- **Research Spending and Results (Tool Catalog)**
  Research.gov Research Spending and Results is an online, user-friendly platform to access and search detailed information about federally funded science and engineering research and education, giving the general public, the scientific community and Congress visibility into the results achieved with federally-funded research. Research awards are easily searchable by agency, awardee, award amount and date, state and congressional district (where award was made and the work is being performed), and key word such as a field of science. Information can be reviewed online or exported to various file formats, such as XML, CSV and XLS. Detailed information on federally funded research can be found for multiple agencies. Information provided for each award includes: Award recipient (institution and researcher), Award Amount and funds obligated to date, Period of Performance, State and Congressional district where the award was made and where the work is being performed, Award Abstract describing the research effort, Citations of Journals Published as a result of the award.
  http://www.research.gov/research-portal/appmanager/base/desktop?_nfpb=true&_eventName=viewQuickSearchFormEvent_so_rsr

- **Science and Engineering Indicators: 2016**
  Science and Engineering Indicators (SEI) comprises of quantitative data on the U.S. and international science and engineering enterprise. The "indicators" are quantitative representations that provide summary information on the scope, quality, and vitality of science and engineering.
  http://www.nsf.gov/statistics/2016/nsb20161/uploads/1/nsb20161.pdf

- **Science and Engineering Indicators: 2016 State Data Tool**
  The State Data Tool draws from the National Science Board's (NSB's) Science and Engineering Indicators report. This tool allows for interactive visual exploration of state indicators covering the role of science and technology (S&T) in state and regional economic development.
  https://www.nsf.gov/statistics/2016/nsb20161/#/

- **Key Science and Engineering Indicators: Digest 2016**
  This digest of key S&E indicators draws from the NSB Science and Engineering Indicators report. The digest serves to draw attention to important trends and data points from across Indicators and to introduce readers to the data resources available in the report.
  https://catalog.data.gov/dataset/nsf-key-science-and-engineering-indicators-digest-2016

- **SESTAT (Tool Catalog)**
  National Survey of College Graduates (NSCG), National Survey of Recent College Graduates(NSRCG), Survey of Doctorate Recipients (SDR).
  http://catalog.data.gov/dataset/sestat

- **WebCASPAR (Tool Catalog)**
  The WebCASPAR database provides easy access to a large body of statistical data resources for science and engineering (S&E) at U.S. academic institutions. WebCASPAR emphasizes S&E, but its data resources also provide information on non-S&E fields and higher education in general. https://ncsesdata.nsf.gov/webcaspar/

Web Content

- **Directorate and Office Advisory Committees**
  General information about and links for NSF's Directorate and Office Advisory Committees and Topic Specific Advisory Committees.

- **e-Gov Content Inventory**
  An inventory of the content that NSF makes available on its website.

- **Speeches by the Director and Deputy Director**
  Recent speeches by the NSF Director and Deputy Director
  http://www.nsf.gov/news/speeches/

- **Speech Archives** (older speeches, as well as speeches by former Directors and Deputy Directors) http://www.nsf.gov/news/speeches/speech_archives.jsp

- **Testimony Before Congressional Hearings**
  NSF Testimony - Current Congress and Previous Congresses.
  NSB Testimony.

Tools

- **NSF Calendar**
  An Events Calendar shows upcoming events, NSF-related congressional hearings, National Science Board (NSB) and other meetings, and more.
  http://www.nsf.gov/events/

- **NSF Staff Directory**
  Locate staff by searching or browsing staff and offices.
  http://www.nsf.gov/staff/

- **Open Data**
  As required by the Open Data Policy and OMB Open Data Supplemental Guidance, NSF maintains a Public Data Listing in the JSON, XML, and HTML formats comprising our inventory of

publicly available agency datasets.
http://www.nsf.gov/data/

Records and Reports

- **NSF Conference Report**
  OMB Memorandum M-12-12 requires federal agencies to report by January 31st of each year, information on all agency-sponsored conferences from the previous year where the net expenses for each single conference were in excess of $100,000. This report is also required to include the agency head's waiver for any single conference with net conference expenses that exceeded $500,000.

- **NSF Open Government Directive Plan**
  The plan serves as the roadmap for NSF's plans to improve transparency, better integrate public participation and collaboration into the core mission, and become more innovative and efficient.

- **NSF Reports to Congress**
  Updated May 27, 2014
  This web page provides links to agency reports to Congress required by statute.

- **NSF Strategic Plan for Fiscal Years (FY) 2014-2018**
  Investing in Science, Engineering, and Education for the Nation's Future sets the Foundation's direction for the current five years.

- **NSF Performance**
  Submitted with the FY 2016 NSF Budget Request to Congress, NSF performance information including NSF Performance Framework, FY 2015 Annual Performance Report, FY 2016 Annual Performance Plan and other information.

- **FY 2015 Performance and Financial Highlights (PDF)**
  The report highlights key information from NSF's FY 2013 Agency Financial Report (AFR) and Annual Performance Report (APR).

- **FY 2015 Agency Financial Report (AFR)**
  The first of three reports providing financial management and program performance information for FY 2013 to demonstrate accountability to our stakeholders and the American public. The AFR focuses on financial management and accountability.

- **Previous Years Performance Information**
  Performance information for previous years can be found in Annual Performance and Accountability Reports and the Performance Reports Archive.

- **NSF Chief 2009 - 2015 FOIA Officer Report**
  Annual Freedom of Information Act (FOIA) Officer Report for 2013 describing steps NSF has taken to apply the presumption of openness, ensure NSF has an effective system for responding to requests, increase proactive disclosures, greater utilize technology, and reduce backlogs and improve timeliness in responding to requests.

- **NSF Data Quality Standards**
  NSF has developed information quality guidelines designed to fulfill the OMB guidelines.

- **NSF Collaboration With Other Federal Agencies**
  June 2015
  A list of NSF's programs that are conducted in partnership with other federal agencies.

- **Motor Vehicle Management**
  NSF executive fleet vehicle disclosure.

- **Review of Web Measurement and Customization Technologies**
  NSF is required to review its use of web measurement and customization technologies annually to ensure compliance with all laws, regulations, and OMB guidance.

APPENDIX 2: SELECTED CITED URLS (in order of appearance)

- **Public Access Plan**
  http://www.nsf.gov/pubs/2015/nsf15052/nsf15052.pdf

- **eGov Content Inventory**
  http://www.nsf.gov/policies/egov_inventory.jsp

- **Records Retention Schedule**
  http://www.nsf.gov/policies/records/index.jsp

- **Science and Engineering Indicators State Data Tool**
  https://www.nsf.gov/statistics/2016/nsb20161/#/

- **Science and Engineering Indicators Digest**
  https://nsf.gov/nsb/publications/2016/nsb20162.pdf

- **Federal IT Dashboard**
  http://www.itdashboard.gov/

- **NSF Webinars**
  http://nsf.gov/events/event_group.jsp?group_id=20018&org=NSF

- **Social Media Sites (complete list at**: http://www.nsf.gov/social/)
  https://www.facebook.com/US.NSF)
  http://www.flickr.com/photos/nsf_beta
  http://www.youtube.com/user/VideosatNSF
  http://twitter.com/NSF
  https://www.linkedin.com/company/national-science-foundation
  https://debblog.nsfbio.com/about/

- **NSF Partnerships**
  http://www.nsf.gov/about/partners/fedagencies.jsp

- **NSF Open Government Plan**
  http://www.nsf.gov/open/

- **Networking and Information Technology Research and Development (NITRD)**
  http://www.nitrd.gov/

- **FOIA at NSF**
  http://www.nsf.gov/policies/foia.jsp

- **Data.gov**
  http://www.data.gov

- **Graduate Research Fellowship Program (GRFP) API**
  https://catalog.data.gov/dataset/nsf-grfp-awardees-and-honorable-mentions-web-api

- **NSF Funding Rate History API**
  https://catalog.data.gov/dataset/nsf-funding-rate-history-web-api

- **NSF Digital Strategy**
  https://www.nsf.gov/digitalstrategy/

- **NSF Open Data**
  http://www.nsf.gov/data

- **NSF API Developer Resources**
  http://www.nsf.gov/developer/

- **Privacy and Compliance Reports**
  http://www.nsf.gov/policies/privacy.jsp
  http://www.nsf.gov/policies/pia.jsp
  http://www.nsf.gov/policies/privacy_act.jsp

- **Whistle-blower Protection**
  http://www.nsf.gov/oig/whistleblower.jsp

- **Records Management**
  http://www.nsf.gov/policies/records/index.jsp

- **Congressional Requests for Information**
  http://www.nsf.gov/about/congress/nsf-congress-reports.jsp
  http://www.nsf.gov/staff/staff_list.jsp?orgId=5210&subDiv=y&org=OLPA

- **Declassification of Documents**
  http://www.nsf.gov/pubs/manuals/gpm05_131/gpm8.jsp#850

- **News from the Field**
  http://www.nsf.gov/news/news_list.cfm?nt=12

- **Science and Engineering Visualization Challenge**
  http://www.nsf.gov/news/special_reports/scivis/index.jsp

- **Multimedia Gallery**
  http://www.nsf.gov/news/mmg/

- **Mobile App**
  http://science360.gov/ipad/

APPENDIX 3: LIST OF ACRONYMS

API	Application Programming Interface
BFA	Office of Budget, Finance and Award Management
BIO	Biological Sciences Directorate
CIF21	CyberInfrastructure Framework for 21st Century Science and Engineering
CIO	Chief Information Officer
COV	Committee of Visitors
CTO	Chief Technology Officer
CSV	Comma Separated Values
DARPA	Defense Advanced Research Projects Agency
DEB	Division of Environmental Biology
DoD	Department of Defense
DoE	Department of Energy
EaSM	Decadal and Regional Climate Prediction Using Earth System Models
ENG	Engineering Directorate
EPA	Environmental Protection Agency
EPSCoR	Experimental Programs to Stimulate Competitive Research
EOP	Executive Office of the President
FOIA	Freedom of Information Act
IRM	Office of Information and Resource Management
IT	Information Technology
MPS	Mathematical and Physical Sciences Directorate
NARA	National Archives and Records Administration
NASA	National Aeronautics and Space Administration

NIH	National Institutes of Health
NSB	National Science Board
NSF	National Science Foundation
OD	Office of the Director
OGC	Office of the General Counsel
OGD	Open Government Directive
OIG	Office of Inspector General
OLPA	Office of Legislative and Public Affairs
OMB	Office of Management and Budget
OSTP	Office of Science and Technology Policy
PI	Principal Investigator
POR	Project Outcome Report for the General Public
R&D	Research and Development
S&E	Science and Engineering
S&T	Science and Technology
SAO	Senior Accountable Official
SBE	Social, Behavioral and Economic Sciences
SMART	Senior Management Advisory Roundtable
STEM	Science, Technology, Engineering and Mathematics
USDA	United States Department of Agriculture
XML	eXtensible Markup Language