



Research Security and Responsible Internationalization

Presentation to the NT-50 Forum

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Agenda

- NSF Overview
- Research Security and Foreign Interference
- NSF Research Security Efforts

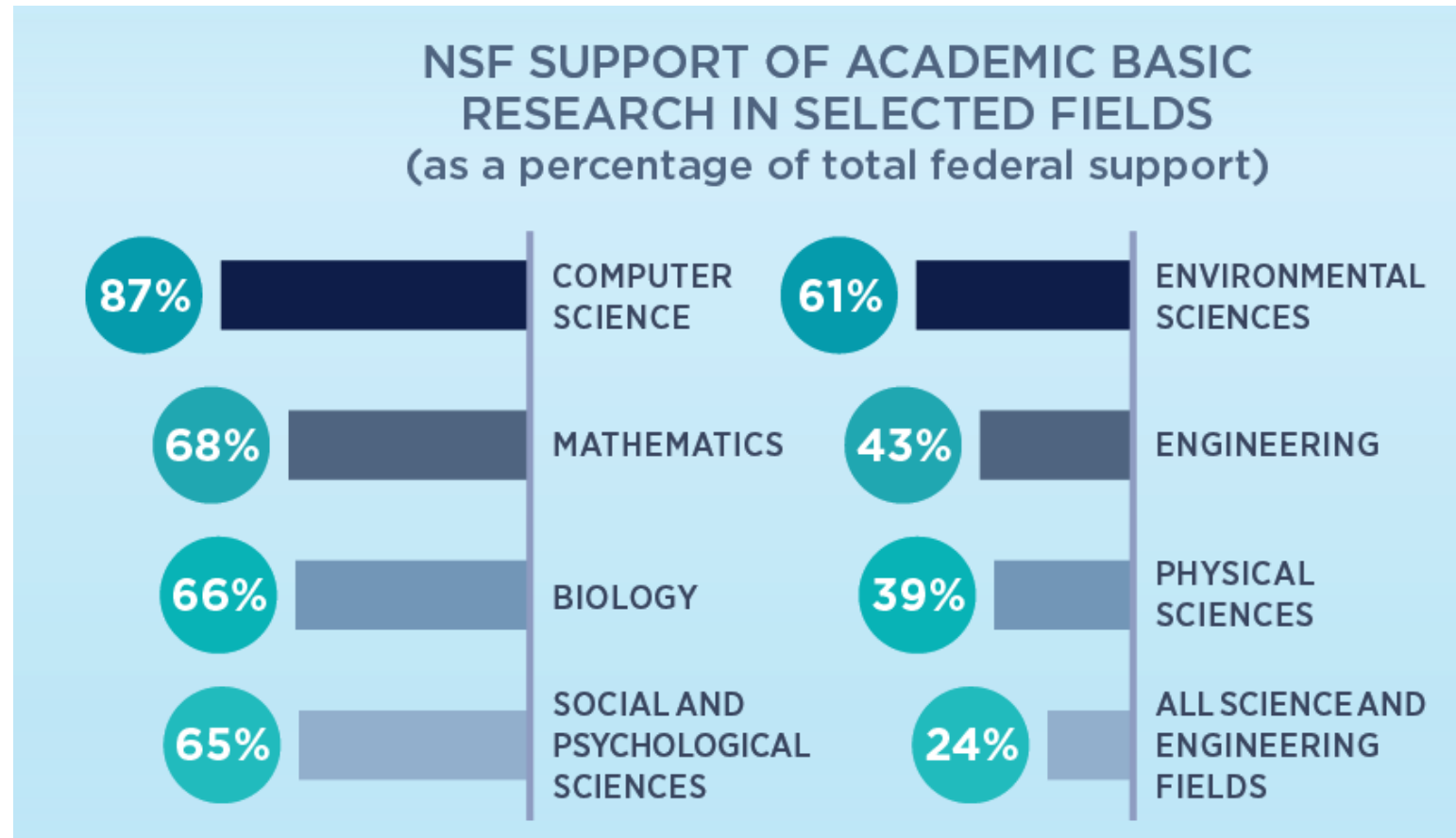


NSF in a Nutshell

- Independent agency
- Supports basic research & education
- Uses grant mechanism
 - More than 10% of budget goes to major research infrastructure
- Low overhead
- Discipline-based structure
- Use of Rotators from universities



NSF Support of Academic Basic Research in Selected Fields



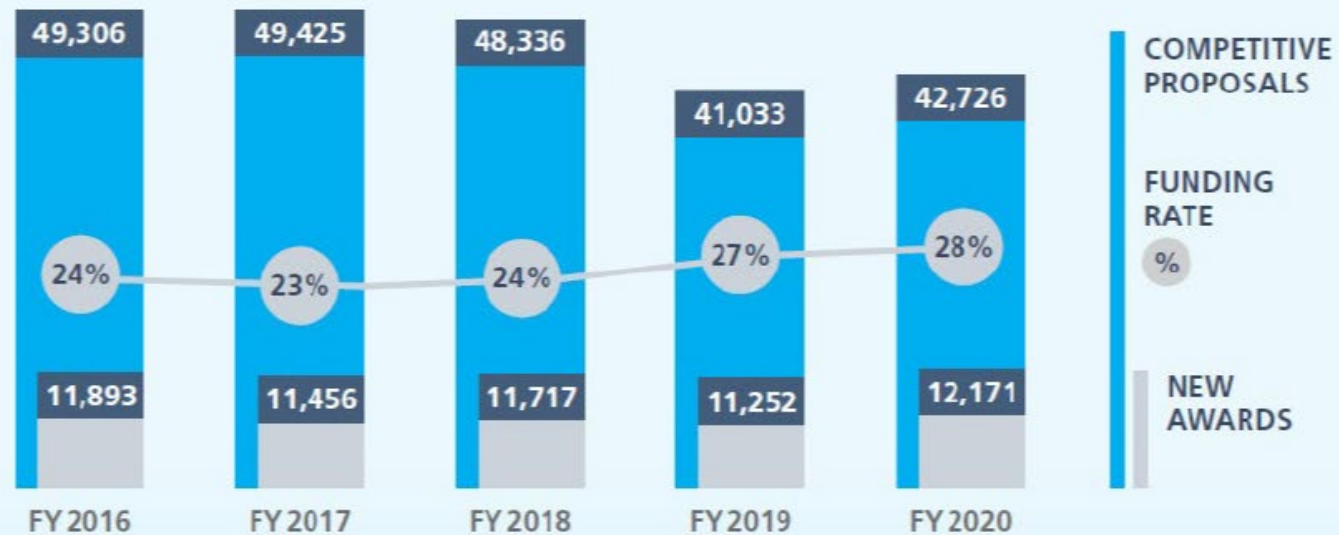
Note: Biology includes Biological Science and Environmental Biology. Biology and Psychological Sciences exclude National Institutes of Health funding from the total amount of federal support.

Source: NSF/National Center for Science and Engineering Statistics, Survey of Federal Funds for Research and Development, FY 2018



NSF Competitive Awards and Funding Rates

Figure 1.5. Number of NSF Competitive Proposals, New Awards and Funding Rates



New awards are a subset of competitive proposals.



Definitions of Research Security and Research Integrity*

RESEARCH SECURITY

Safeguarding the research enterprise against behaviors aimed at misappropriating research and development to the detriment of national or economic security, related violations of research integrity, and foreign government interference.

RESEARCH INTEGRITY

Adherence to professional values and principles – including objectivity, honesty, transparency, fairness, accountability, and stewardship – in proposing, performing, evaluating, and reporting research and development activities.



* NSPM 33 implementation plan

Foreign Interference

Can be categorized as a foreign government or entity's attempt to interfere with U.S. research endeavors.

Foreign interference does not equal international collaboration.

Select foreign government talent recruitment programs disregard intellectual property and threaten to compromise the transparency, openness, and integrity of scientific research.



Foreign Government Talent Recruitment Programs

Contracts can stipulate quotas for publications, outside funding, patents, and recruitment of other foreign researchers.

Definition: A foreign government sponsored talent recruitment program is an effort organized, managed, or funded by a foreign government to recruit science and technology professionals or students (regardless of citizenship or national origin)

Some recruitment programs threaten the transparency, openness, and integrity of scientific research by directing or encouraging inappropriate behaviors of recruited ***employees of U.S. academic research organizations.***

Under certain programs, U.S. university professor may be required to:

List foreign university affiliation before U.S. university on publications

Obtain large amounts of research funding for the foreign university

File a number of patents registered to the foreign university



NSF Research Security Efforts

- Make disclosure requirements as clear and understandable as possible
- Use data analytics to understand the scale and scope of the issues
- Encourage international collaboration as distinguished from improper foreign government influence
- Partner with the Office of Inspector General and interagency community to address risks



Importance of Disclosure

EVALUATING RISKS

Transparency and full disclosure are essential to properly identify and assess risks.

AVOIDING CONFLICTS

Disclosed information is used to identify potential conflicts of interest and commitment in some instances and potential issues related to capacity, overlap, and duplication in others.

ASSESSING QUALIFICATIONS

Disclosed information is used to assess the qualifications of the individual or team to perform the proposed project.

Enables a system that is fair to those who apply for grants and a system where grant decisions are made based on complete and accurate information



Summary of NSF-77: Data Analytics Application Suite

The System of Records Notice (SORN) NSF-77 “Data Analytics Application Suite” expands the allowed uses of NSF’s internal data. It enables the aggregation, linkage, and analysis of information reported by individuals and organizations participating in NSF-supported activities along with published information related to the research enterprise. This is the process under the Privacy Act.

NSF-77 enables NSF to address top priorities by:

- Connecting funding outcomes and understanding of the scientific enterprise.
- Improving NSF’s understanding of diversity equity and inclusion activities and programs.
- Improving research security coordination and assuring accuracy and fairness.
- Empowering strategic planning, collaborations, and program development.



NSF-77 Routine Uses

The SORN specifies three circumstances (referred to as 'routine uses') through which PII information may be shared out of NSF:

- 1) Information may be shared with an institution that has received NSF funding to verify potential inconsistencies between information reported to NSF and other sources (e.g., published papers, patents, etc.).
- 2) Information that has demonstrated a *verified* inconsistency with NSF's disclosure requirements may be shared with federal agencies to inform efforts related to national and research security.
- 3) Information may be shared with federal science and technology agencies to improve portfolio management, coordinate initiatives, and enhance the government's understanding of the scientific landscape.



Potential International Collaboration Questions-1

- Describe the engagement succinctly and without jargon. Is it fundamental research? If not, what are the institution's policies around creating the engagement?
- Are the terms of the engagement made clear in writing? Have all the participants been identified? Are all participants known to the PI and the PI's institution?
- Are all the participants' conflicts of interest and commitment documented? Are there any aspects of the engagement that are not to be disclosed to any of the participants? If so, what is the reason?
- Is there any aspect of the engagement that seems unusual, unnecessary or poorly specified?
- Where does the funding and other resources needed for the activity come from? Is it clear what each party is providing?



Potential International Collaboration

Questions-2

- Are all the tangible assets of the engagement, existing or to be generated (e.g., data, metadata, profits, equipment, etc.), known? How will they be shared? Who decides how they are allocated?
- How does a participant end their engagement?
- Are scholars expected to reside away from their home institutions as a part of the engagement? If so, how are they chosen for participation in the engagement?
- What are the reporting requirements back to home institutions or organizations?
- Who will control the dissemination of the resulting fundamental research?

^[1] Report | NSF-Commissioned JASON Report JSR-19-21 | “Fundamental Research” | 6 December 2019 | pp. 34-36 | https://www.nsf.gov/news/special_reports/jasonsecurity/JSR-19-21FundamentalResearchSecurity_12062019FINAL.pdf | accessed 14 May 2020 | JASON is an independent group of scientists which advises the US Government on matters of science and technology and is administratively managed by the MITRE Corporation.



Case Study – NSF, science association find research security & integrity violations

- A senior researcher at a U.S.-based institution had **4 awards terminated, totaling over \$1M.**
- The researcher had **multiple undisclosed foreign affiliations** in violation of NSF's disclosure policies, discovered by NSF's Office of Inspector General.
- The researcher belonged to a scientific association that convened an independent panel which also did an investigation based on complaints they received from other association members.
 - Findings: The **researcher violated their peer review process** by repeatedly sharing reviewer names and individual scores connected with paper submissions.
 - The **researcher coerced a co-author to proceed with submission of the manuscript** to the association despite concerns from the co-author about the accuracy of the results reported.
- The researcher was part of a **talent recruitment plan not disclosed to NSF.** There were terms in the Plan that could be linked to the nondisclosure issues and concerning behaviors.
- The researcher since resigned from the U.S. university and left the U.S.



National Security Presidential Memorandum 33 (NSPM-33)

» Addresses why research security and integrity are important and outlines their key elements

» Establishes federal department and agency roles and responsibilities related to research security

» Contains requirements such as:

- Disclosure of key information to federal agencies
- Establishment of a research security program for institutions receiving >\$50M in federal funding



NSPM Implementation Guidance

- **Disclosure Policy** — ensuring that federally-funded researchers provide their funding agencies and research organizations with appropriate information concerning external involvements that may bear on potential conflicts of interest and commitment;
- **Oversight and Enforcement** — ensuring that federal agencies have clear and appropriate policies concerning consequences for violations of disclosure requirements and interagency sharing of information about such violations; and,
- **Research Security Programs** — ensuring that research organizations that receive substantial federal R&D funding (greater than \$50 million annually) maintain appropriate research security programs.



Research Security Training Modules

- Partnership among NSF, NIH, DoD, DOE, and FBI
- Solicitation finalized

<https://www.nsf.gov/pubs/2022/nsf22576/nsf22576.htm?org=NSF>

- Webinar for proposers on April 20 had ~350 attendees
- Proposals due on May 23



