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NSF Continues to Broaden Participation

NSF defines broadening participation in terms of individuals from underrepresented groups, as well as institutions and geographic areas that do not participate in NSF research programs at rates comparable to others. Broadening participation is part of the overall merit review process used at NSF. Some NSF programs, however, have a particular focus or emphasis on broadening participation, and these comprise NSF's Broadening Participation Portfolio.

To integrate broadening participation with NSF's core processes, such as merit review and award oversight, NSF is taking action on the recommendations of a working group in consultation with NSF staff, senior management, and advisory committees. To date, these actions have included establishing a publicly accessible [web page](#), maintaining and updating NSF's [Broadening Participation Portfolio](#), and initiating the development of enhanced reviewer management services to provide tools and incentives to increase the diversity of reviewers and panelists who participate in merit review.

Transformative Research Increases Visibility

To address the NSB's report, *Enhancing Support of Transformative Research at the National Science Foundation* (NSB-07-32), and Dr. Bement's response to it, NSF established the Facilitating Transformative and Interdisciplinary Research (FacTIR) Working Group in December 2007. FacTIR is charged with revamping the Small Grants for Exploratory Research (SGER) funding mechanism and with providing recommendations on how the Foundation can better facilitate receiving, reviewing, and tracking potentially transformative research (PTR) and interdisciplinary research (IDR) proposals.

The following two separate funding mechanisms will replace the current SGER funding mechanism and will be included in the October 2008 version of the Grant Proposal Guide:

- EARly-concept Grants for Exploratory Research or the EAGER funding mechanisms will be used to support exploratory work in its early stages on untested, but potentially transformative, research ideas or approaches. This work may be considered especially "high risk/high payoff" in the sense that it involves radically different approaches, applies new expertise, or engages novel disciplinary or interdisciplinary perspectives.
- RAPID awards will support projects requiring a rapid release of funds and thus an expedited merit review process. The RAPID funding mechanism will be used for proposals having a severe urgency with regard to availability of, or access to data, facilities or specialized equipment, including quick-response research on natural or anthropogenic disasters and similar unanticipated events.

Transformative Research Increases Visibility (cont.)

In addition to advancing these new funding mechanisms, FacTIR has developed a definition of transformative research and prepared a draft set of frequently asked questions for the scientific community and training materials on potentially transformative research for new program officers. FacTIR currently is also exploring tracking mechanisms for PTR and IDR proposals and ways to ensure unsolicited interdisciplinary proposals are welcomed and appropriately reviewed by the Foundation. FacTIR will finalize its recommendations by December 2008.

IPAMM Study Complete

In August 2007, an NSF-wide working group focusing on the Impact of Proposal and Award Management Mechanisms (IPAMM) published the results of an 18-month study of the trends, impacts, and causal factors associated with the decline in proposal funding rates and the simultaneous growth in proposal submission rates experienced by NSF between FY 2000 and FY 2006. In conducting its analysis, IPAMM used both quantitative data from internal NSF databases and attitudinal data collected through a survey of all NSF principal investigators who submitted research proposals during FY 2004-2006. IPAMM found that declining funding rates had affected the entire NSF proposer community proportionately and that there had been no disparate effect on first-time investigators, underrepresented groups or different institution types. IPAMM also found that the quality of the proposals being submitted had not deteriorated, although more high-quality proposals are being declined. The largest impacts were related to the increased number of proposals being submitted, which has put stress on NSF's merit review process.

Although the overall NSF budget increased in real terms during this period, the budget increases were absorbed by the growth in the average award size, leaving little flexibility to respond to growing proposal submissions. The increase in proposal submissions could be attributed to a number of different factors, including the increased size and capacity of the research community, loss of funding from other sources, increased use by NSF of targeted solicitations in new areas, and a perceived increase in institutional pressures on faculty members to obtain grants to achieve promotion and tenure, and to support their students and labs.

Several of the report's recommendations have been implemented over the past year, including: improving the accessibility to sources of accurate NSF funding rate data; improving communications with internal and external communities when implementing new management practices; expanding the annual Merit Review Report to include a subset of the trends analyses described in the IPAMM report; and revising the Proposal and Award Manual to include a requirement that management plans for solicitations which limit proposal submissions and provide the rationale for imposing the limit. The report endorsed the limited and responsible use of practices being used by various units across the Foundation that may help break the decline-revise-resubmit cycle. Finally, because the needs and priorities of the communities that NSF serves differ across units, and also across time within units, the IPAMM report recommended flexibility in developing strategies that are appropriate within the context of various directorates or offices, and that balance long-term planning with the ability to respond to changing needs. To assist the directorates and offices in understanding which issues are most significant to their communities, NSF is conducting additional, in-depth surveys of principal investigators. This analysis will be concluded in Fall 2008.

GPRA Advisory Committee Report

The Advisory Committee for GPRA Performance Assessment (AC/GPA) meets annually to provide advice and recommendations to the NSF Director regarding the Foundation's performance under the Government Performance and Results Act (GPRA). In June 2008, the AC/GPA met to assess outcomes of NSF investments in research and education with regard to the three long-term strategic outcome goals of Learning, Discovery, and Research Infrastructure.

Performance Highlights, which are written by NSF staff and describe program accomplishments or significant research outcomes that were reported between March 1, 2007 and March 1, 2008, are the primary source of information for the AC/GPA. This year, NSF program staff submitted a record number of Highlights. Upon review of all 1,203 submitted Highlights, as well as 32 Committee of Visitors (COV) reports from 2006-2008 and other NSF performance reports, the Committee concluded that NSF "successfully met its performance objectives by demonstrating significant achievement for each of the three long-term strategic outcome goals. The Committee also reported that each of the 2007 AC/GPA recommendations on improving the process by which the Committee carries out its task had been "fully addressed, or are being addressed, by NSF staff and NSF management to the satisfaction of the Committee."

In the report to the Director, the AC/GPA recommended four action items for FY 2009:

1. track future outcomes from "people" trained and supported by the Foundation,
2. consider ways to convey the long view of NSF investments in science and engineering,
3. reconsider the format and value of COV reports, and
4. continue to improve the assessment processes and contextual information available to the AC/GPA.

The GPRA Working Group, comprised of representatives from all Directorates and Offices, is developing an implementation plan for these recommendations and will report back to the AC/GPA at its meeting in June 2009.

Research.gov -- The Future is Now!

Research.gov is a new initiative providing a menu of services for NSF staff and the research community. Research.gov meets the external research community's demand for common grants management business processes and tools across multiple agencies, and will also fulfill the Foundation's need for more modern proposal and awards management capabilities for NSF staff.

Available Now! Partnership Services for the Research Community

NSF is partnering on Research.gov with NASA, DoD Research, and USDA's Cooperative State Research, Education, and Extension Service (CSREES).

Since the initial launch in December 2007, Research.gov has provided the latest research award information, news, policies, and events for NSF and partner agencies. Currently, Research.gov offers the following services:

- **Research Spending and Results** – Find out where Federal research grant dollars are going. Search awards by keyword or a variety of different elements, such as awardee and congressional district.

Research.gov -- The Future is Now! (Cont.)

New this Fall! Use Research Spending and Results to search NSF and NASA awards in one place.

- **Research Headlines and Events:** View highlighted research activities from NSF, NASA, and USDA/CSREES
- **Policy Library:** Find agency policies, guides, terms and conditions, and instructions that applicants and agencies need to conduct grants business
- **Grants Application Status (Beta):** Sponsored Program Offices and Principal Investigators can view the status of proposals submitted to NSF and USDA/CSREES

NSF has been introducing the Grants Application Service to beta groups of institutions over the past several months. Based on the overwhelmingly positive feedback we have received, we plan to make the service available to all institutions. DoD plans to begin using this service in Spring 2009. The result will be one stop shopping for institutions to check the status of applications submitted to NSF, USDA/CSREES, and DoD Research.

Security & Privacy

NSF balances security and privacy considerations, such as protecting personal information and data, with the open and collaborative environment central to scientific research and discovery. Our hard work in this area is well-known: our security and privacy program has been externally recognized as a model program. In 2007, for the second consecutive year, NSF received an A+ grade from Congress on the annual Federal Information Security Management Act (FISMA) report card. The Office of Management and Budget (OMB) gives high marks to NSF's security program and recognized our achievements by rating NSF "Green" in the Expanded E-Government section of the President's Management Agenda (PMA) for seven consecutive years.

Our security program reflects the extraordinary achievements possible only with a knowledgeable and motivated workforce operating in a collaborative environment. We face unique challenges in remote locations while managing resources and facilities directly supporting the nation's critical investments in basic science and research. We implement protective measures and controls to ensure the privacy, integrity, and security of our information and IT resources, while allowing appropriate access to the broader research community.

During FY08, we continued to improve our program, focusing on several key initiatives:

We Are Protecting Personal Information

NSF initiated the *SSN Be Gone* project in 2007 as part of an ongoing effort to ensure the security of customer and employee personal information and maintain compliance with Federal requirements. This project minimizes NSF's risk of exposing Social Security Numbers (SSNs) by eliminating SSN use in processes, systems, and files where no business need exists and increasing protections where SSNs must be used for business purposes.

Security & Privacy (Cont.)

In August 2007, NSF stopped collecting SSNs in new FastLane registrations and introduced the alternate NSF ID. Since September 2008, over 350,000 SSNs are no longer used to access IT systems and FastLane customers use NSF ID for login.

We Are Securing Mobile Devices to Prevent Data Loss

We made significant progress in our efforts to encrypt mobile storage devices that store NSF data, including laptops and BlackBerry devices. Encryption of a mobile device ensures private information cannot be read if the device is ever lost or stolen.

We Are Keeping Desktops Secure

In response to OMB guidance, NSF implemented the Federal Desktop Core Configuration (FDCC) on Agency desktops and laptops in FY 2008. The FDCC's standard configurations follow industry benchmarks to improve security and reduce risk from security threats and vulnerabilities. We are 100% compliant with OMB's desktop configurations due to the hard work and attention of our dedicated IT specialists throughout the Foundation.

We Are Training Our Employees

One of the most important IT Security and Privacy Program functions is educating our staff on the challenges of IT security and our responsibilities for protecting NSF assets. Training everyone in IT security is a monumental achievement considering the diversity and geographic dispersion of staff supporting our programs in such locations as Antarctica, China, France and Japan. We achieved nearly 100% completion for Security and Privacy Awareness Training during the past two years. The success of our Security and

External & Internal Websites on Merit Review

This year, NSF launched the [Merit Review website](#) on NSF.gov to help the external community of researchers better understand the NSF merit review process and provide resources for principal investigators in proposal development.

The website has an introductory video from the NSF Director Arden Bement, emphasizing the high expectations NSF has for the quality and transparency of its merit review process. The video further highlights the desire of NSF to support transformative research that advances the frontiers of science and engineering research and education.

NSF is also developing an internal website on merit review to assist NSF staff in conducting the merit review process. Both of these websites are managed by the NSF Policy Office.

Hands Across the Grants World

NSF continues its leadership of key interagency committees charged with streamlining and implementing Federal grants policy and standards, including the Grants Policy Committee of the U.S. Chief Financial Officers Council, the Research Business Models Subcommittee of the Committee on Science, the grants committee of the Federal Financial Accountability and Transparency Act Task Force, and the Grants Management Line of Business. NSF also continues to lead outreach activities and involvement with our government-wide stakeholder communities such as the Federal Demonstration Partnership (FDP), the Council on Governmental Relations and the National Council of University Research Administrators.

This year, NSF staff have helped to bring about key accomplishments in the grants policy arena, such as the implementation of a new standard core set of terms and conditions on research and related awards, the launch of Research.gov, the completion of Phase V of a membership initiative in partnership with our FDP stakeholders, publication of a new government-wide newsletter called Grants World, and the strategic and transformation planning for federal-wide grants policy and management.

NSF's leadership on these issues gives the Foundation maximum input into the development of government-wide grants policy and allows us to ensure that those policies remain consistent and supportive of NSF's mission, core values, goals and objectives.

Human Capital Strategic Plan

Given today's knowledge-intensive global economy, NSF is more committed than ever to strengthening its world-class workforce - - one that is highly skilled, diverse, visionary and dedicated to excellence. NSF is a highly dynamic workplace—up to 20% management and 14% science and engineering staff turn over annually; permanent staff turnover is also increasing and by 2011, ~40% of today's current staff will be eligible for full retirement; workload volume, in terms of proposals received, is up 40% since 2001; and yet staffing levels have grown only ~8%. In order for NSF to realize its mission and to maintain a high-caliber workforce, effective human capital planning is essential.

In the Spring of 2007, Dr. Olsen appointed and chaired an NSF-wide succession plan working group composed of senior career executive officers representing all directorates and offices. While originally focused on succession planning, the group determined in the Fall of 2007 that an NSF succession plan should be an integral part of an overall NSF human capital strategy. Accordingly, the group expanded its work to examine and update human capital planning at NSF. In early 2008, NSF leadership solicited feedback from NSF staff on a draft human capital plan. The working group received 38 sets of comments covered a broad range of topics and provided constructive observations that led to valuable refinements. In March 2008, NSF issued the new NSF Human Capital Strategic Plan, which provides an integrated framework of policies and practices to guide NSF in meeting its workforce needs through 2012 and enable the Foundation to excel as an organization.

The plan, which supersedes the 2003 Human Capital Management Plan, incorporates the first-ever, Foundation-level workforce and succession plans and outlines implementing strategies related to recruitment, professional development, retention, and effective human capital processes and tools. It articulates an Agency-wide human capital vision; identifies new human capital goals that reflect the current 2006 NSF Strategic Plan; and describes NSF's workforce composition and human capital challenges within the 21st century context. The [plan](#) serves as a tool for NSF managers and an informational guide for NSF staff. It is intended to be a living document—one that is adaptable to individual organizational needs, as well as future requirements. The issuance of the new human capital plan is not the end of the process but rather the beginning of a new phase in NSF's on-going efforts to manage and enhance the NSF workforce. To assist in this process, an agency-wide, human capital committee will be established that will provide sustained broad focus, as well as targeted attention on human capital issues critical to NSF.

New Federal Financial Report Successfully Piloted

The Division of Financial Management (DFM) developed and implemented the NSF Federal Financial Report (FFR) as part of a pilot program designed to serve as a proof-of-concept for use by Federal agencies. The FFR is a standard expenditure report to be used by all Federal grant making agencies to assist in monitoring grantee expenditures. It replaces the SF 272 Federal Cash Transaction Report and the SF 269 Financial Status Report. The pilot program was a success with approximately one-third of NSF grantees using the report. Comments from users indicate that they like the enhanced navigation and improved functionality of the new form.

The Office of Management and Budget (OMB) announced that as soon as possible after October 1, 2008, and no later than October 1, 2009, each agency must transition to the new, government-wide FFR. After NSF transitions to the new form in January 2009, NSF grantees will be required to use the FFR for all financial reports.

NSF's Internal Controls Program

In FY 2008, NSF fully implemented its Agency-wide Internal Controls Program. With the passing of OMB Circular A-123, Management's Responsibility for Internal Control, Appendix A in December 2004 (implementation guide for the Federal Manager Financial Integrity Act (FMFIA) of 1982), NSF was required to strengthen its process of accessing internal controls over financial reporting. NSF's internal control program has been developed and strengthened over the past three years and now is fully implemented as required by FMFIA. FMFIA requires NSF to establish and maintain internal control to achieve the objectives of effective and efficient operations, reliable financial reporting and compliance with applicable laws and regulations. Annually, management must provide assurances on internal control in the Annual Financial Report (AFR) including a separate assurance on internal control over financial reporting.

Over the past three years, NSF has documented and tested all nine of its key business processes (Accounts Payable; Awards Management; Budget; Cash Management; Contracts Management; Internal Property, Plant & Equipment; Payroll; Quarterly & Year-end Closing; and U.S. Antarctic Program Property, Plant & Equipment) as well as over 55 subprocesses. NSF has also strengthened its review process of entity-level controls by incorporating an annual assessment of the documented controls. Through the establishment of its Senior Assessment Team named the Accountability and Performance Integration Council (APIC), the associated APIC Internal Controls Working Group (ICWG), the many Business Process Owners, and the A-123 Team, NSF has developed a sustainable internal control program.

In FY 2008, the A-123 Program not only conducted its annual internal controls training for the ICWG and Business Process Owners, but training sessions were also conducted within the Program Directorates, which helped to facilitate the identifying, documenting and testing of the financial controls managed within the Program Directorates. Furthermore, the A-123 Program assisted in communicating the message of the importance of internal controls and how the Agency, as a whole, plays a key role in ensuring effective and efficient operations of the Agency's Programs.

BFA Policy Council

The BFA Policy Council was created in Spring 2008 to ensure fluency among all BFA policy staff responsible for the various types of policies and procedures that are developed and implemented by BFA. The Council also provides an opportunity for policy staff to engage in dialogue regarding the various policy-related decisions that are being made to gain an understanding of the areas where BFA policies overlap with one another, to identify potential gaps, and to ensure that all BFA staff are educated regarding NSF policies and procedures. Formation of the Council has enabled BFA to standardize policy development and provide a forum to discuss how BFA can most effectively communicate best practices.

NSF Addresses the America COMPETES Act

The America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education and Science Act (ACA), Public Law 110-69, was signed into law on August 9, 2007. Its objectives are to increase research investment; strengthen educational opportunities in science, technology, engineering, and mathematics from elementary through graduate school; and develop an innovation infrastructure throughout the United States.

NSF has established five working groups, in the areas of Budget, Major Research Equipment and Facilities Construction, Education and Human Resources, Computer & Information Science & Engineering/Cyber Infrastructure, and Policy to address the myriad provisions of the Act. The Policy working group is actively engaged in developing implementation strategies for the ACA provisions regarding mentoring of postdoctoral research fellows, responsible conduct of research, reporting of research results and cost sharing. Given that these provisions will result in major changes for our awardees, NSF is taking a deliberate and measured approach to lessen the burden on the research community, while respecting the goals and objectives of the legislation.

We welcome your feedback!

For more information about these articles, or should you have any questions, comments or suggestions, please contact:

Kathleen Baukin (BFA) at 703.292.4803 or kbaukin@nsf.gov

Lori Wiley (BFA) at 703.292.8804 or lwiley@nsf.gov

Jeff Rich (OIRM) at 703.292.4227 or jrich@nsf.gov