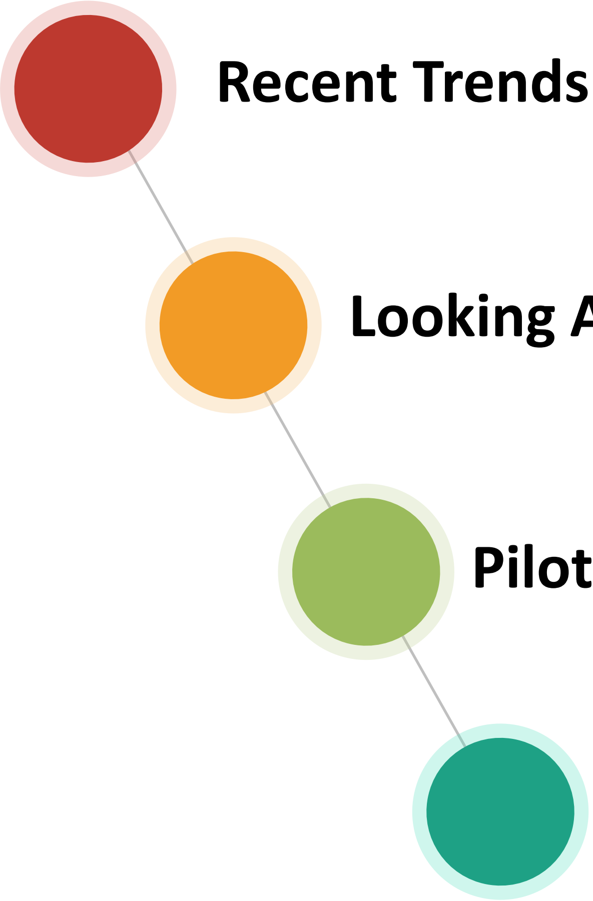
Nurturing Discovery

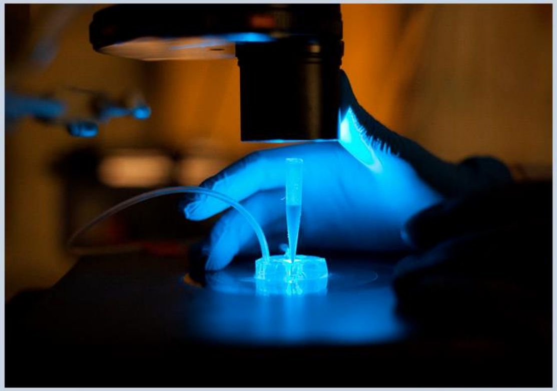
Richard Buckius
Chief Operating Officer, National Science Foundation

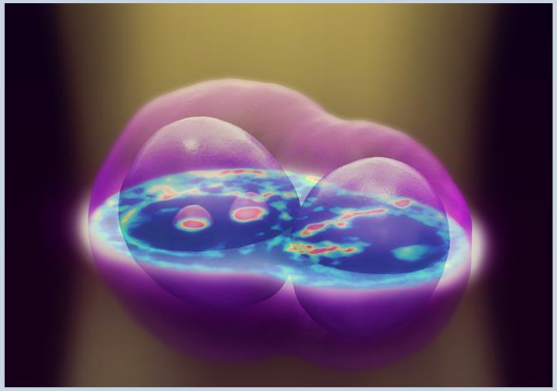
Federal Demonstration Partnership
January 9, 2017

Topics

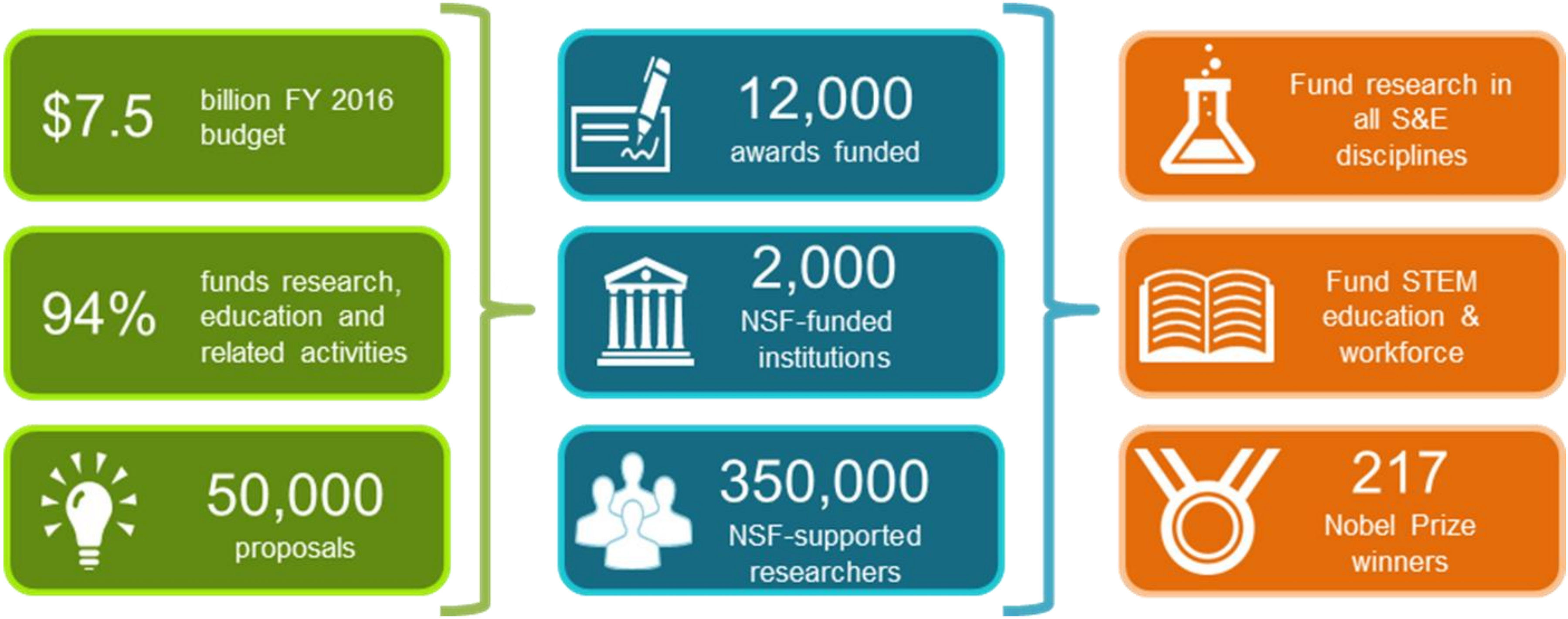


- Recent Trends
- Looking Ahead: Big Ideas
- Pilots
- Administrative Burden Survey





NSF by the Numbers



$7.5 billion FY 2016 budget

94% funds research, education and related activities

50,000 proposals

12,000 awards funded

2,000 NSF-funded institutions

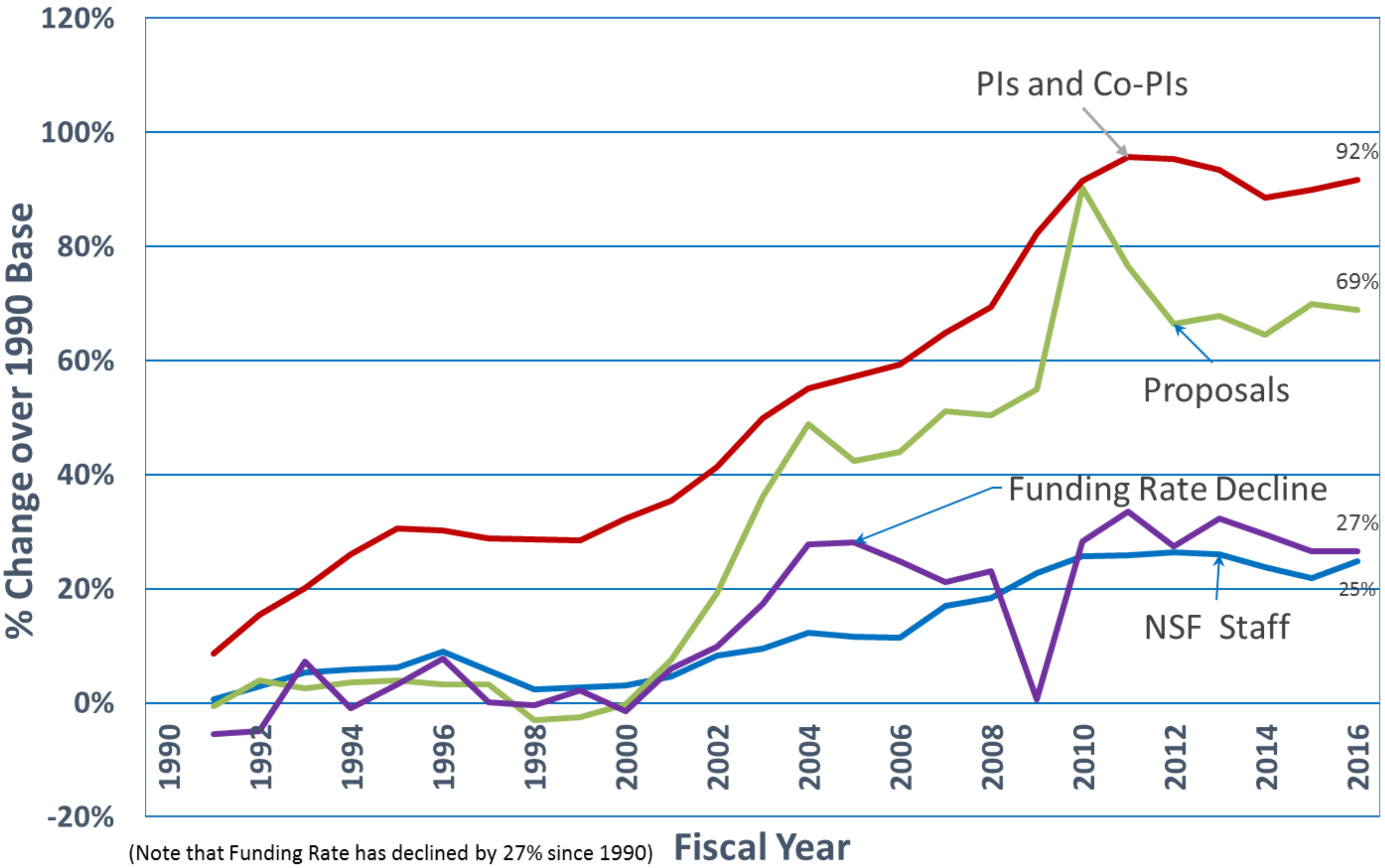
350,000 NSF-supported researchers

Fund research in all S&E disciplines

Fund STEM education & workforce

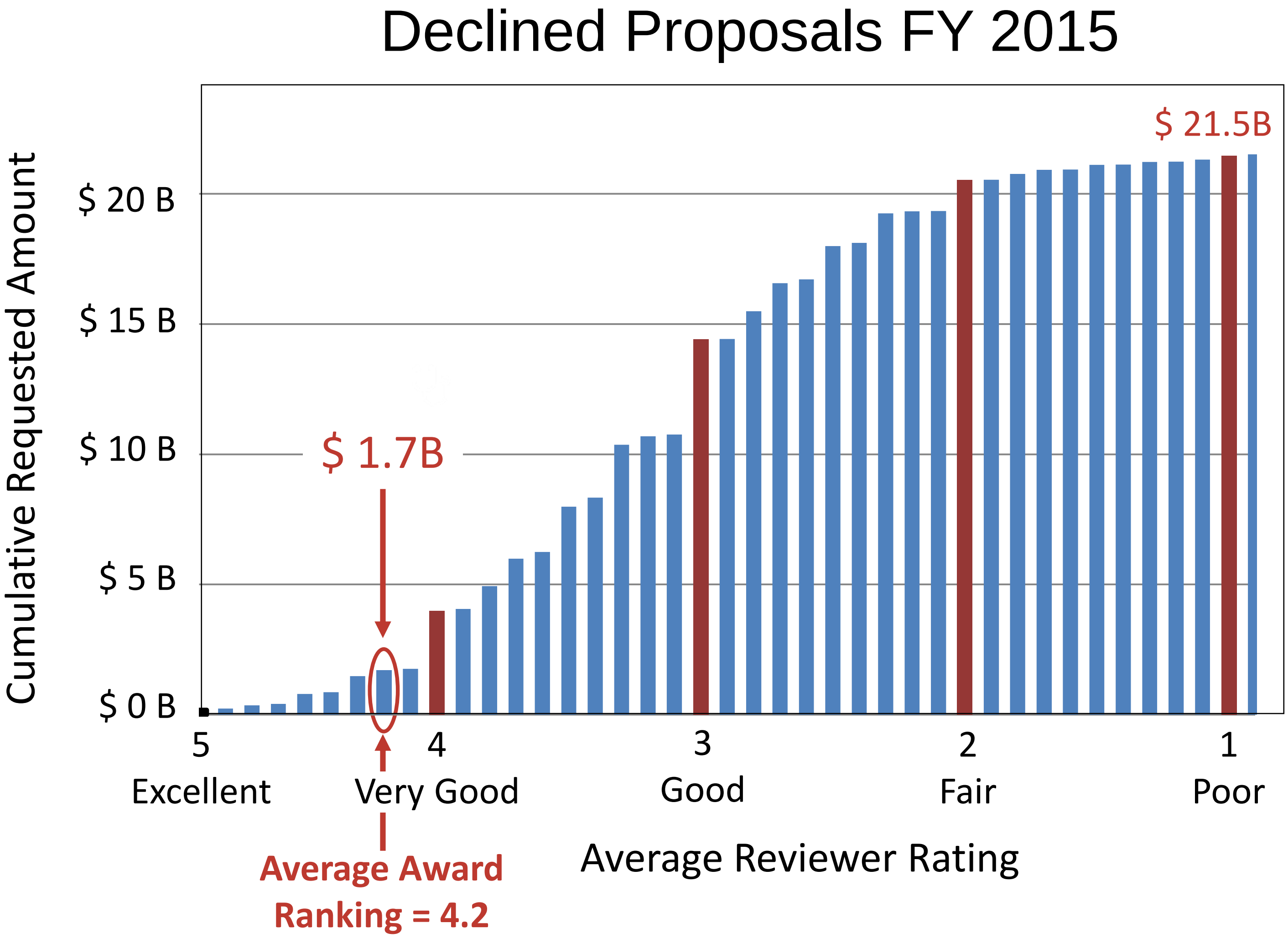
217 Nobel Prize winners

NSF Trends



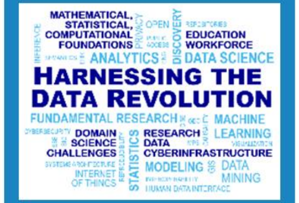
(Note that Funding Rate has declined by 27% since 1990)

Unfunded Quality



Big Ideas

RESEARCH IDEAS


MATHEMATICAL, STATISTICAL, COMPUTATIONAL FOUNDATIONS
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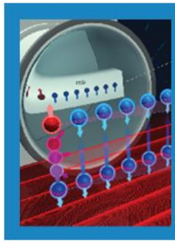
PUBLIC ACCESS
DISCOVERY
REPOSITORIES
EDUCATION WORKFORCE
INFERENCE
ANALYTICS
DATA SCIENCE
HARNESSING THE DATA REVOLUTION
FUNDAMENTAL RESEARCH
MACHINE LEARNING
CYBERSECURITY
DOMAIN SCIENCE CHALLENGES
STATISTICS
RESEARCH DATA CYBERINFRASTRUCTURE
VISUALIZATION
SYSTEMS ARCHITECTURE
INTERNET OF THINGS
REPRODUCIBILITY
MODELING
GIS
DATA MINING
INTEROPERABILITY
HUMAN DATA INTERFACE

Harnessing Data for 21st Century Science and Engineering

Work at the Human-Technology Frontier: Shaping the Future

Windows on the Universe: The Era of Multi-messenger Astrophysics

The Quantum Leap: Leading the Next Quantum Revolution



Navigating the New Arctic

Understanding the Rules of Life: Predicting Phenotype

PROCESS IDEAS

Mid-scale Research Infrastructure

NSF 2050: Seeding Innovation

NSF 2050
INTEGRATIVE FOUNDATIONAL FUND

Growing Convergent Research at NSF

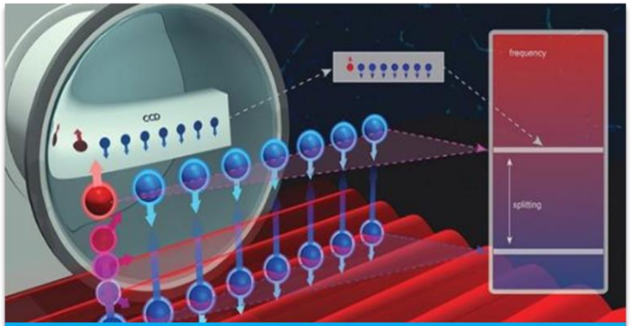
NSF INCLUDES: Enhancing Science and Engineering through Diversity

Big Ideas

Pushing the Boundaries of Knowledge

Windows on the Universe: The Era of Multi-messenger Astrophysics

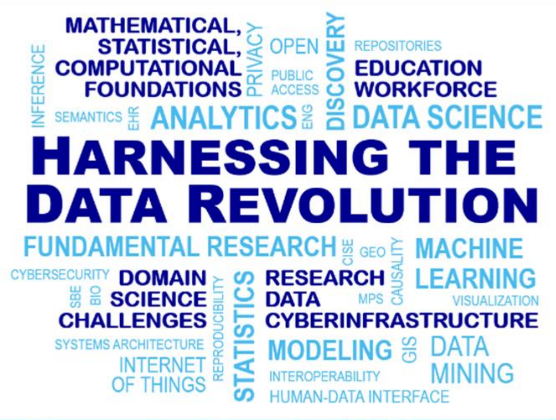
Understanding the Rules of Life: Predicting Phenotype


CCD
frequency
splitting

The Quantum Leap: Leading the Next Quantum Revolution

Big Ideas

Seizing New Opportunities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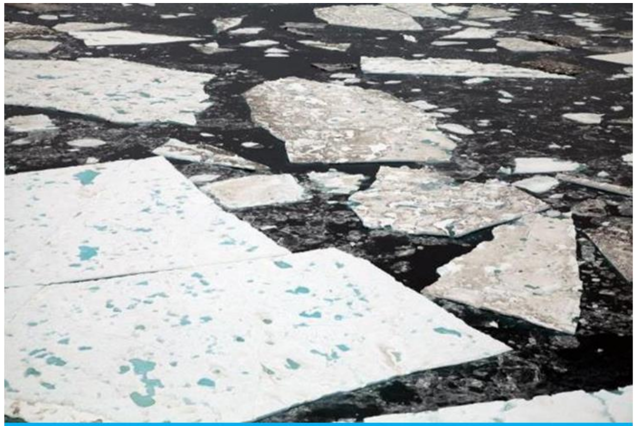
Harnessing Data for 21st Century Science and Engineering



Navigating the New Arctic

Shaping the New Human-technology Frontier

Big Ideas

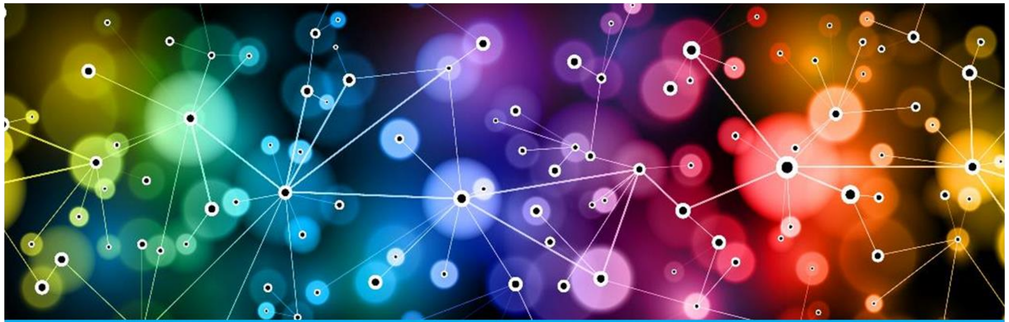
Identifying and Closing Gaps

NSF INCLUDES

NSF 2050
INTEGRATIVE FOUNDATIONAL FUND

NSF 2050

Mid-scale Research Infrastructure



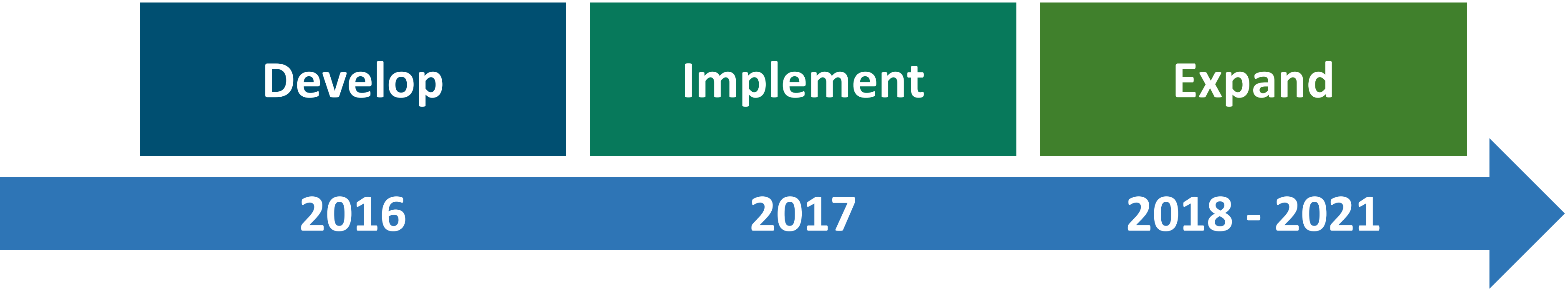
Growing Convergent Research at NSF

Big Ideas

INCLUDES

Broadening Participation in Science and Engineering

NSF INCLUDES timeline



Develop — 2016

Implement — 2017

Expand — 2018 - 2021

Proposal Pilots

BEST
PRACTiCE

- Virtual Panels
    - NSF-Wide
- Preliminary Proposals for Core Programs
    - BIO/DEB
    - BIO/IOS
- One-Plus
    - SBE/BCS – Geography & Spatial Science
- Asynchronous Reviewer Discussions
    - CISE/CNS
    - MPS/PHY

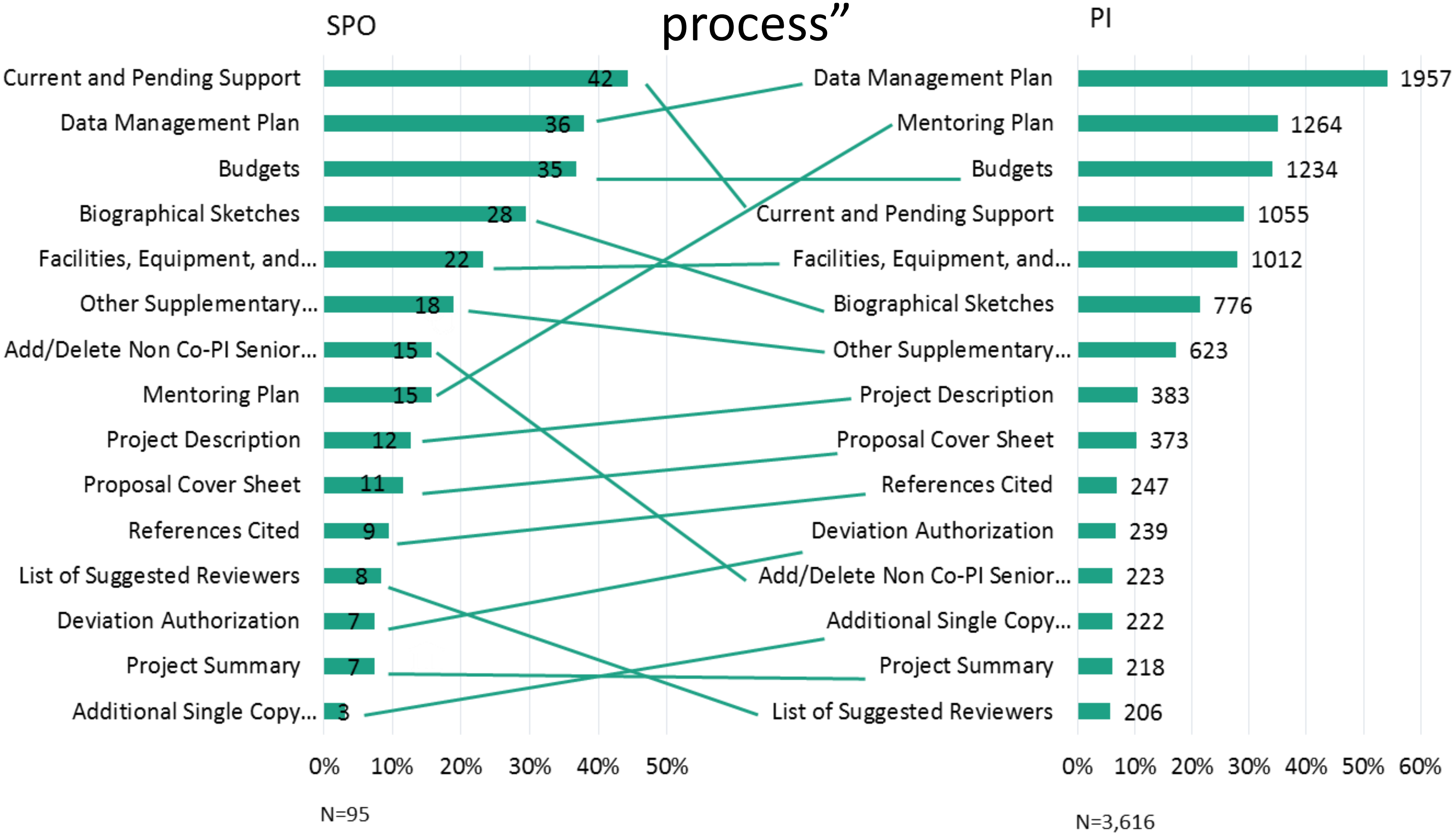
Proposal Pilots

- Mechanism Design
  - ENG/CMMI – Sensors & Sensing Systems
- Program Deadline Elimination
  - GEO/EAR – Instrumentation & Facilities
- Electronic Polling
  - MPS/AST
- College of Reviewers
  - SBE/BCS – Perception, Action & Cognition

Global Leadership
Economy
Security

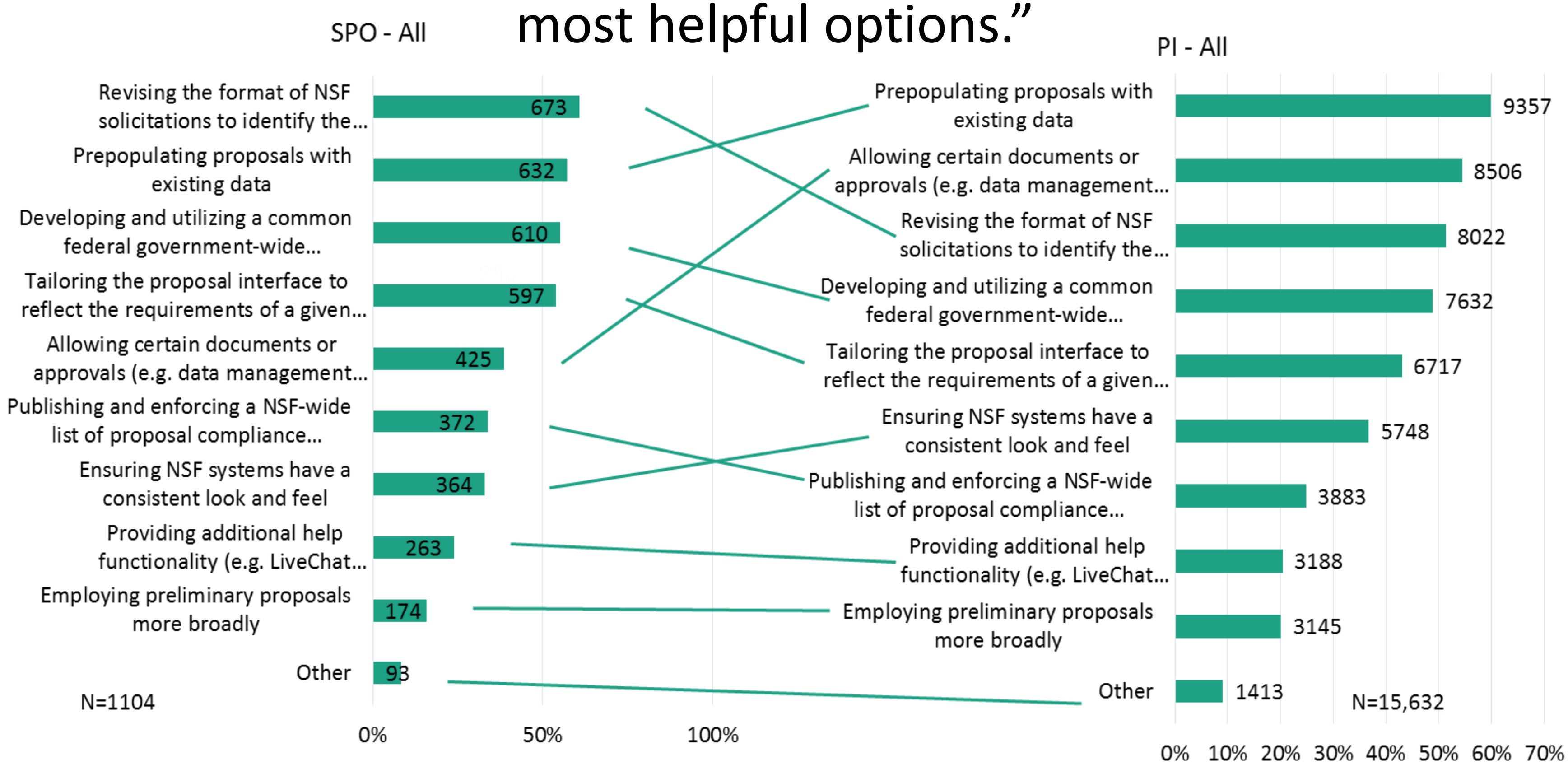
Administrative Burden Survey

“Select up to three **proposal sections** that place an unreasonable administrative burden on you during the proposal preparation process”



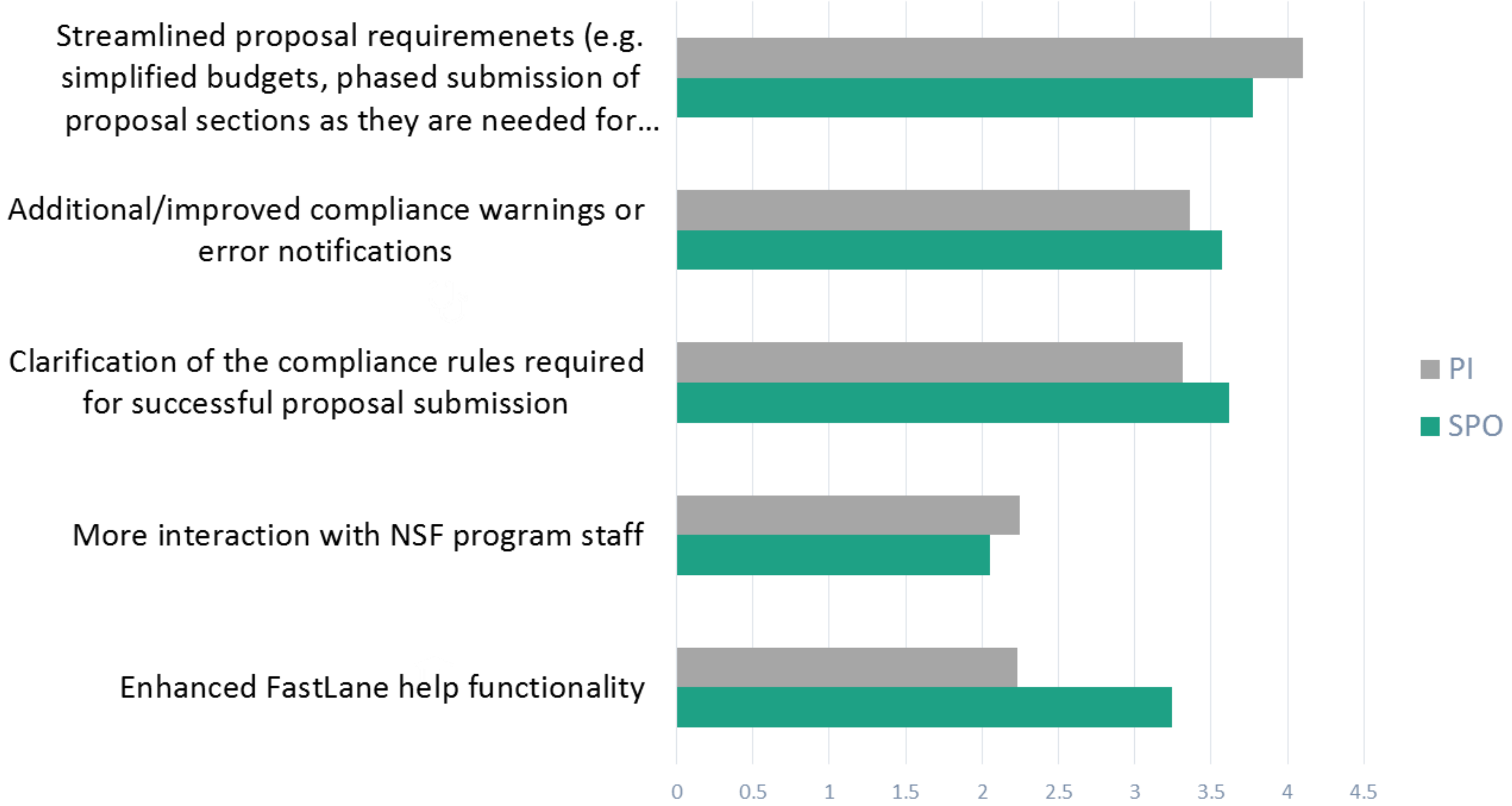
Administrative Burden Survey

"In general, how helpful or unhelpful would the following efforts be in reducing the administrative burden that you experience when preparing and submitting NSF proposals? Please select up to top five most helpful options."



Administrative Burden Survey

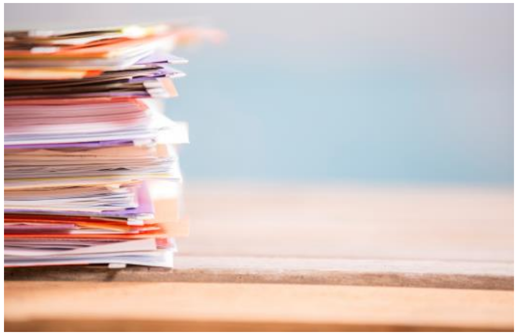
“Rank potential efforts to **assist** in submitting compliant proposal?” (1=less helpful, 5=more helpful) ”



N=15,789

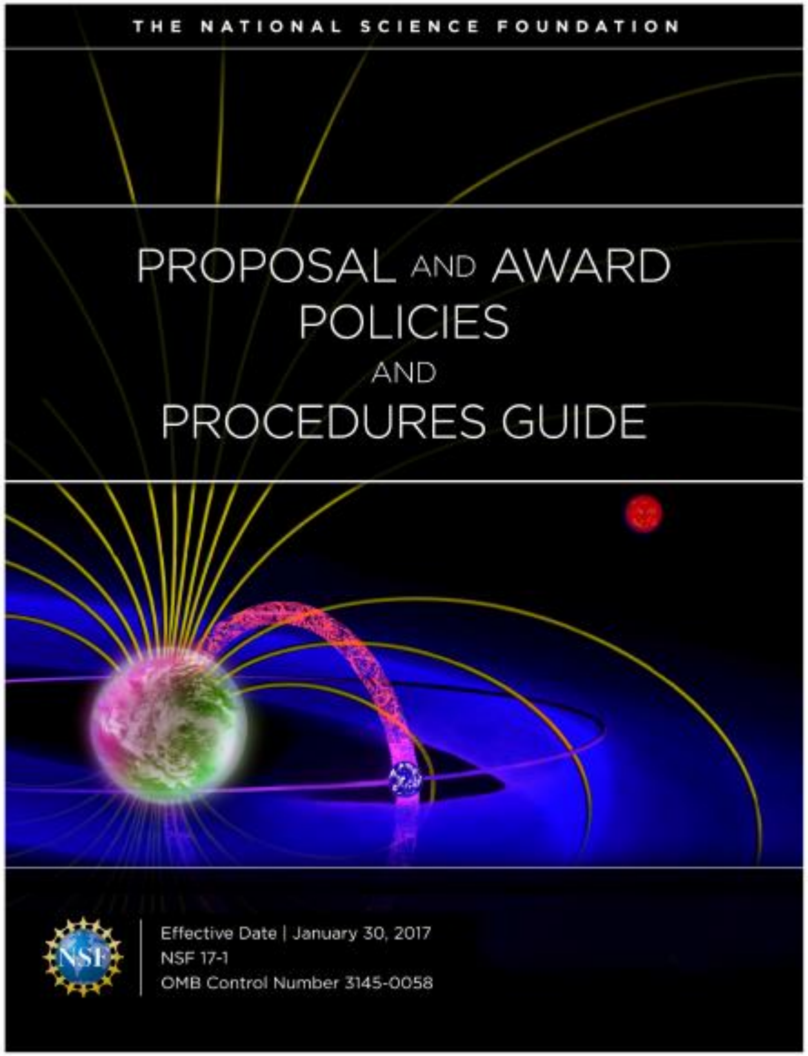
Survey Summary

- Data Management Plan, Budget, Mentoring Plan, and Current and Pending Support were cited as greatest unreasonable burden.
- Data pre-population, Just-In-Time proposal section submission, and revisions of the solicitations format were cited as most helpful.
- Most helpful in submitting complaint proposals
  - Streamline Proposal Requirements (e.g., simplified budgets, phased submission of sections, standardized solicitation format, etc.)
  - Additional/improved compliance waring or error notification
  - Clarification of the compliance rules required for successful proposal submission
  - More interaction with NSF program staff
  - Enhanced FastLane help functionality



PAPPG Implementation

- Published: October 25, 2016
- Effective: January 30, 2017


THE NATIONAL SCIENCE FOUNDATION

PROPOSAL AND AWARD
POLICIES
AND
PROCEDURES GUIDE

Effective Date | January 30, 2017
NSF 17-1
OMB Control Number 3145-0058

Proposal Submission Modernization

- **PSM** is a multi-year initiative to modernize the proposal submission capabilities currently in FastLane and implement new capabilities in Research.gov.

Goals

- Enhance NSF proposal preparation and submission processes.
- Reduce administrative burden on PIs, organizations and NSF staff.
- Increase likelihood of proposal acceptance upon successful proposal submission in FastLane.

Approach

- Clarify policies and procedures in PAPPG.
- Standardize proposal formats.
- Further automate compliance checking.
- Reduce programmatic review to a minimum set of essential elements

Automated Proposal Compliance Checking

- NSF continues to invest in auto-compliance checking capabilities to reduce administrative burden levels on both the research community and NSF programs.
- Core PAPPG proposal section, page count, budget, and deadline requirements are checked during proposal preparation and submission activities in FastLane.
- The next release of auto-compliance checks will support additional standard proposal type requirements and include checks for new types of proposals.
- A complete listing of current FastLane checks is available at: http://www.nsf.gov/bfa/dias/policy/autocheck/compliancechecks_july16.pdf

REGULATIONS
CODES
POLICY
RULES
COMPLIANCE
LAW
STANDARDS
GUIDELINES
PROCESS
REQUIREMENTS
MAINTAINANCE

Questions?