



# **Impact of Proposal and Award Management Mechanisms Report**

## **Advisory Committee Discussions**

Joanne Tornow  
Chair, IPAMM Working Group



# What is the Context?

- Between FY 2000-2005:
  - The NSF budget increased by 44%.
  - The average size of research awards increased by 41%.
  - Research proposal submissions increased by nearly 50%.
- NSF budget increases were absorbed by the growth in the average award size, leaving little flexibility to respond to growing proposal submissions. As a result, the research proposal funding rate decreased by 29%, from 30% to 21%.
- Directorate level trends show significant variability in rate of change, degree of change, and starting and end points of change.

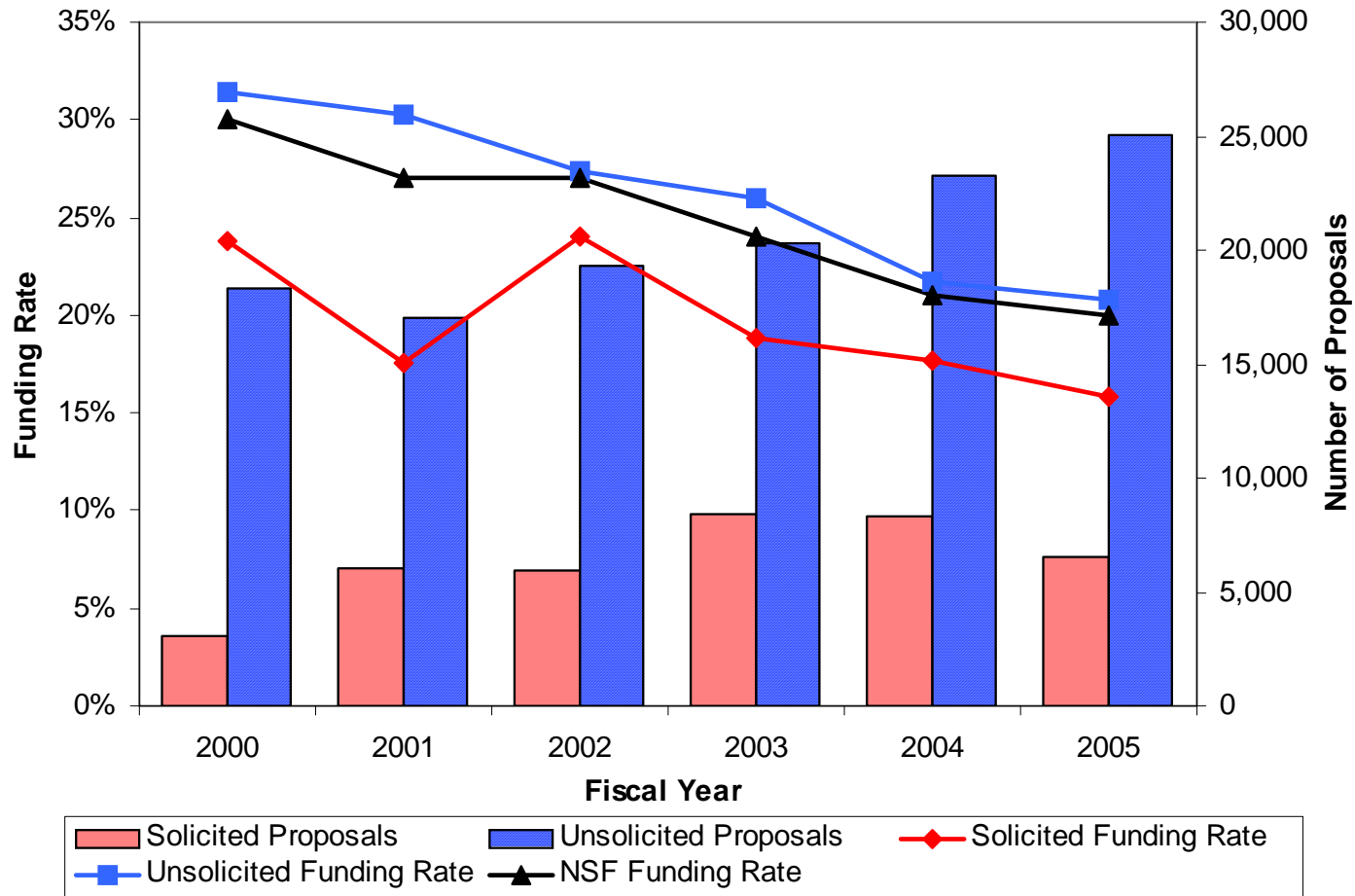


# Findings: Causal Factors

- The increase in proposal submissions was due to an **increased applicant pool** and to an **increased number of proposals per applicant**.
  - Increased size and capacity of the research community
  - Loss of funding from other sources
  - Increased use by NSF of targeted solicitations in new areas
  - External institutional pressures



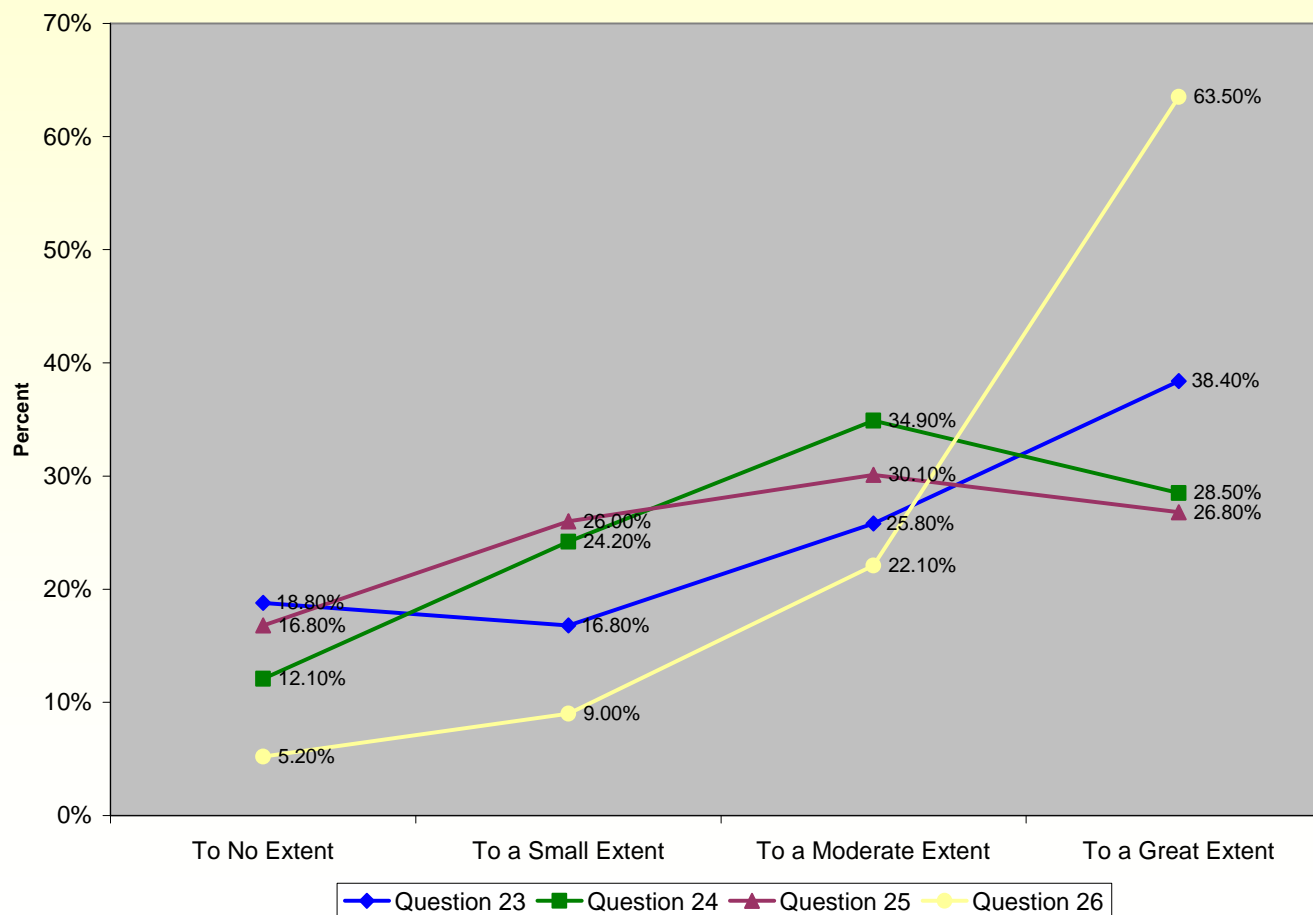
# Solicited vs. Unsolicited Proposal Trends





# External Institutional Pressures

***Beyond the goal of making contributions to your area of science, to what extent do the following factors motivate you to submit research proposals to any funding source?***



**Question 23:**  
*Building/maintaining a grant record for academic tenure/promotion*

**Question 24:**  
*Contributing to the institution's research status/reputation*

**Question 25:**  
*Supplementing or paying my own salary*

**Question 26:**  
*Building/maintaining a research infrastructure*



# Findings: Impacts on Quality and Nature of Proposed Research

- Proportion of highly-rated proposals has not declined, however, the funding rate of highly-rated proposals has decreased
- Analyzed attitudinal data to assess community perceptions about transformative research:
  - 56% believe to a great or moderate extent that NSF welcomes transformative research
  - NSF is the predominant choice for submitting proposals with transformative research ideas
  - Significant disconnect between proposer and reviewer perceptions about prevalence of transformative projects



## Findings: Impacts on Specific Groups

- The decrease in funding rate has not had a disproportionate effect on women, minorities, beginning PIs, or PIs at particular types of institutions.
  - Funding rates
  - Share of proposal and award portfolios
  - Maintaining funding beyond first award
  - Years between degree and first award



# Findings: Impacts on Merit Review

- NSF's peer review system is overstressed
  - Reviewer workloads have increased
    - Reviewer pool increased 15%, proposal load increased 50%
  - Increased use of panel-only review
  - Time spent on each review, as well as the thoroughness and quality of reviews, may be diminishing (based on survey data)
- Timeliness of proposal decisions did not decline, however PIs are increasingly dissatisfied with turnaround time





# Community Perceptions About Funding Rates

- More than 60% of survey respondents perceive that the level of competition at NSF is more intense than at other agencies.
- Most survey respondents underestimated actual funding rates.
  - Nearly 49% of respondents estimate funding rates at 10% or lower.



# How to Improve Funding Rates?

- Limit Proposal Submissions
- Increase Number of Awards



# Limit Proposal Submissions

- Most funding opportunities do not limit submissions
- Of those that do, three primary mechanisms are used:
  - Preliminary proposals
  - Limiting proposals submitted by an institution
  - Limiting proposals by individual



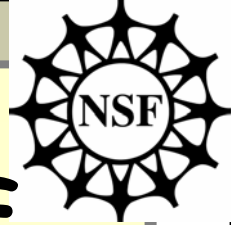
# Limit Proposal Submissions

- Institution limits primarily used for solicitations focused on infrastructure and instrumentation, centers and facilities, or education and training.
- When submission limits are used by research programs, primarily limit submissions by PI.



# Increase Number of Awards

- Primarily accomplished by increasing availability of funds:
  - Two fiscal years of funds used for a single competition
  - Adjustments made to the balance of standard and continuing grants
    - Provides some flexibility in responding to increased proposal submissions, but can only be employed for a limited time, and with discretion



# IPAMM Recommendations to NSF

- Focus on developing strategies that are appropriate within the context of each unit, that balance long-term planning with the ability to respond to changing needs, and that help break the decline-revise-resubmit cycle for highly fundable proposals
- Improve communications with internal and external communities
  - When implementing new management practices
  - About sources of accurate NSF data
- Update the IPAMM trends analyses annually, and periodically reassess the practices and policies of the directorates/research offices.



# Current Status

- NSF Senior Management currently engaged in discussions of recommendations
  - Implementation initiated on some recommendations
- Reaching out to NSF staff to discuss the findings of the report
- Reaching out to external communities to begin a dialogue on the implications of the report
  - Alerted the NSF community about the report
  - Discussed issues with the Federal Demonstration Partnership
  - Engaging the Advisory Committees this Fall





**YOU ARE HERE**

***“When we try to pick out anything  
by itself, we find it hitched to  
everything else in the universe.”***

**--John Muir**



# Acknowledgements



## *IPAMM Members*

Joanne Tornow, Chair, O/D

Paul Herer, Executive Secretary, O/D

Rita Teutonico (03/06 to 10/06) and

Paul Malchow (11/06 to 08/07), BIO

Suzi Iacono, CISE

Daniel Litynski, EHR

Adnan Akay, ENG

Jarvis Moyers, GEO

William Rundell (03/06 to 09/06) and

Deborah Lockhart (10/06 to 08/07), MPS

Jacqueline Meszaros, SBE

Jeanne Hudson, OISE

Neil Swanberg, OPP

Vernon Ross, BFA

## *Expert Resources:*

Emily Fort, BFA

Robert Groves, Chair, SBE AC, and  
Director, Survey Research Center,  
University of Michigan

Brent Miller, AAAS Fellow, BIO

Jeri Mulrow, SBE

Louie Rivers, SBE

Kelli Savia, BFA

Beth Ann Velo, BFA

## *Booz Allen Hamilton Survey Team:*

George Angerbauer, Michael  
Carriero, Pat Corrigan, Mary Kay  
Gibbons, Chris Johnson, Keisha  
Kelly, and Luke Monck