

The U.S. National Science Foundation as a Funding Agency

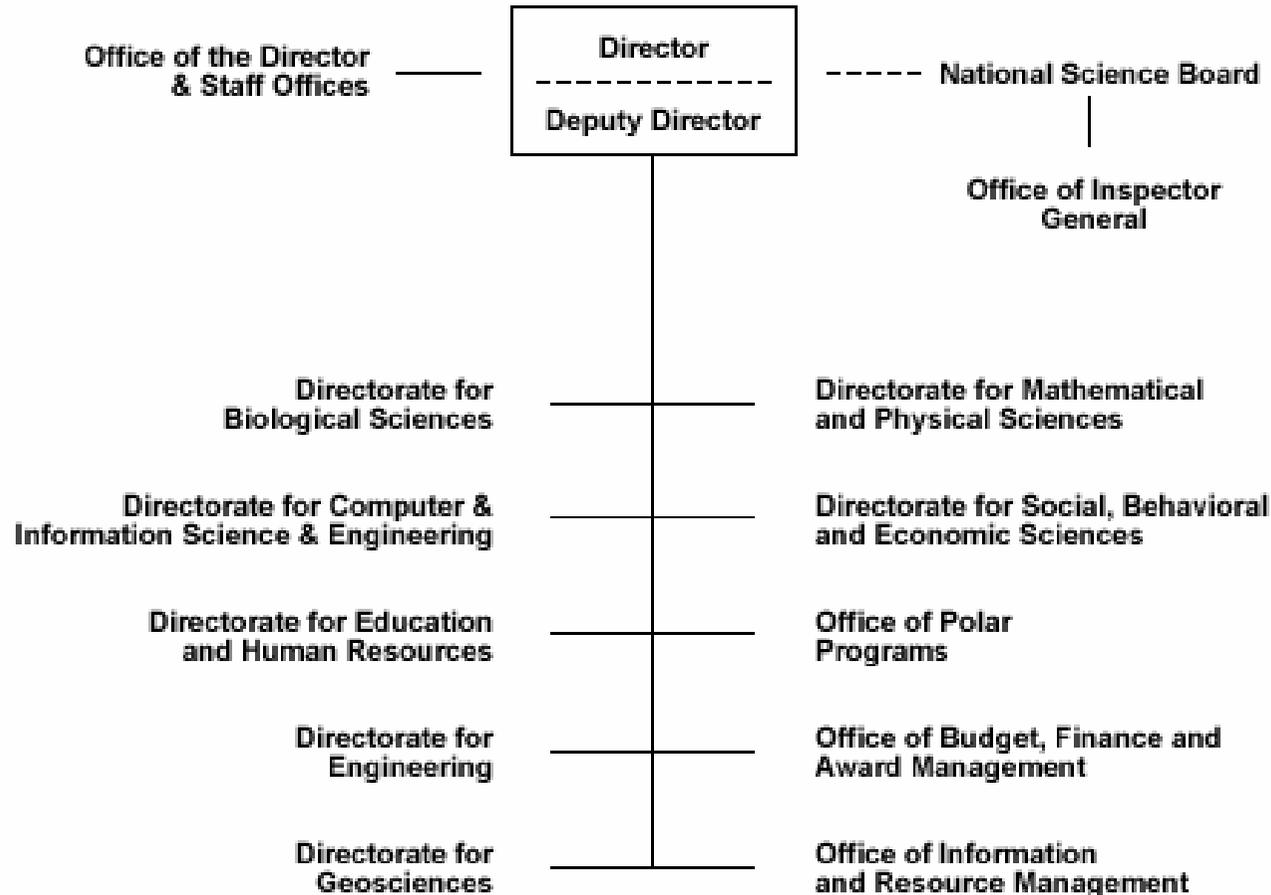
Christopher A. Loretz, Director
U.S. National Science Foundation
Tokyo Regional Office



National Science Foundation

- ◆ Established by Congress with the National Science Foundation Act of 1950 to consist of the National Science Board (NSB) and the Director
- ◆ “to promote the progress of science; to advance the national health, prosperity and welfare; and to secure the national defense”
- ◆ As an independent federal agency, NSF does not fall under any cabinet department.
- ◆ NSF activities are guided by the National Science Board.

NSF Organizational Chart



NSF Personnel*

Employment Type ↓ Operational Category	Permanent	Non-permanent				Operational Category Total	Contractors
		VSEE	IPA	Intermittent	Temporary		
Scientists & Engineers	371	34	143	65	87	700	0
Program Support	249	0	0	0	33	282	0
Business Operations	484	0	0	0	11	495	0
Commercial Operations	0	0	0	0	0	0	200 (on site)
Employment Type Total	1,104	34	143	65	131	1,477	200

*FY2004

National Science Board (NSB)

- ◆ Oversees and guides activities of, and establishes priorities for the National Science Foundation
- ◆ Serves as an independent national science policy body that provides advice to the President and Congress on policy issues in science and engineering
- ◆ Membership: 24 members, appointed by the President and confirmed by the Congress



National Science Board

Overview

Members

Meetings/Agendas

Documents

Committees

Honorary Awards

Last Updated: 07/28/2004

The National Science Board is an independent policy body established by Congress in 1950 with dual responsibilities to:

- Oversee and guide the activities of, and establish policies for, the National Science Foundation; and
- Serve as an independent national science policy body that provides advice to the President and the Congress on policy issues related to science and engineering that have been identified by the President, Congress or the Board itself.

The Board has 24 members appointed by the President and confirmed by the Senate, plus the NSF Director as an *ex officio* member. [More>>>](#)

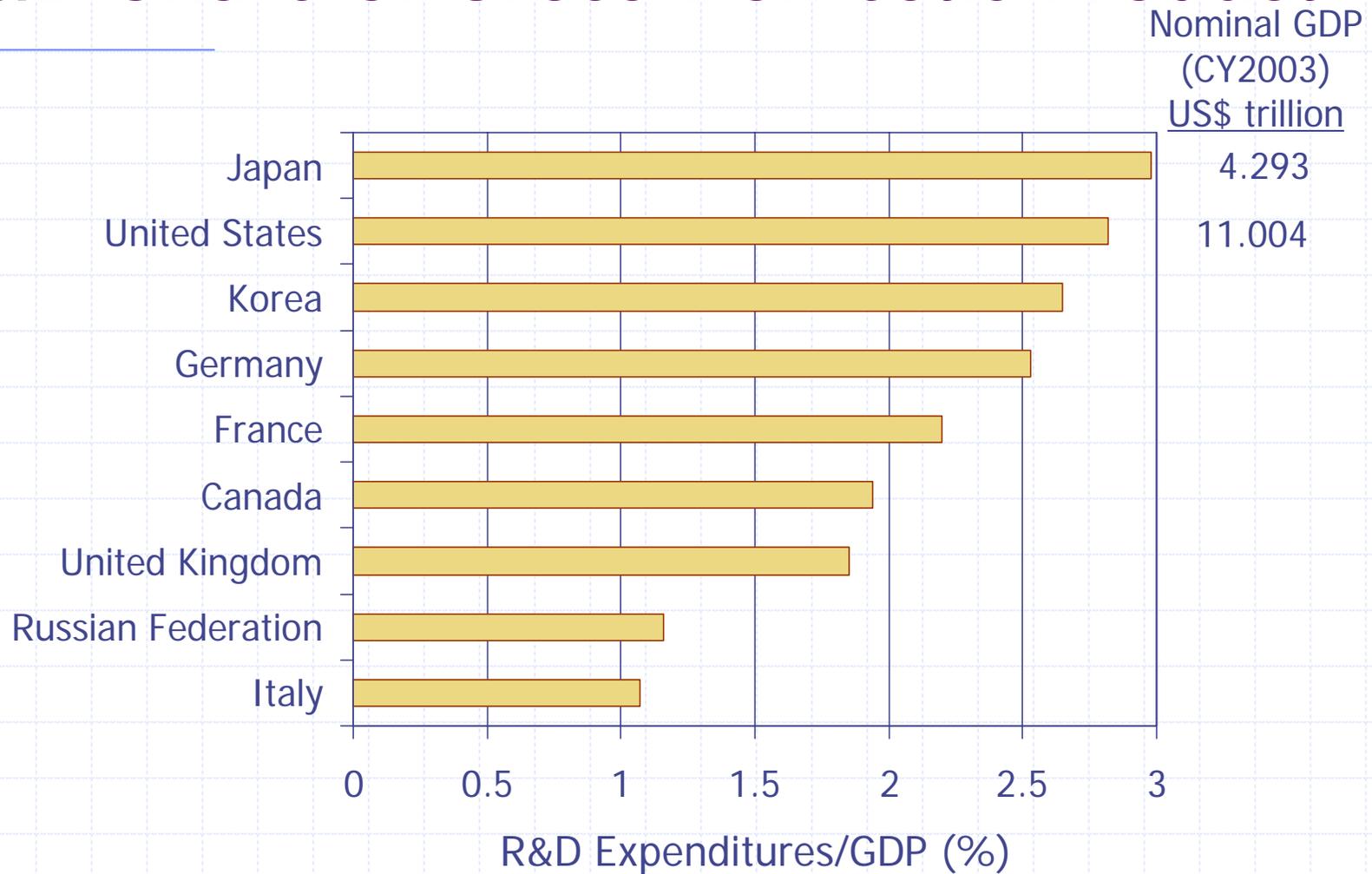
National Science Board Members



NSF by the Numbers

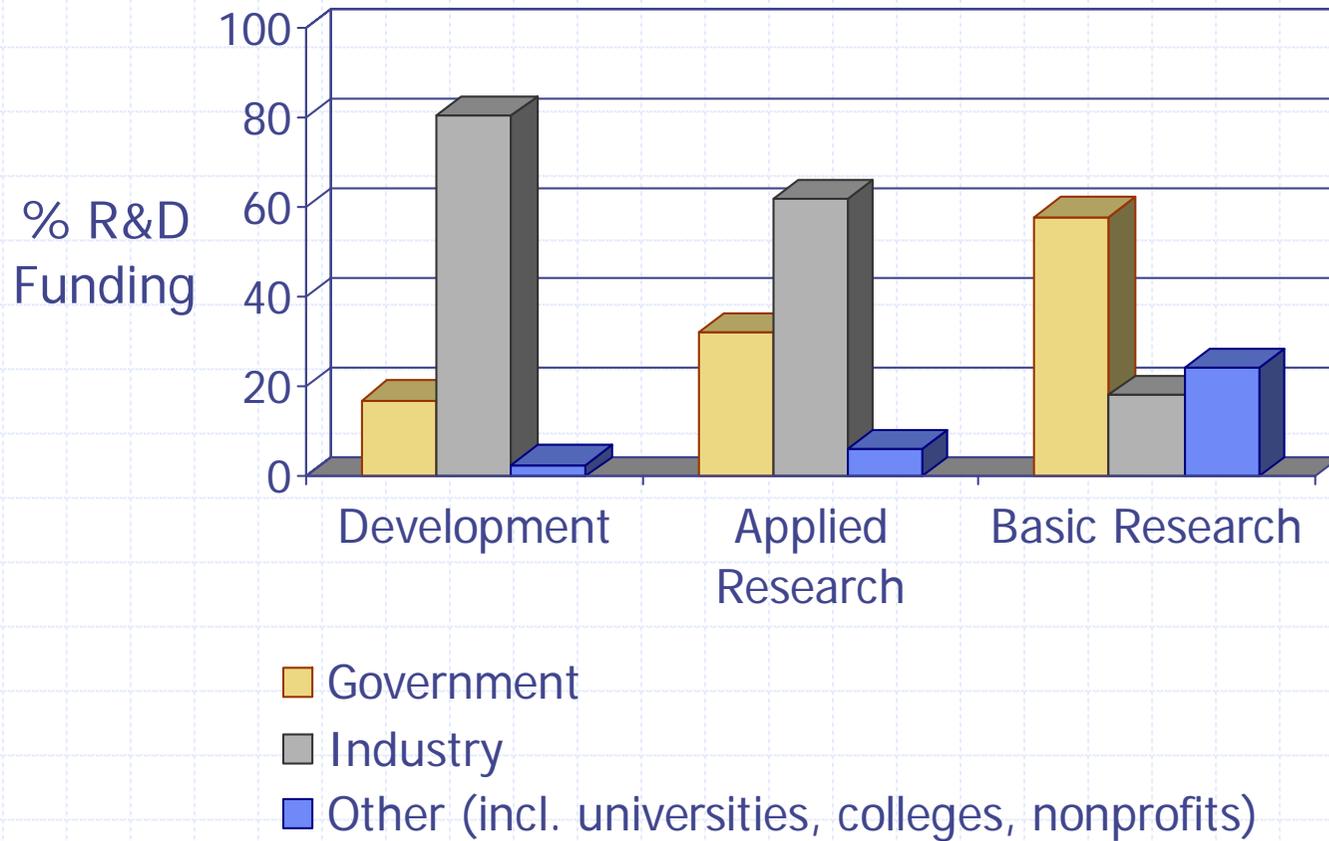
- ◆ NSF Annual Budget: US\$5.58 billion (FY04)
 - ◆ NSF share of federal R&D: 4%
 - ◆ NSF share of academic R&D: 22%
 - ◆ FY05 Budget Request: US\$5.745 billion
-
- ◆ In FY2003: 40,169 proposals and 10,868 competitive awards (27% funding rate)

R&D Share of Gross Domestic Product*



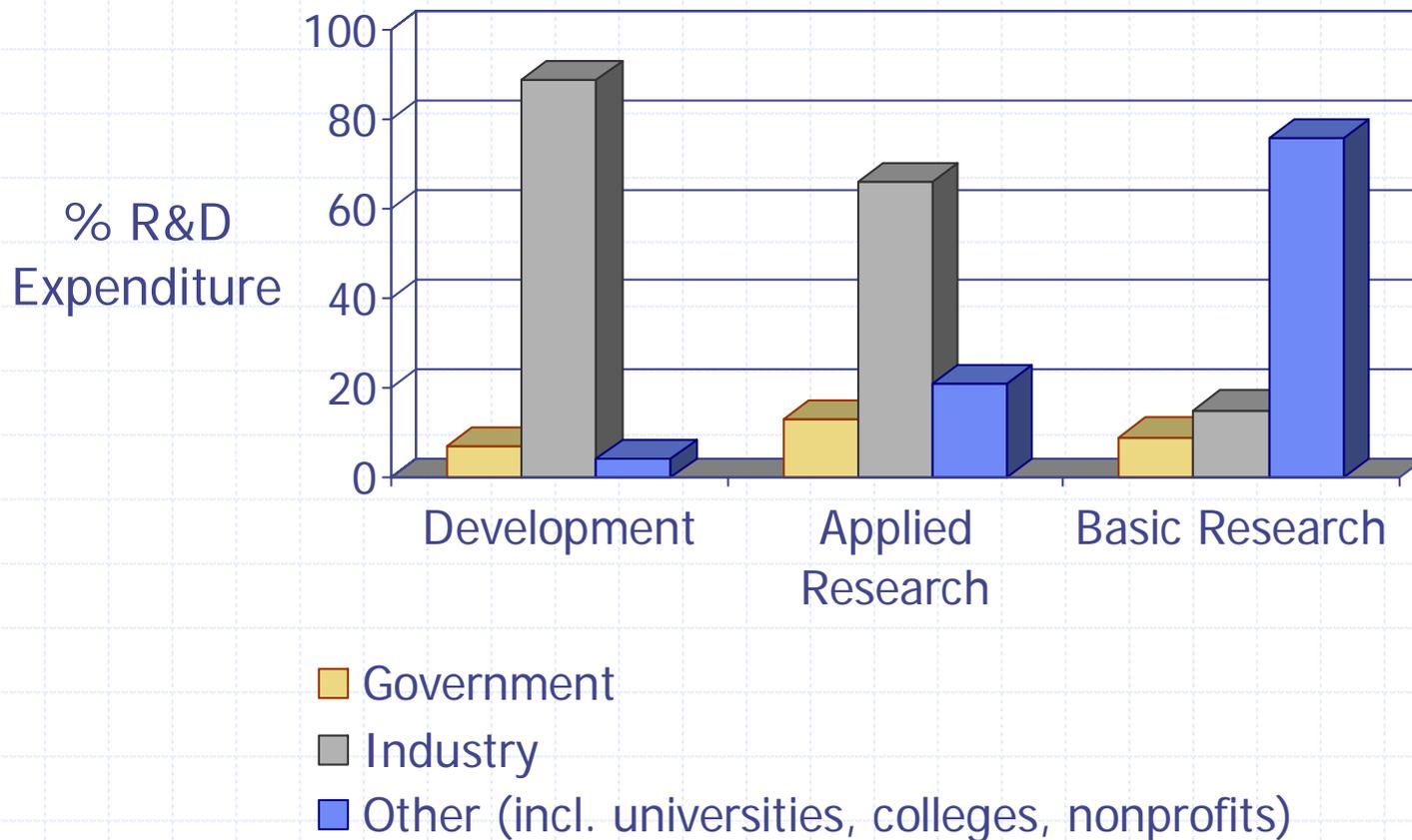
*FY2000-2001; Source: *Science and Engineering Indicators 2004*, and elsewhere

U.S. R&D: Sector by Source of Funds



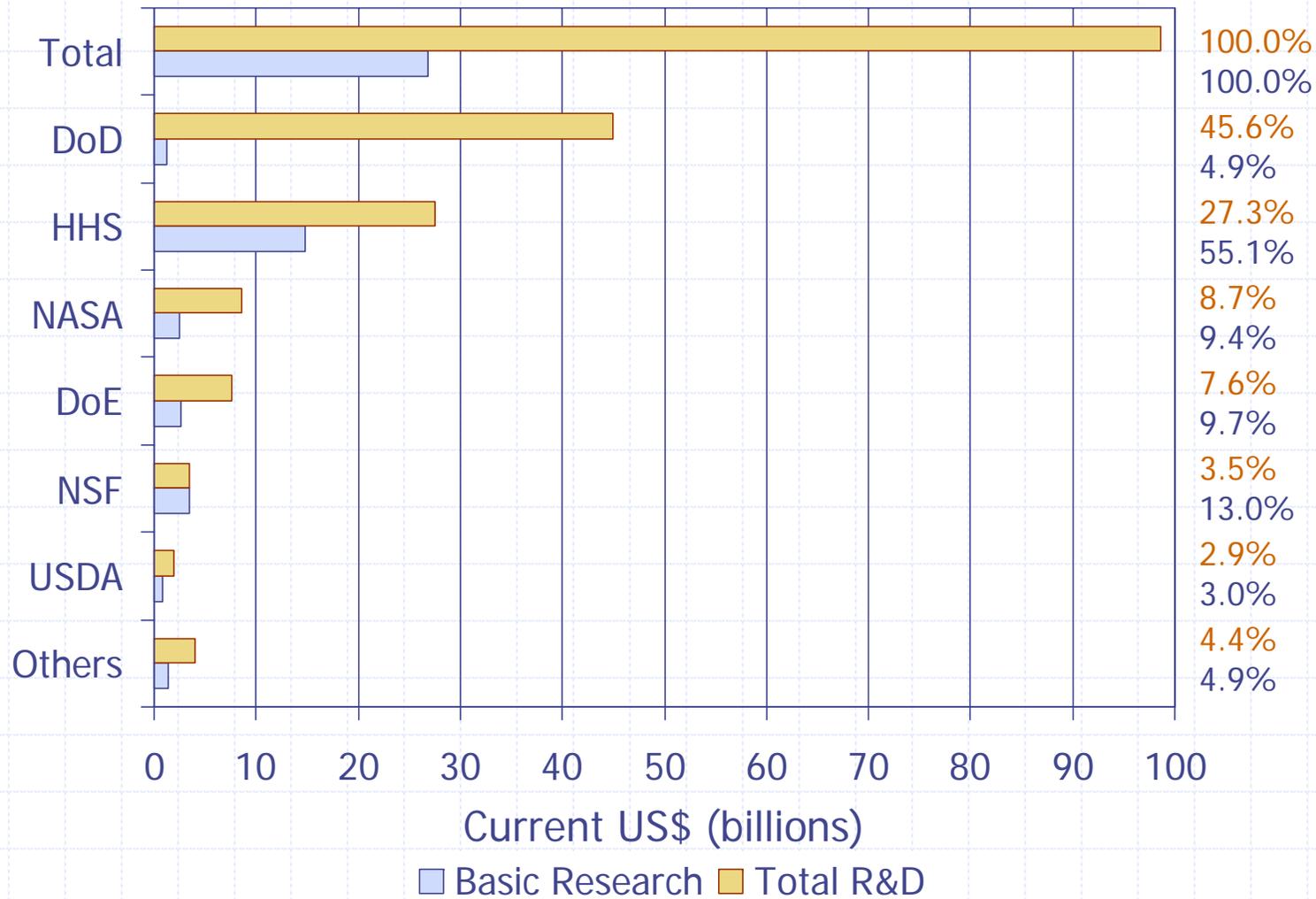
*FY2002; Source: *Science and Engineering Indicators 2004*

U.S. R&D: Sector by Performer



*FY2002; Source: *Science and Engineering Indicators 2004*

U.S. R&D: Expenditures by Agency



*FY2002; Source: *Science and Engineering Indicators 2004*

Setting Policies and Priorities at NSF

- ◆ Guidance and advice provided by: NSB, OSTP, and others (The National Academies, for example)
- ◆ Advisory committees: standing committees of outside experts
- ◆ Workshops and task forces: *ad hoc* groups convened for particular purposes
- ◆ Planning documents
 - Strategic plan (5-year)
 - Performance plan (1-year)

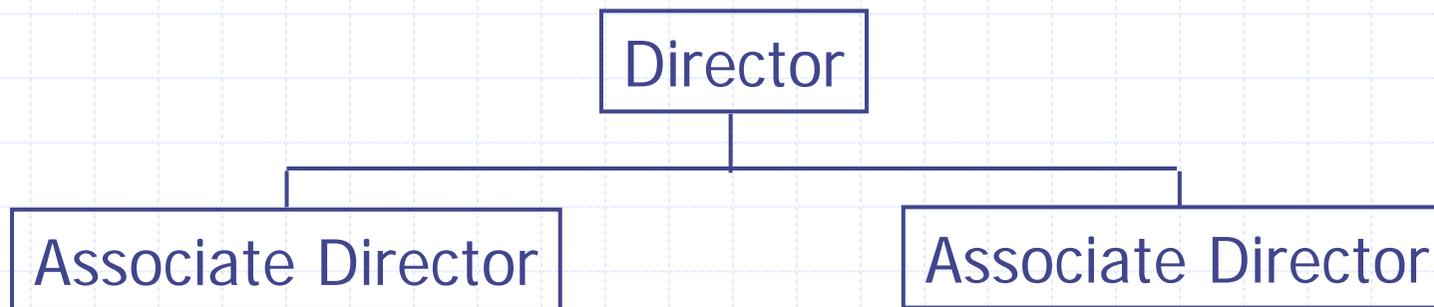
How Are Science Policy Decisions Made and Implemented?

- ◆ The decisions involve:
 - Government policy advisors
 - Independent advisory organizations
 - Congressional budget legislators
 - Science funding agencies
- ◆ Implementation is achieved through budgetary appropriation and program funding.

Government Science Policy Advisors

- ◆ Office of Science and Technology Policy (OSTP)
 - Established in 1976
 - Advises the President and others in the Executive Office of the White House on matters of domestic and international science and technology
 - Implements sound S&T policies and budgets
 - Works with private sector, state and local governments, science and education communities, and other nations

OSTP Organization



Science Portfolio:

- Environment
- Life Sciences
- Physical Sciences and Engineering
- Social, Behavioral and Education Sciences

Technology Portfolio:

- Technology
- Telecommunications & Information Technology
- Space and Aeronautics



Office of Science and Technology Policy

Executive Office of the President



John Marburger

Director,
Office of Science
and Technology
Policy

OSTP News

- 7-20 [Apollo 11 35th Anniversary](#)
- 7-20 [PITAC Health IT Report](#)
- 7-20 [Science for the 21st Century](#)
- 7-15 [Remarks on Competitiveness and Innovation](#), CELI Luncheon
- 7-13 [Council on Competitiveness Speech](#)
- 7-13 [AAAS Science and Security Workshop](#)
- 6-21 [Space Exploration and International Cooperation](#)
- 6-15 [NASA Centennial Challenges Workshop](#)
- 6-14 [PCAST June 29, 2004, Meeting Agenda and Registration](#)
- 6-10 [Methylmercury in the Gulf of Mexico: State of Knowledge and Research Needs"](#)

White House News

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- 5-4 [PECASE 2002](#)
- 4-27 [President Unveils Tech Initiatives for Energy, Health Care, Internet](#)
- [FACT SHEET](#)
- 2-24 [President Signs Executive Order Encouraging Innovation in Manufacturing](#)
- 1-14 [President Bush's Speech on Vision for a New Space Exploration Program](#)
- 1-14 [A Renewed Spirit of Discovery: The President's Vision for U.S. Space Exploration](#)
- 1-14 [A Renewed Spirit of Discovery: Fact Sheet](#)

Of Interest



SpotLight on S&T

47 COUNTRIES, EUROPEAN COMMISSION AGREE TO TAKE "PULSE OF THE PLANET"
Milestone Summit Launches Plan to Revolutionize Understanding of How Earth Works

Advisory Groups of the Executive Branch

- ◆ President's Council of Advisors on Science and Technology (PCAST)
 - Provides advice from the private sector and academic community on technology, scientific research priorities, and math & science education
 - Membership: 23 members selected by the President, plus the Director of OSTP

◆ National Science and Technology Council (NSTC)

- Cabinet-level council; the principle means for the President to coordinate science, space and technology within the federal S&T enterprise
- Membership: President (Chair), Vice President, Assistant to the President for S&T, cabinet secretaries and agency heads with significant S&T responsibilities
- Establishes clear national goals for government S&T investments
- Forms investment package to meet national goals

The National Academies

- ◆ The National Academy of Sciences (NAS; 1863)
 - National Research Council (1916)
- ◆ National Academy of Engineering (NAE; 1964)
- ◆ Institute of Medicine (IOM; 1970)
- ◆ Membership (elected by academic community):
 - NAS: 1,800
 - NAE: 1,900
 - IOM: 1,200
- ◆ Provides advice as a non-governmental organization



Address http://www.nas.edu/

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NATIONAL ACADEMY OF ENGINEERING

INSTITUTE OF MEDICINE

NATIONAL RESEARCH COUNCIL

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July 29, 2004

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- » Space
- » Transportation

TOP NEWS

The latest news from the Academies

Gov't Should Assess Foods Based on Composition, Not Creation



July 27 -- Federal agencies should assess the safety of foods -- whether produced by genetic engineering or by other genetic modification techniques, such as conventional breeding for desirable traits -- on a case-by-case basis to determine whether unintended changes in their composition could adversely affect human health, says a new report from the National Academies' National Research Council and Institute of Medicine.

SCIENCE IN THE HEADLINES

Breaking stories in science

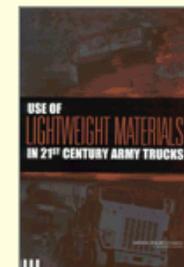
Food Pyramid Scheduled for Overhaul



July 19 -- The Department of Agriculture is revising the Food Guide Pyramid, it announced last week. The agency designed the icon 12 years ago to help Americans follow guidelines for healthy eating. A series of Institute of Medicine reports examines which nutrients are necessary for good health, and in what quantities. The reports establish Dietary Reference Intakes of these nutrients -- including minimum, maximum and recommended intake levels -- replacing the old Recommended

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Site Highlights

FUTURE DIRECTIONS IN SIGNALING SYSTEMS:

Audio and slides from the Keck Futures Initiative's conference on math models in signaling systems are now online.

5 YEARS OF WEBCASTING:

Take a look at our current schedule or browse the catalog of past events.

National S&T Priorities*

◆ Homeland and National Security

- Developing vaccines, biometrics and sensor technologies, and mapping pathogen genomes
- Anti-terrorism R&D
- University-based Homeland Security Centers

◆ Health

- SARS and West Nile Virus defense and treatment

◆ Energy

- Hydrogen Fuel Initiative
- ITER

◆ Environment

- Climate Change Research Initiative
- Particulate matter effects on cardiovascular disease

* *Science for the 21st Century*, National Science and Technology Council, July 2004

Setting Policies and Priorities at NSF

- ◆ Guidance and advice provided by: NSB, OSTP, and others (The National Academies, for example)
- ◆ Advisory committees: standing committees of outside experts
- ◆ Workshops and task forces: *ad hoc* groups convened for particular purposes
- ◆ Planning documents
 - Strategic plan (5-year)
 - Performance plan (1-year)

The NSF Strategic Plan

- ◆ Charts a course for funding support for science and engineering research investment, including SMET* education

- ◆ Current foci:

- People
- Ideas
- Tools

- ◆ A public document:

<http://www.nsf.gov/od/gpra/start.htm>

*Science, Mathematics, Engineering and Technology

-  **The Basics**
 - [GPRA Law](#)
-  **NSF Information**
 - [Advisory Committee for GPRA Performance Assessment \(AC/GPA\)](#)
 - [GPRA Reporting Requirements](#)
-  **Related Links**
 - [General Accounting Office](#)
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-  **Archived Documents**



The Government Performance and Results Act of 1993 (GPRA) provides a mandate to Federal agencies to account for program results through the integration of strategic planning, budgeting, and performance measurement. The National Science Foundation has established this website as a resource to keep the public apprised of Foundation-wide efforts to implement GPRA.

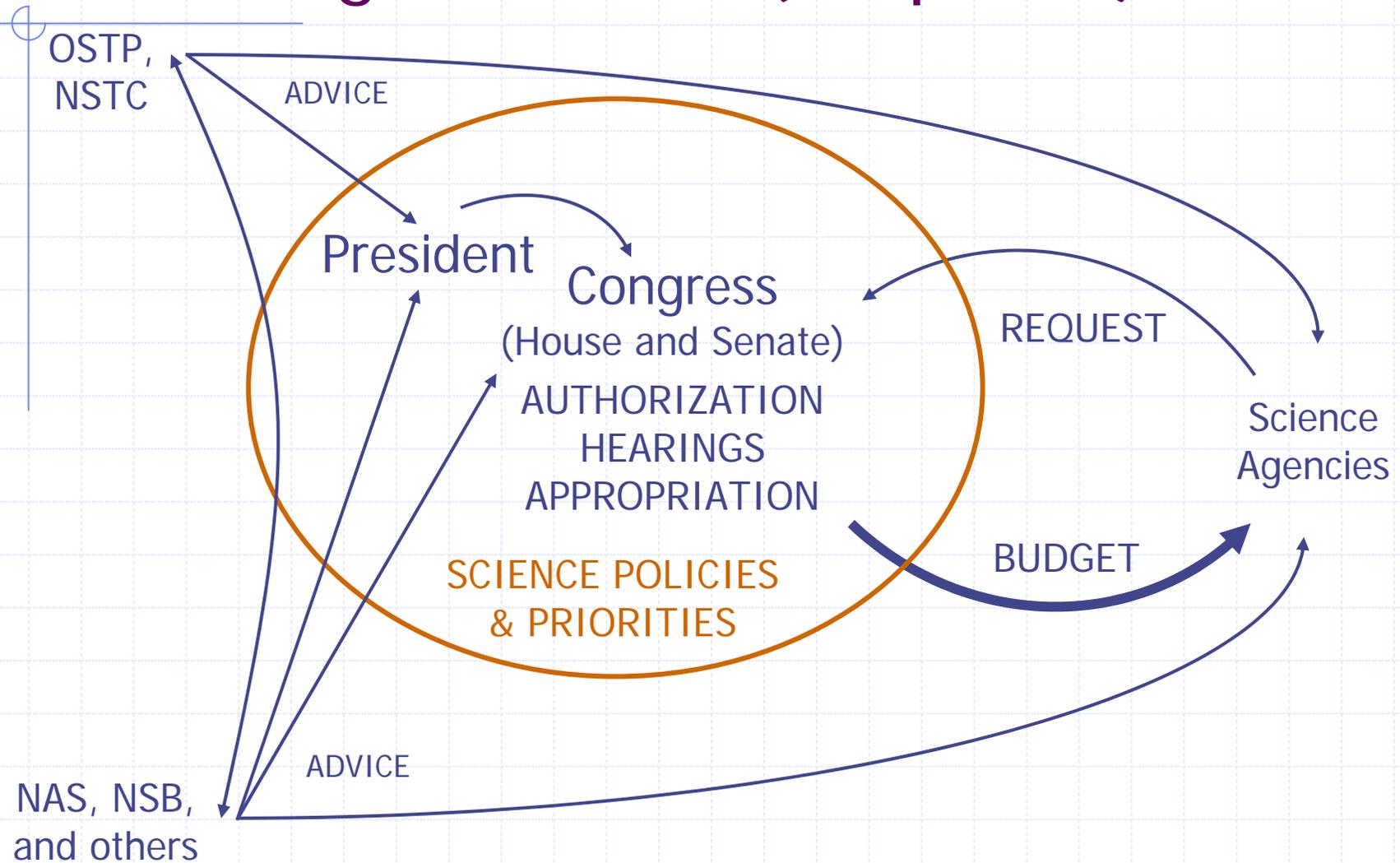
Strategic Plan:

- ★ [FY 2003 - 2008](#) [[PDF](#)] [[Word97](#)] (9/30/2003)
- ★ [FY 2001 - 2006](#) (9/30/2000)
- ★ [FY 1997- 2003](#) {*archived*}
- ★ [NSF Report on Efficiency of Grant Size and Duration](#) (October 2003)

Performance Plans:

- ★ [The FY 2004 and FY 2005 Performance Plans are integrated into the FY 2005 Performance Budget](#)
- ★ FY 2003 (*REVISED FINAL - 12/31/02*) -- [[PDF](#)] ~ [[Word97](#)] - {*current*}
- ★ FY 2003 (*FINAL - 2/4/02*) -- [[PDF](#)] ~ [[Word97](#)]
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- ★ FY 2002 (*FINAL - 4/9/01*) -- [[PDF](#)] ~ [[Word97](#)]
- ★ FY 2001 (*REVISED FINAL*) -- [[PDF](#)] ~ [[Word97](#)]

The Budget Process (simplified)



NSF Priority Areas (FY05 Budget Request)

- ◆ Biocomplexity in the Environment (\$100 mill)
- ◆ Nanoscale Science and Engineering (\$305 mill)
- ◆ Mathematical Sciences (\$89 mill)
- ◆ Human and Social Dynamics (\$23 mill)
- ◆ Workforce for the 21st Century (\$20 mill)

- ◆ Information Technology Research

Federal Cross-Cutting Activities*

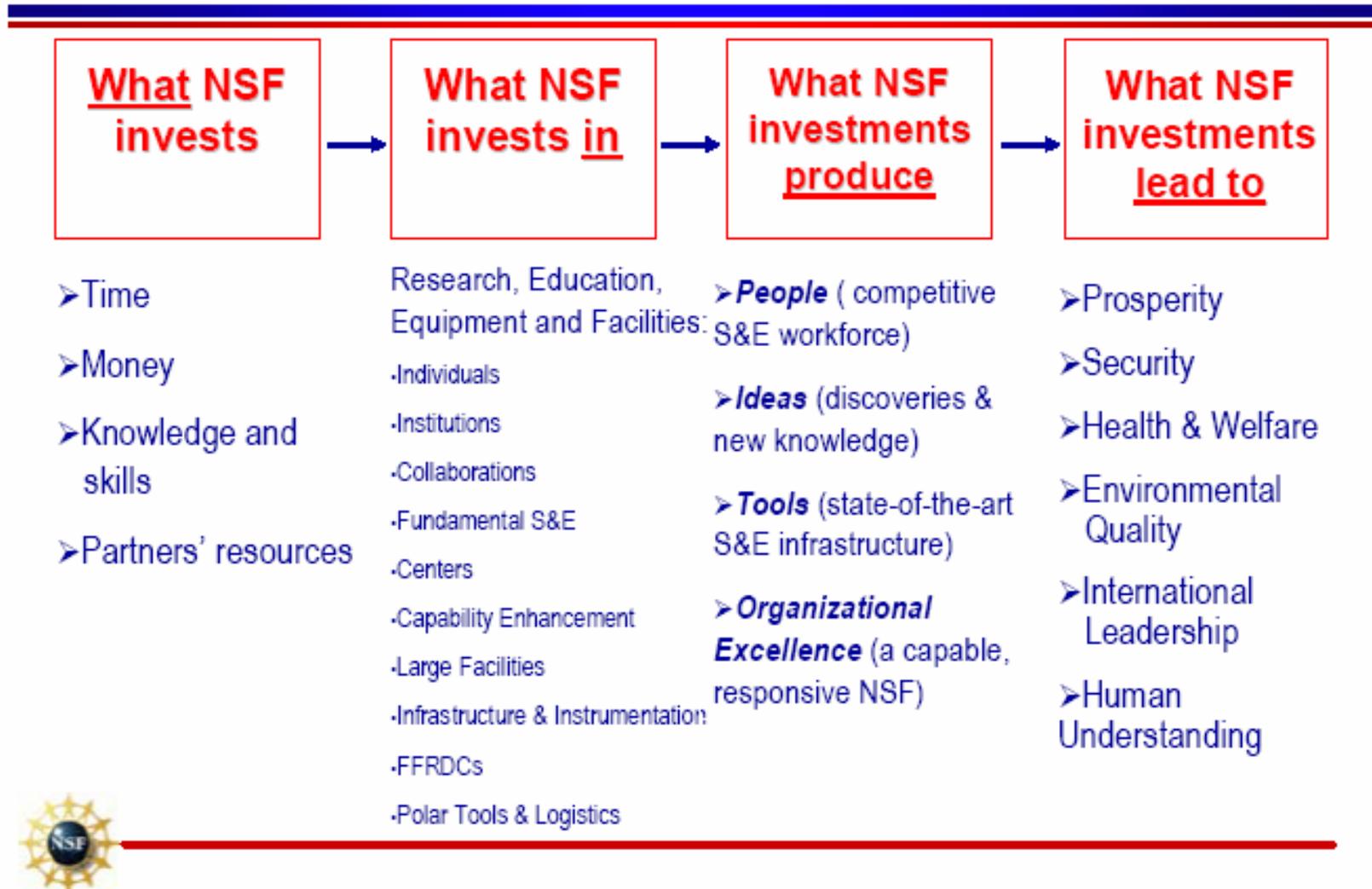
- ◆ Networking and Information Technology Research & Development
- ◆ National Nanotechnology Initiative
- ◆ Climate Change Science
- ◆ Homeland Security and Antiterrorism R&D
- ◆ Molecular-level Understanding of Life Processes
- ◆ Education Research

*with NSF participation

R&D Investment Criteria

- ◆ Quality: R&D programs must justify *how* funds will be allocated to ensure quality R&D.
- ◆ Relevance: R&D programs must be able to articulate *why* this investment is important, relevant and appropriate.
- ◆ Performance: R&D programs must be able to monitor and document *how well* the investment is performing.

NSF Investment Model



NSF: FY04 Budget by Account

- ◆ Research/Related Activities: \$4.25 billion
- ◆ Education/Human Resources: \$939 million
- ◆ Major Research Equipment: \$155 million
- ◆ Salaries and Expenses: \$219 million
- ◆ Office of Inspector General: \$10 million

- ◆ Overall increase of 3.9% over FY03

Major Research Equipment

- ◆ Atacama Large Millimeter Array (ALMA)
- ◆ EarthScope
- ◆ High-Performance Instrumented Airborne Platform for Environmental Research (HIAPER)
- ◆ IceCube Neutrino Observatory
- ◆ Large Hadron Collider
- ◆ Network for Earthquake Engineering Simulation (NEES)
- ◆ Terascale Computing Systems
- ◆ National Ecological Observatory Network (NEON)
- ◆ Rare Symmetry Violating Processes
- ◆ Scientific Ocean Drilling Vessel
- ◆ South Pole Station

NSF: FY04 Budget by Strategic Goal

- ◆ People = to build a world-class science and engineering workforce: \$1.1 billion
- ◆ Ideas = to generate new knowledge across the frontiers of science and engineering: \$2.8 billion
- ◆ Tools = to get the job done efficiently and effectively: \$1.4 billion
- ◆ Administration/Management: \$287 million

NSF Budget & Performance Integration Matrix

BUDGET & PERFORMANCE INTEGRATION FY 2004 Request (Millions of Dollars)

Account	STRATEGIC GOALS			
	PEOPLE	IDEAS	TOOLS	ORGAN. EXCELL.
Research and Related Activities	388	2,557	1,120	42
Education and Human Resources	765	139	19	15
Major Research Equipment and Facilities Construction	0	0	202	0
Salaries & Expenses	0	0	0	226
Office of the Inspector General	0	0	0	9
Total^a	\$1,153	\$2,696	\$1,341	\$291

^a Numbers may not add due to rounding.

Outcome Reporting

◆ Government Performance and Results Act (GPRA; 1993)

- Annual accounting for program outcomes (results) from science and engineering research and education investments through integration of:
 - ◆ Planning
 - ◆ Budgeting
 - ◆ Performance measurement
- Required of all federal government agencies
- NSF GPRA Web site:
<http://www.nsf.gov/od/gpra/start.htm>

-  **The Basics**
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-  **NSF Information**
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 - [GPRA Reporting Requirements](#)
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National Science Foundation

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New Martian Meteorite Found in Antarctica



New Map Reveals Hidden Features of Ice-Buried Antarctic Lake



Impact of Earth's Rising Atmospheric Carbon Dioxide Found in World Oceans



Colored Filtered Scanning Tunneling Microscopy (from the New Additions Section in the NSF Image Library)

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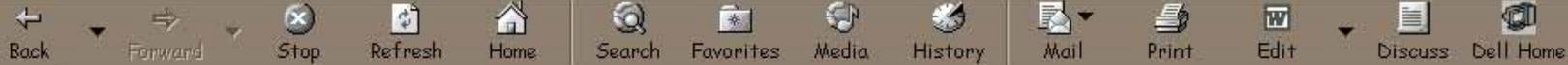
Guide to Programs

- [Grant Proposal Guide](#)
- [Grant Policy Manual](#)
- [GPRA/Strategic Plan](#)



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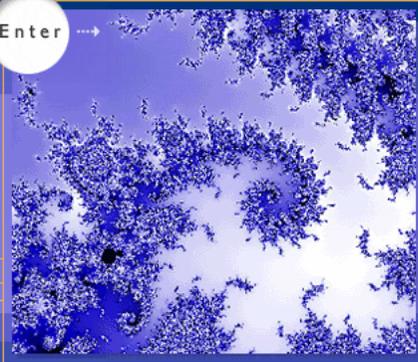




2004 Guide to Programs



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NSF FUNDING OPPORTUNITIES

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- [Division of Environmental Biology \(DEB\)](#)
- [Division of Integrative Biology and Neuroscience \(IBN\)](#)
- [Division of Molecular and Cellular Biosciences \(MCB\)](#)
- [Plant Genome Research Program](#)
- [Emerging Frontiers \(EF\)—BIO's Virtual Division](#)

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- [Division of Chemical and Transport Systems \(CTS\)](#)
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Biological Databases and Informatics

Program Announcement
NSF 02-058
Replaces Document nsf9991



National Science Foundation
Directorate for Biological Sciences
Division of Biological Infrastructure

Full Proposal Target Date(s):

Second Monday in January

Second Monday in July

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

Biological Databases and Informatics

Synopsis of Program:

The mission of the Biological Databases and Informatics Program is to encourage new approaches to the management, analysis, and dissemination of biological knowledge that will enable both the scientific community and the broader public to gain maximum benefit and utility.

Cognizant Program Officer(s):

- Gerald F. Guala, Program Director, Directorate for Biological Sciences, Division of Biological Infrastructure, 615 N, telephone: (703) 292-8470, fax: (703) 292-9063, email: gguala@nsf.gov
- Manfred D. Zorn, Program Director, Directorate for Biological Sciences, Division of Biological Infrastructure, 615 N, telephone: (703) 292-8470, email: mzorn@nsf.gov

Applicable Catalog of Federal Domestic Assistance (CFDA) Number(s):

- 47.074 --- Biological Sciences

Eligibility Information

- Organization Limit: None Specified.
- PI Eligibility Limit: None Specified.
- Limit on Number of Proposals: None Specified.

Award Information

- Anticipated Type of Award: Other - Standard or Continuing Grant or Cooperative Agreement
- Estimated Number of Awards: Not Specified.
- Anticipated Funding Amount: \$8,000,000 Approximately \$8 million annually to support new activities, subject to the availability of funds

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

- Full Proposal Preparation Instructions: This solicitation contains information that deviates from the standard Grant Proposal Guide (GPG) proposal preparation guidelines. Please see the full text of this solicitation for further information.

B. Budgetary Information

- Cost Sharing Requirements: Cost Sharing is not required.
- Indirect Cost (F&A) Limitations: Not Applicable.
- Other Budgetary Limitations: Not Applicable.

C. Due Dates

- Full Proposal Target Date(s):
Second Monday in January
Second Monday in July

Proposal Review Information

- Merit Review Criteria: National Science Board approved criteria. Additional merit review considerations apply. Please see the full text of this solicitation for further information.

Award Administration Information

- Award Conditions: Standard NSF award conditions apply.
- Reporting Requirements: Standard NSF reporting requirements apply.

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- B. Budgetary Information
- C. Due Dates
- D. FastLane Requirements

VI. Proposal Review Information

- A. NSF Proposal Review Process
- B. Review Protocol and Associated Customer Service Standard

VII. Award Administration Information

- A. Notification of the Award
- B. Award Conditions
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IX. Other Programs of Interest

I. INTRODUCTION

The National Science Foundation (NSF) believes that future advances in the biological sciences will depend both upon the creation of new knowledge and upon effective management of proliferating information. The biological sciences have become increasingly data rich. Developing integrated views of species, development and evolution, documenting species diversity and tracking long-term environmental change are just a few examples of biological research programs that generate and require large amounts of archival information. Much of the biology of tomorrow will arise through discovery based on information contained in community-accessible databases. Much, if not all, of our accumulated knowledge of biology will be accessible in electronic form. Future progress in biological research will be highly dependent on the ability of the scientific community to both deposit and utilize stored information on-line. Thus, the information management challenge for the future will be to develop new ways to acquire, store and retrieve not only biological data per se, but also those data in the context of biological knowledge. The Directorate for Biological Sciences (BIO), through the Division of Biological Infrastructure (DBI), announces a cross-disciplinary effort to support the design, development, implementation, and use of information resources and tools. All fields of science supported by BIO are eligible for support under this Biological Databases and Informatics (BD&I) program. The mission of the BD&I Program is to encourage new approaches to the management of biological knowledge that render the collection, maintenance, dissemination and query of the data and information therein of greater utility to the scientific community. This program will not support disease-oriented research, including the etiology, diagnosis or treatment of physical or mental disease, abnormality or malfunction in human beings or animals, or the design and testing of drugs for treatment of such conditions is not appropriate for consideration.

II. PROGRAM DESCRIPTION

The terms "database development" and "biological informatics activities" describe a range of activities along a continuum, from formative, theoretical development of new algorithms, data structures and tools specific to the management of biological information to the development and utilization of established resources needed by whole communities of biological

Applicant Eligibility

- ◆ U.S. academic institutions acting on behalf of their faculty
- ◆ Non-profit, non-academic organizations (Independent museums, observatories, research laboratories, professional societies and similar organizations in the U.S. that are directly associated with educational or research activities)
- ◆ For-profit organizations (U.S. commercial organizations, especially small businesses with strong capabilities in scientific or engineering research or education)
- ◆ State and local organizations (State educational offices or organizations and local school districts)
- ◆ Unaffiliated individuals (Scientists, engineers or educators in the U.S. and U.S. citizens)



FastLane is an interactive real-time system used to conduct NSF business over the Internet. FastLane is for official NSF use only. [More About FastLane...](#)

FastLane User Support

(7 AM to 9 PM • M-F)
1-800-673-6188
FastLane Availability (recording):
1-800-437-7408

Quick Link

- ▶ Registration Information
- ▶ Award Search and Funding Trends
- ▶ FastLane FAQs (Opens new Browser Window)
- ▶ DEMONSTRATION SITE

Advisories

- 09/09/04 - Advisory on Hurricane Frances
- 08/19/04 - Changes to Proposal File Update
- 08/06/04 - NSF unveils new FastLane Letter of Intent Module
- 08/01/04 - New Adobe Acrobat 6 Instructions
- 07/26/04 - Enhancements to FastLane Research Administration Module
- 07/16/04 - NSF to hold Regional Grants Conference at Washington University in St. Louis, MO on October 4 - 5, 2004. (Opens new browser window)
- 06/03/04 - Updated-NSF Computer Security Policy (Opens new browser window)
- 05/27/04 - Change in Panelist Functions Login process
- 02/13/04 - New Procedures for the Graduate Research Fellowship Program
- 07/15/03 - Upload Files in Other Formats (Updated)
- 07/15/03 - Using TeX and LaTeX with NSF FastLane (Updated Instructions) (Opens new browser window)

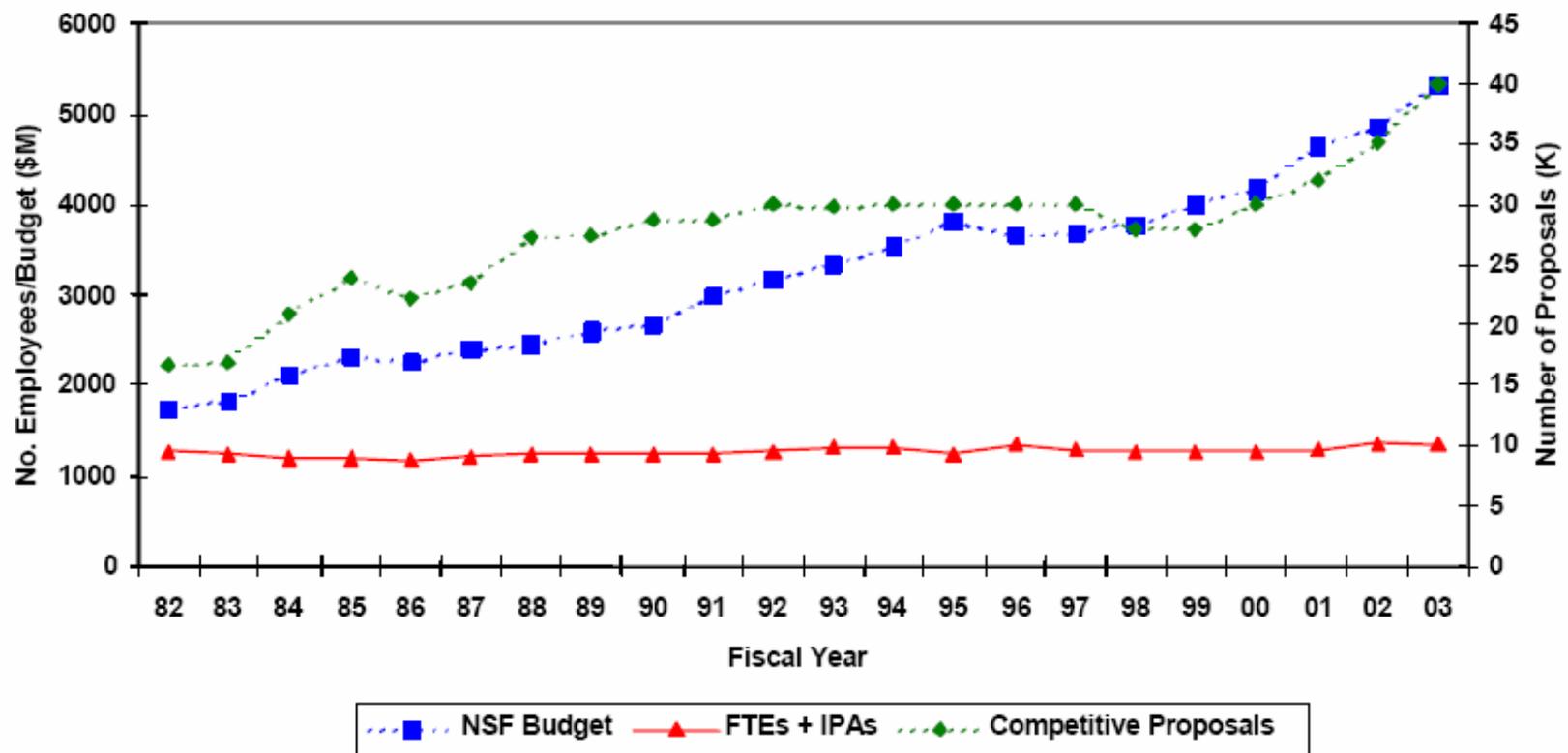
⌘ Recent Advisories

Core Investments*

- ◆ Number of grant awards (10,868)
- ◆ Annual grant size (\$135,609 average annualized)
- ◆ Average grant duration (2.9 years)
- ◆ Average Decision Time (5.31 months)

**NSF FY2003 Performance and Accountability Report, and elsewhere*

Comparison of NSF Budget, Staff and Competitive Proposal Submissions over Time



NSF FY2005 Budget Request

Performance Goal: Time to Decision

◆ Goal: To process proposals from submission to decision within six (6) months of proposal deadline

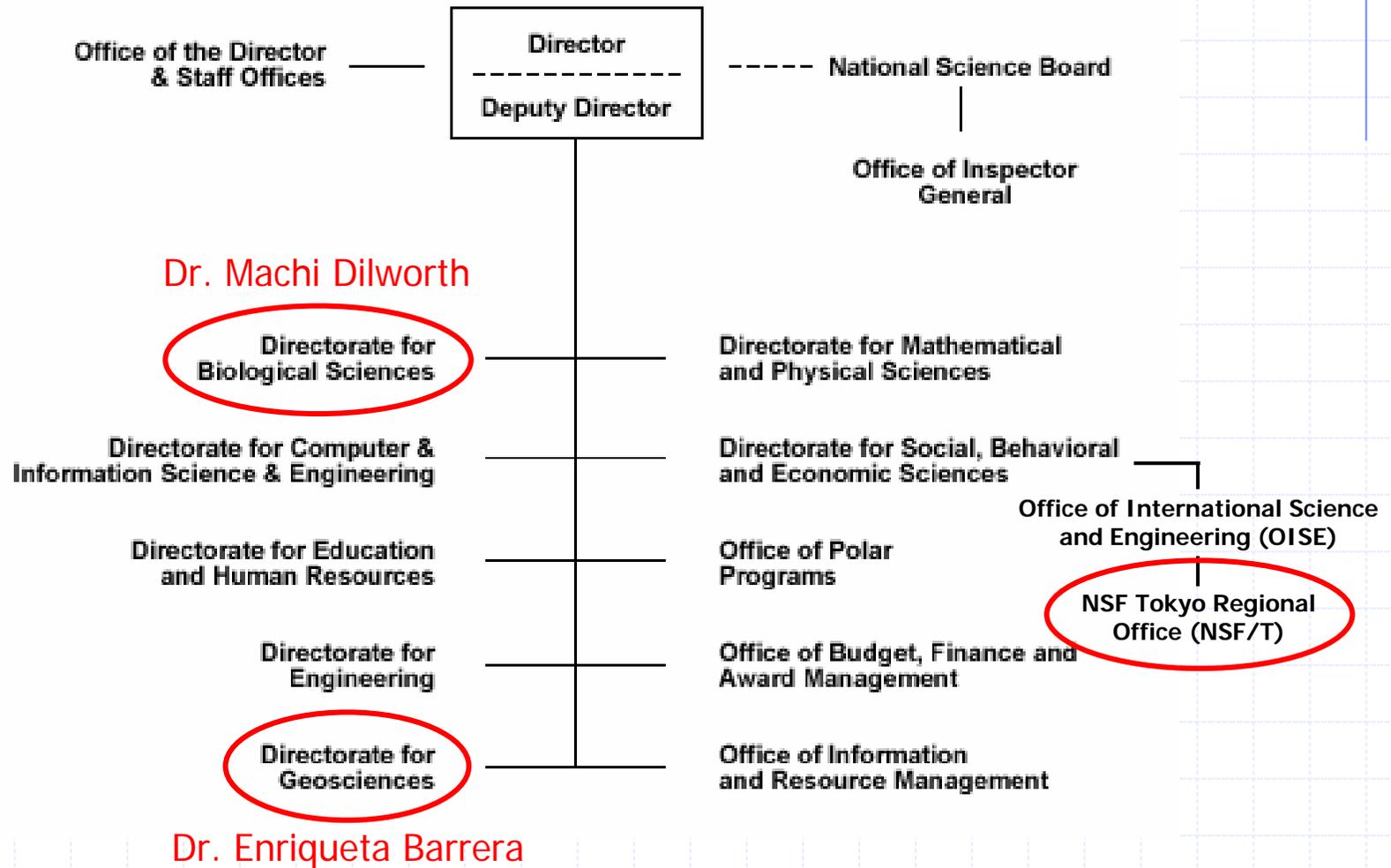
◆ Result: 77% (FY2003)

Performance Goal: Merit Review

◆ Goal: At least 85% of basic and applied research funds will be allocated to projects that undergo merit review

◆ Result: 89% (FY2003)

NSF Organizational Chart



Web Resources

◆ NSF/NSB:

<http://www.nsf.gov>

◆ OSTP:

<http://www.ostp.gov>

◆ NAS:

<http://www.nas.edu>

