National Science Foundation
Advisory Committee for Business and Operations
Spring 2018 Meeting

June 13-14, 2018
Rooms E 2030

Wednesday, June 13, 2018

1:00 pm **Welcome/Introductions/Recap**
Co-Chairs: Chuck Grimes and Susan Sedwick

1:15 pm **Meeting with Dr. Córdova and Dr. Ferrini-Mundy**
Discuss any comments regarding the President's Management Agenda (PMA) and Renewing NSF. Discussion and feedback around the interconnectedness of the PMA with NSF's ongoing Renewing NSF efforts.

2:15 pm **President's Management Agenda - Overview**
Provide a high level overview of the President's Management Agenda.

NSF Business Drivers: The 10 Big Ideas, NSF's Strategic Plan, Renewing NSF, OIG Management Challenges, and President's Management Agenda.

Specifically, for this discussion:

Overview of Renewing NSF:

- Overview presented at the Winter 2017 BOAC Meeting
- 4 Broad Priorities:
  - Making information technology work for us
  - Adapting the NSF workforce to the work
  - Expanding and deepening public and private partnerships
  - Streamlining, standardizing, and simplifying programs and processes

The President's Management Agenda (PMA): Modernizing Government for the 21st Century

- The PMA was released in March 2018.
- The PMA lays a long-term vision for modernizing the Federal Government in key areas that will improve the ability of agencies to deliver **mission** outcomes, provide excellent **service**, and effectively **steward** taxpayer dollars on behalf of the American people.
- Three drivers of transformation:
  - IT modernization
  - Data, Accountability and Transparency
  - People – Workforce of the Future
- A total of 14 Cross Agency Priorities (CAPs) including two of which we will take deeper dives at this meeting:
  - Results-Oriented Accountability for Grants
  - IT modernization

Committee Action/Feedback:

- NSF seeks the Committee's advice on: 1) Committee's experience in implementing other high-level or cross-cutting initiatives like the PMA and 2) Based on your experience with high-level or cross-cutting reforms/initiatives what are some strategies that facilitated the integration of and commitment to multiple initiatives?

Presenters: Donna Butler, OIRM; Teresa Grancorvitz, BFA

Discussants: Adam Goldberg and John Kamensky

2:45 pm **Break**

3:00 pm **Deeper Dive- Cross-Agency Priority (CAP) Goal – Results-Oriented Accountability for Grants**

The 2018 President's Management Agenda (PMA) lays out a long-term vision for modernizing the Federal Government in key areas that will improve the ability of agencies to deliver mission outcomes, provide excellent service, and effectively steward taxpayer dollars on behalf of the American people. CAP Goal #8, Results Oriented Accountability for Grants, is made up of three overall strategies:

- Standardize data;
- Develop digital tools to manage risk, such as a grantee's past performance and financial management; and
- Implement a maturity model to encourage agencies to structure grant programs that best balance program results and financial management as important aspects of stewarding tax dollars.

Through these strategies, this goal will Rebalance compliance efforts with a focus on results for the American taxpayer; Standardize grant reporting data and improve data collection in ways that will increase efficiency, promote evaluation, reduce reporting burden, and benefit the American taxpayer; Measure progress and share lessons learned and best practices to inform future efforts, and Support innovation to achieve results.

The Department of Health and Human Services, the Department of Education, and Office of Management and Budget will lead this goal. Other participating agencies will include major grant making agencies with additional support provided by General Services Administration. The Chief Financial Officer Council (CFOC) is the governing body that is overseeing the implementation of CAP Goal #8, and has set up five working groups to address different parts of the goal. As a leader in federal financial assistance, NSF is actively participating in these working groups

Committee Action/Feedback:
NSF seeks advice and perspective on how to ensure that NSF moves forward effectively and efficiently in implementing the PMA Results-oriented Accountability for Grants.

<u>PMA Results-Oriented Accountability for Grants – What Does Success Look Like for NSF, and How will NSF Get There?</u>

- How can NSF internally organize to support PMA objectives?
- How can the external community assist NSF with meeting goals?
- How can NSF work with other Federal agencies?
- What does success look like?

Presenter: Dale Bell, BFA

Discussants: Susan Sedwick and Pamela Webb

3:45 pm **Deeper Dive- Cross-Agency Priority (CAP) Goal – Modernize IT to Increase Productivity and Security**

The 2018 President's Management Agenda (PMA) lays out a long-term vision for modernizing the Federal Government in key areas that will improve the ability of agencies to deliver mission outcomes, provide excellent service, and effectively steward taxpayer dollars on behalf of the American people. The Modernize IT CAP goal is made up of three overall strategies:

- Modernize the Stack;
- Embrace Cloud Solutions; and
- Mitigate Project Delivery Risks

Through these strategies, this goal will enhance the effectiveness and efficiency of government services, leveraging data-driven, customer-focused strategies to modernize legacy systems, consolidate common agency services, adopt new shared service models, and embrace commercial cloud solutions. The Office of Management and Budget, the Office of American Innovation, and the U.S. Digital Service are leading this goal. Other supporting agencies include GSA and DHS. NSF has long been engaged in these three strategies.

Committee Action/Feedback:
NSF seeks advice and perspective on how to ensure that NSF moves forward effectively and efficiently in implementing the Modernizing IT CAP Goal strategies while implementing artificial intelligence in the merit review and financial management process.

PMA Modernizing IT – What Does Success Look Like for NSF, and How will NSF Get There?

- How can the external community assist NSF with meeting goals?
- Where in the merit review and financial management processes should these new IT tools be deployed?
- What does success look like?

Presenters: Dorothy Aronson, OD; Dan Hofherr, OIRM

Discussants: John Tao and Ned Holland

4:30 pm **Break**

4:45 pm **Interaction of Agency CFO and CIO**

Federal CFOs and CIOS are facing a wide range of challenges in managing financial and IT priorities in today's ever-changing environment. Following are some examples of government-wide requirements where careful coordination needs to take place between the CIO and CFO.

Federal IT Acquisition Reform Act (FITARA)
FITARA was enacted in December 2014 in response to specific federal IT challenges:

- Duplication of IT spending between and within agencies
- Struggle to understand cost and performance of IT investments
- Lack of visibility into the IT spend

Key objectives of FITARA include:

- Aligning IT resources with agency missions and requirements
- Strengthening federal agency CIOs' accountability for IT costs, performance, and security
- Enabling effective planning, programming, budget and execution for IT resources
- Providing transparency into IT resources across agencies and programs

An **Executive Order** was released in May 2018 that largely echoes the mandates in FITARA. FITARA hasn't been fully effective, as noted by current administration officials, as only half of department CIOs currently report directly to agency leadership as mandated in FITARA. The Executive Order calls out several issues while adding another layer: requiring a place for CIOs as voting members on agencies' IT governance boards.

NSF is complying with most of the requirements of FITARA and the Executive Order, helped to a great extent by the good working relationship between the CFO, CIO and their respective organizations.

A few examples of the CIO and CFO work well together and are increasingly integrated:

- In FY 2016, NSF's cloud-hosted financial system, iTRAK, was one of the first Federal Agencies to be certified as Fed Ramp compliant. That was made possible by strong collaboration between GSA and a united front between CFO and CIO functions at NSF.
- Internal control and FISMA staff work extremely close together. In FY 2017, together NSF eliminated an IT significant deficiency in one year and in FY 18 we are keeping that partnership going by monitoring risks in other feeder systems that interact with iTRAK.
- The CFO and CIO are strong partners on NSF's Renewal efforts in several ways, our budget and performance offices are on the board and we are exploring significant opportunities to implement robotic technologies to support the NSF Renewal effort.
- Over the past two years, NSF has engaged in extensive discussions with Federal Shared Service providers. The CFO and CIO staffs have worked close together to understand the risks and opportunities to NSF in a variety of ways including, operations, system security, and contractual issues.

Dorothy Aronson and Teresa Grancorvitz participated on a panel (along with Adam Goldberg) at the May 2018 CFO/CIO Summit of the Association of Government Accountants (AGA) to discuss this subject.

Committee Action/Feedback:
NSF seeks the Committee's advice on how to ensure the critical relationship between the CFO and CIO to best serve NSF.

- What additional opportunities does the Committee recommend to further build the relationship?
- Given your experience, what potential roadblocks could occur, either internally or externally, that may diminish the relationship?
- How can NSF firm up the processes behind the relationship such that it will continue to be strong independent of current personalities in the CFO and CIO roles?

Presenters: Dorothy Aronson, OD; Teresa Grancorvitz, BFA

Discussant: Adam Goldberg

5:30 pm **Adjourn**

6:30 pm **Dinner**

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Thursday, June 14, 2018

8:00 am **BFA/OIRM/OLPA/Budget Updates**

Presenters: Donna Butler, OIRM; Teresa Grancorvitz, BFA; Rob Moller, OLPA; Tony DiGiovanni, BFA

8:45 am **Framing Leadership in Customer Service: BFA and OIRM**

BFA and OIRM provide agency leadership in management and operations at NSF, and many internal and external NSF customers and stakeholders, including Directorates and Offices and their programs, the external U.S. research community and institutions, and federal and congressional stakeholders. OIRM and BFA also coordinate on many levels to conduct our activities.

The past year has been challenging, given the NSF move, settling into the new building, prolonged budget process, extensive efforts at IT modernization, and planning to operate in new ways with new NSF initiatives such as the 10 Big Ideas, Convergence Accelerators, and Introduction of Enterprise Risk Management.

It therefore seems an opportune moment to open a dialog with the Committee on how we are doing with customer service and on ways to ensure continuous improvement.

Committee Action/Feedback:
We ask the Committee to consider the following "framing" questions regarding OIRM and BFA's customer service and leadership in their areas of expertise:

- **Know our customers.** *How do we maintain strong productive relationships with internal and external customers and stakeholders?*
- **Measure ourselves.** *What are the best means and metrics to assess our effectiveness in serving our internal and external customers?*
- **Serve the NSF Mission.** *How do we ensure that everything we do enables the NSF mission and works towards the advancement of science?*
    - How do we best manage our relative roles in customer support, coordination, and leadership within NSF and in the federal sphere?
    - Are there new approaches we should pursue to support new NSF strategies and initiatives (Big Ideas, Accelerators, …)?

We recognize that these questions are open and not necessarily simple to answer in short form. We most value a dialogue with the Committee on how we can ensure we are going from "good to great" in these areas; any evident gaps, and opportunities given the evolving operations and technology landscapes, and NSF's aspirations to maintain and extend its leadership in advancing science and engineering research.

Presenters: Wonzie Gardner, OIRM; Bill Miller, BFA

Discussants: Jan Jones and John Palguta

10:00 am **Break**

10:15 am **Establishing and Maturing an Enterprise Risk Management (ERM) Culture at NSF**

The Office of Management and Budget (OMB) updated Circular A-123 "Management's Responsibility for Enterprise Risk Management and Internal Control" to ensure federal managers are effectively managing risks an Agency faces towards achieving its strategic objectives and arising from its activities and operations. In 2016, the Office of the Chief Financial Officer (OCFO) facilitated the process of preparing NSF's initial risk profile by collaborating with stakeholders from across the Agency. Since then, NSF has made significant progress by (1) completing its first risk profile (2) securing strong leadership support from
the Director and engaging the National Science Board (NSB), (3) implementing a five step ERM framework (4) incorporating the Harvard Business Review framework for communicating risks (5) integrating internal control risk assessments, and (6) incorporating ERM into its strategic plan.

As NSF continues to mature its ERM program, the Agency seeks to create a community of practice regarding ERM techniques and analyses. NSF is well poised to achieve this goal. Assessing risk has always been at the core of making funding decisions to support science. At NSF, we consider our appetite for risk in our decision-making, knowing the potential for these decisions to lead to transformative discoveries. NSF's primary goal is to demonstrate the value of ERM so Agency leadership can leverage it to identify strategic opportunities, make decisions about risks, and build consensus with the Office of Inspector General on top management challenges.

NSF will prepare an updated risk profile in June 2018 that it will discuss with OMB as part of the governmentwide strategic reviews. In addition, the Agency is planning to have a discussion with the Board about ERM in July 2018.

Committee Action/Feedback:
BFA seeks Committee advice to ensure that NSF continues to mature its ERM framework and establishes a community of practice as we move to obtain full buy-in from NSF senior managers. The Advisory Committee could help us with some key insights:

- What are the strategies and best practices that can help us mature ERM and move it from an OCFO mindset to an NSF mindset?
- What actions can we take to continue to develop NSF's ERM governance structure?
- How have you changed your organizational culture to create an ERM community of practice?

Presenters: Mike Wetklow, BFA; Rafael Cotto, BFA; Charisse Carney-Nunes, BFA

Discussants: Doug Webster and John Kamensky

11:30 am **Committee Business/Wrap Up**

12:00 pm **Adjourn**

Fall 2017 Recommendations from the Business and Operations Advisory Committee

Title	Meeting Date	Recommendation	NSF Contact(s)	Status	Explanation/Outcome	Theme
Shared Services: Best Practices and Case Studies	Fall 2017	Best practices and lessons learned relating to shared services. Find a provider that works. Expectations for customization is a recipe for disaster. Failure happens when you don't consider difficult barriers to overcome (e.g., legal differences). If you act only on cost savings, there will be potential pain on the human side. Consider fairly low risk and high return when exploring shared services. Create a center of excellence to determine what NSF can do or find someone else to do it.	Butler, D., Grancorvitz, T.; Gardner, W.; Bell, D.; Wetklow, M.	In Progress	NSF is factoring these recommendations into ongoing discussions with shared service providers.	Advice on Shared Services
Shared Services: Best Practices and Case Studies	Fall 2017	Obtain a better understanding of the drivers pushing organizations towards shared services and how they may or may not align with organizational priorities. Set expectations for shared services: • Assert priorities and what you want to accomplish. • Shared services will not always save money – focus on doing things better. • Keep Project Management Principles in mind - Scope, Schedule and Budget, aka Cheaper, Faster and Better. Probably only get two out of three. Start simple; build foundation. Focus on adding value to whole, as result of efficiencies gained. Consider low commodity services (e.g., invoicing; travel) with consistent rules and low cost of entry. Look for opportunities where NSF's specialized business practices can coordinate with another agency's, making both agencies better off. Align joint interests, more likely for long-term, stable partnership. Recognize Shared Services extends across scope of NSF activities.	Butler, D., Grancorvitz, T.; Gardner, W.; Bell, D.; Wetklow, M.	In Progress	NSF is factoring these recommendations into ongoing discussions with shared service providers.	Advice on Shared Services

Fall 2017 Recommendations from the Business and Operations Advisory Committee

Title	Meeting Date	Recommendation	NSF Contact(s)	Status	Explanation/Outcome	Theme
Shared Services: Best Practices and Case Studies	Fall 2017	Useful resources (e.g. guidance, training, learning communities) for selecting, planning, and implementing shared services. Ask series of critical questions (e.g., impact, evaluations, metrics, expectations, drivers). Multiple models: internal shared services, outsourcing, fee-for-service. Coordinated governance very important but underemphasized, increasing risk for failure. Continuums of conversations important (e.g., back office operations, mission critical services; generic vs. customized approaches? business case vs. public policy? Big bang vs. incremental approach? Critical success factors? Cost?).	Butler, D., Grancorvitz, T.; Gardner, W.; Bell, D.; Wetklow, M.	In Progress	NSF is factoring these recommendations into ongoing discussions with shared service providers.	Advice on Shared Services
Shared Services: Best Practices and Case Studies	Fall 2017	Enhancing our understanding of the characteristics of processes/functions that lend or do not lend themselves to shared services (at multiple levels). Don't get too complicated. Software is not a shared service. Consider different cultures and values. Some government providers (e.g., OPM, Treasury) are logical. Services can't be generic; must consider population we interact with.	Butler, D., Grancorvitz, T.; Gardner, W.; Bell, D.; Wetklow, M.	In Progress	NSF is factoring these recommendations into ongoing discussions with shared service providers.	Advice on Shared Services
Shared Services: Best Practices and Case Studies	Fall 2017	Critical success factor is clarity with regard to mission-critical or mission-specific vs. back-office. The question is not “either or” but “if and when” and in what way. General consensus is that moving to Shared Services makes sense. Given political pressure, volunteering to do it in the areas that make the most sense for NSF is better than when mandated.	Butler, D., Grancorvitz, T.; Gardner, W.; Bell, D.; Wetklow, M.	In Progress	NSF is factoring these recommendations into ongoing discussions with shared service providers.	Advice on Shared Services

Fall 2017 Recommendations from the Business and Operations Advisory Committee

Title	Meeting Date	Recommendation	NSF Contact(s)	Status	Explanation/Outcome	Theme
Renewing NSF	Fall 2017	Assure prominence of the four steering group leadership; include an integrator; and don't operate in silos. Remember Drucker's warning - "Culture eats strategy for breakfast." Leverage relocation communication strategy as way to engage the NSF employees through internal communication. Employees value mastery of their jobs, autonomy, and purpose. Focus on mission outcomes: how activities support mission. Challenge progress with a stringent timeline. Given all the change NSF has been through, consider "change fatigue."	Gianchandani, E.	In Progress	NSF is moving forward with refining the vision for each of the four areas of Renewing NSF, and formulating draft short- to medium-term implementation plans.	Advice on Renewing NSF
Strategic Coordination of NSF's Participation and Outreach with External Organizations	Fall 2017	Need to be able to justify [outreach] expenses to Congress. Take a return on investment. Measure overarching goals (receptive to community concerns, grantees successfully handling federal funds) through associated metrics. NSF should review its coordination and outreach strategy via lens of NSF risk management process. Can help identify additional targeted outreach opportunities for high risk areas.	Grancorvitz, T.; Nelson, K.; Leffler, J; Sholhead, J.	In Progress	DFM continues enhanced outreach efforts to get our message out to as many grantees as possible to allow grantees to better understand Federal financial management, we leverage NCURA conferences, increased number of webinars, do in-reach efforts notifying grantees when and where we are presenting, continue standard outreach conferences, conduct joint presentations with DGA and DIAS and continue to monitor our saturation map to monitor our success. For outreach to the research and research administration communities via the NSF Grants Conference, the Policy Office continues to coordinate with colleagues to identify areas of emphasis based on feedback from the community as well as from results of risk assessments.	Advice on Outreach
Results from 2017 Federal Employee Viewpoint Survey (FEVS) and Maximizing Employee Performance	Fall 2017	FEVS results: lots of good news, still opportunities for improvement (e.g., address high workload). Hard but not impossible to maintain progress. Ask for employee input to improve workplace and mission effectiveness. Avoid complacency. Strive for continuous improvement.	Butler, D.; Campbell, D.	In Progress	NSF recognizes even with improving FEVS scores, there is room for improvement. *NSF's Plan for Engaging the Workforce* , which is posted on NSF's intranet, has identified areas of improvement regarding workload, career development and performance/reognition and an action plan, led by NSF senior executives, to address these areas with specific action activites. The 2018 FEVS is in progress (ends June 19).	Advice on Performance Management

Backgrounder: Spring 2018
NSF Advisory Committee for Business and Operations

Nature of Agenda Item: President's Management Agenda (PMA) - Overview

Presentation: Provide a high level overview of the President's Management Agenda.

NSF Business Drivers: The 10 Big Ideas, NSF's Strategic Plan, Renewing NSF, OIG Management Challenges, and President's Management Agenda.

Specifically for this discussion:

Overview of Renewing NSF:

- Overview presented at the Winter 2017 BOAC Meeting
- 4 Broad Priorities:
    - Making information technology work for us
    - Adapting the NSF workforce to the work
    - Expanding and deepening public and private partnerships
    - Streamlining, standardizing, and simplifying programs and processes

The President's Management Agenda (PMA): Modernizing Government for the 21st Century

- The PMA was released in March 2018.
- The PMA lays a long-term vision for modernizing the Federal Government in key areas that will improve the ability of agencies to deliver **mission** outcomes, provide excellent **service**, and effectively **steward** taxpayer dollars on behalf of the American people.
- Three drivers of transformation:
    - IT modernization
    - Data, Accountability and Transparency
    - People – Workforce of the Future
- A total of 14 Cross Agency Priorities (CAPs) including two of which we will take deeper dives at this meeting:
    - Results-Oriented Accountability for Grants
    - IT modernization

- More info on PMA found at: www.performance.gov/PMA and www.omb.gov. All PMA CAP goals are at https://www.performance.gov/CAP/CAP_goals.html.

Committee Action/Feedback:

- NSF seeks the Committee's advice on: 1) Committee's experience in implementing other high-level or cross-cutting initiatives like the PMA and 2) Based on your experience with high-level or cross-cutting reforms/initiatives what are some strategies that facilitated the integration of and commitment to multiple initiatives?

Contact Persons:

- Donna J. Butler, 703-292-8100, dbutler@nsf.gov
- Teresa Grancorvitz, 703-292-4435, tgrancor@nsf.gov

President's Management Agenda (PMA) - Overview

Advisory Committee for Business and Operations

June 13-14, 2018

President's Management Agenda (PMA) – Overview Modernizing Government for the 21st Century

- Overview of Renewing NSF

- The President's Management Agenda (PMA)
- Key drivers for transformation
- Cross-Agency Priorities (CAPs)
- Discussion
- Questions?

Overview of Renewing NSF

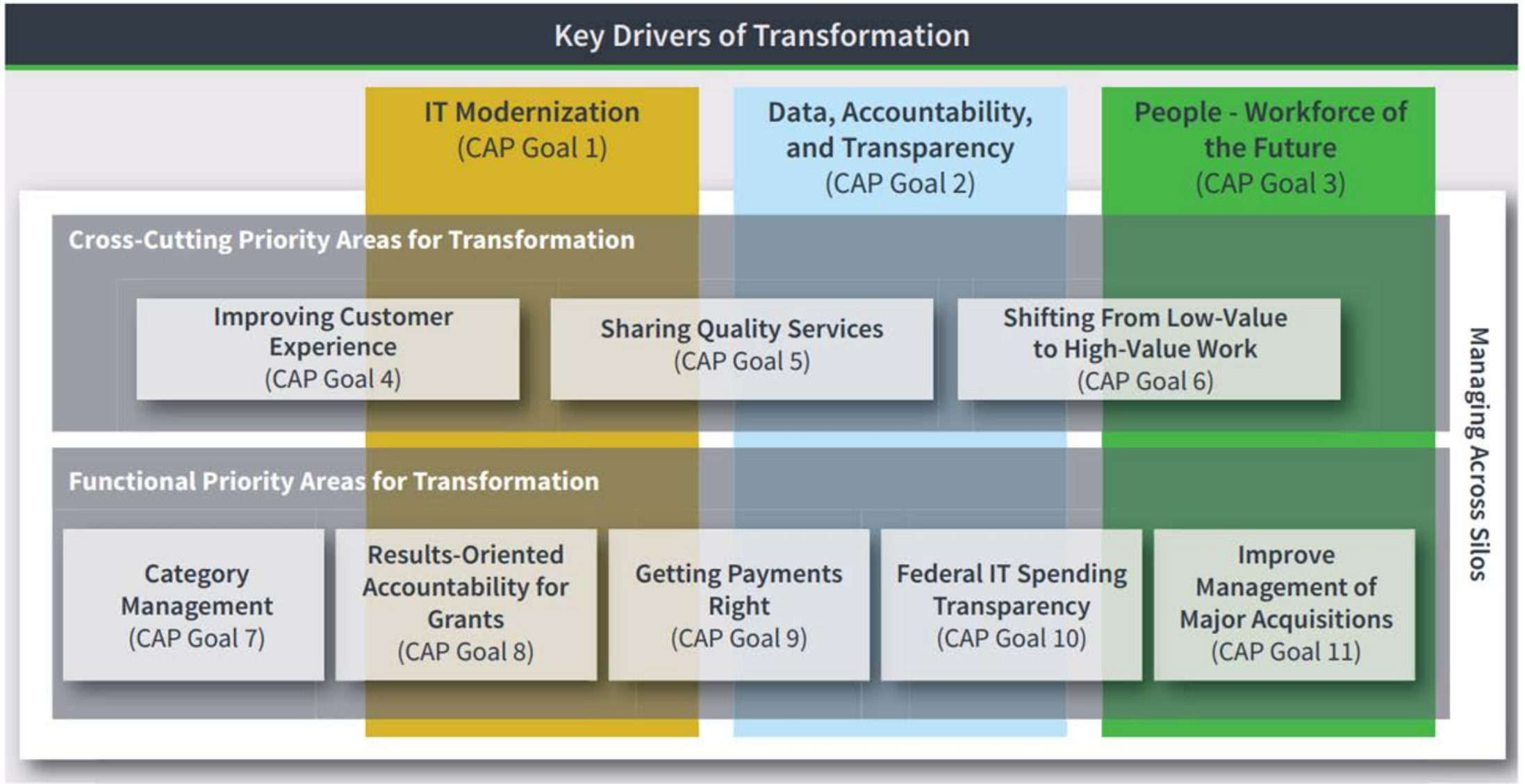
- Four broad priorities include:
  - Making information technology work for us
  - Adapting the NSF workforce to the work
  - Expanding and deepening public and private partnerships
  - Streamlining, standardizing, and simplifying programs and processes

President’s Management Agenda

- Lays out a long-term vision for modernizing the Federal Government in key areas that will:
  - improve the ability of agencies to deliver **mission** outcomes,
  - provide excellent **service**, and
  - effectively **steward** taxpayer dollars on behalf of the American people.

Key Drivers of Transformation

- IT modernization
- Data, Accountability and Transparency
- People – Workforce for the 21st Century


Key Drivers of Transformation
IT Modernization
(CAP Goal 1)
Data, Accountability, and Transparency
(CAP Goal 2)
People - Workforce of the Future
(CAP Goal 3)
Cross-Cutting Priority Areas for Transformation
Improving Customer Experience
(CAP Goal 4)
Sharing Quality Services
(CAP Goal 5)
Shifting From Low-Value to High-Value Work
(CAP Goal 6)
Functional Priority Areas for Transformation
Category Management
(CAP Goal 7)
Results-Oriented Accountability for Grants
(CAP Goal 8)
Getting Payments Right
(CAP Goal 9)
Federal IT Spending Transparency
(CAP Goal 10)
Improve Management of Major Acquisitions
(CAP Goal 11)
Managing Across Silos

Cross-Cutting Priority Areas:

1

Improving Customer Experience

2

Sharing Quality Services

3

Shifting from Low-Value to High-Value Work

Functional Priority Areas

- Category Management
- Results-oriented Accountability for Grants
- Getting Payments Right
- Federal IT Spending Transparency
- Improve Management of Major Acquisitions

Questions for the Committee

- What is the Committee's experience in implementing other high-level or cross-cutting initiatives like the PMA?
- Based on your experience with high-level or cross-cutting reforms/initiatives what are some strategies that facilitated the integration of and commitment to multiple initiatives

Thank you!

Backgrounder: Spring 2018
NSF Advisory Committee for Business and Operations

Nature of Agenda Item: PMA CAP Goal #8, Results Oriented Accountability for Grants

Presentation:

The 2018 President's Management Agenda (PMA) lays out a long-term vision for modernizing the Federal Government in key areas that will improve the ability of agencies to deliver mission outcomes, provide excellent service, and effectively steward taxpayer dollars on behalf of the American people. Released on March 20, 2018, the PMA lays out 14 Cross Agency Priority (CAP) Goals that will drive government transformation. CAP Goal #8, Results Oriented Accountability for Grants, is made up of three overall strategies:

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- Implement a maturity model to encourage agencies to structure grant programs that best balance program results and financial management as important aspects of stewarding tax dollars.

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Committee Action/Feedback

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<u>PMA Results-Oriented Accountability for Grants – What Does Success Look Like for NSF, and How will NSF Get There?</u>

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- How can NSF work with other Federal agencies?
- What does success look like?

Contact Persons:

- Dale Bell, 703-292-2281, dbell@nsf.gov
- Alex Wynnyk, 703-292-4472, awynnyk@nsf.gov

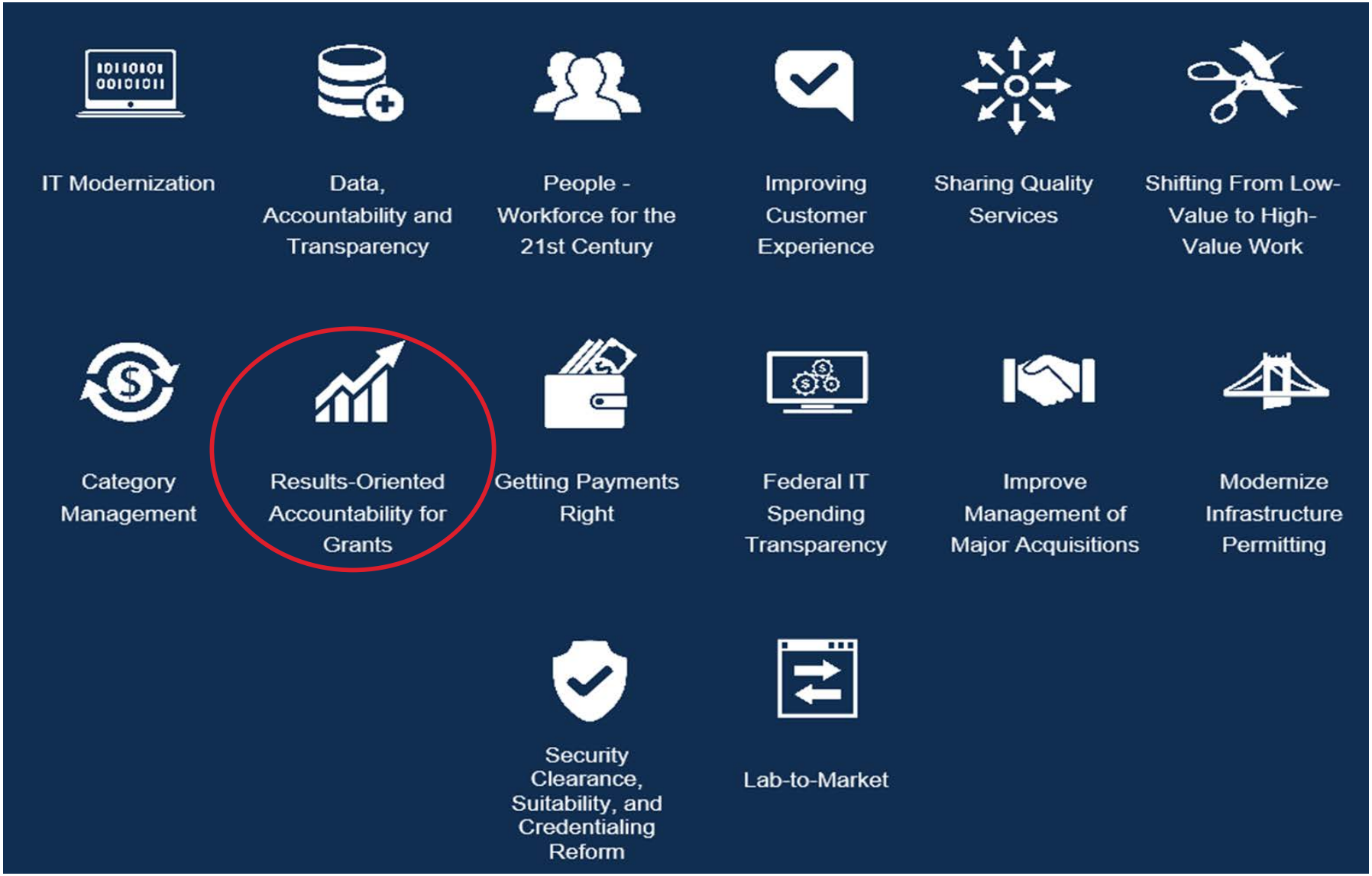
THE PRESIDENT'S MANAGEMENT AGENDA

CAP Goal #8: Results-Oriented Accountability for Grants

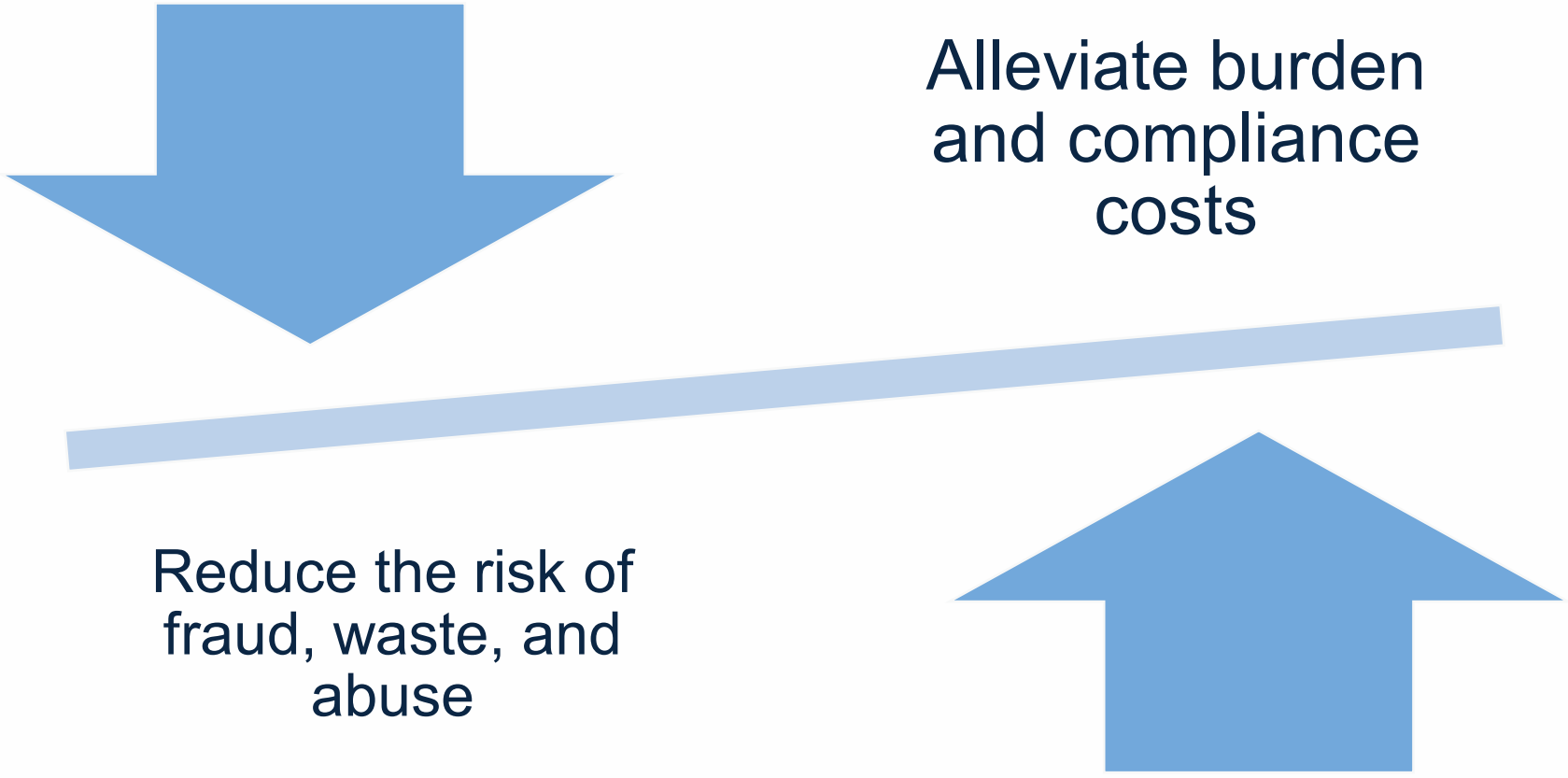
Business and Operations Advisory Committee
National Science Foundation

Dale Bell, Division Director
Institution and Award Support

Cross Agency Priority (CAP) Goals



Striking the Right Balance between Historically Competing Goals



Grants Challenges by Stakeholder Community

Oversight Community

- Weak internal controls
- Funds mismanagement
- Fraud
- Improper payments

Recipients and the Communities they Serve

- Burden
- Fragmentation
- Conflicting guidance
- Too many government systems

Federal Awarding Agencies

- Need for improved coordination across lines of businesses and program
- Opportunities to improve access to and quality of data
- Need for better system solutions

Overview - Results Oriented Accountability for Grants

Goal Statement

- Maximize the value of grant funding by applying a risk-based, data-driven framework that balances compliance requirements with demonstrating successful results for the American taxpayer.

Challenges

- Antiquated monitoring & compliance processes (Federal)
- Grants managers spend less time helping grantees improve performance and more time on non-grants related work (Federal)
- Disconnect between grantee expectations/needs and an agency's program priorities
- Burdensome management framework (Recipient)
- Added costs for complying to select administrative requirements (Recipient)

Opportunity

- Identify, open, standardize, and link critical data sets to power data analytics to enhance financial stewardship, performance management, and accountability. Use digital tools to modernize antiquated compliance processes. Leverage available data such as those produced by annual audits of recipients to drive a risk-based framework for performance management that drives results.

Goal Structure - Results Oriented Accountability for Grants

Standardize Data

Identify, open, standardize, and link critical data sets to power analytics to enhance financial stewardship, performance management, and accountability.

Digital Tools to Manage Risk

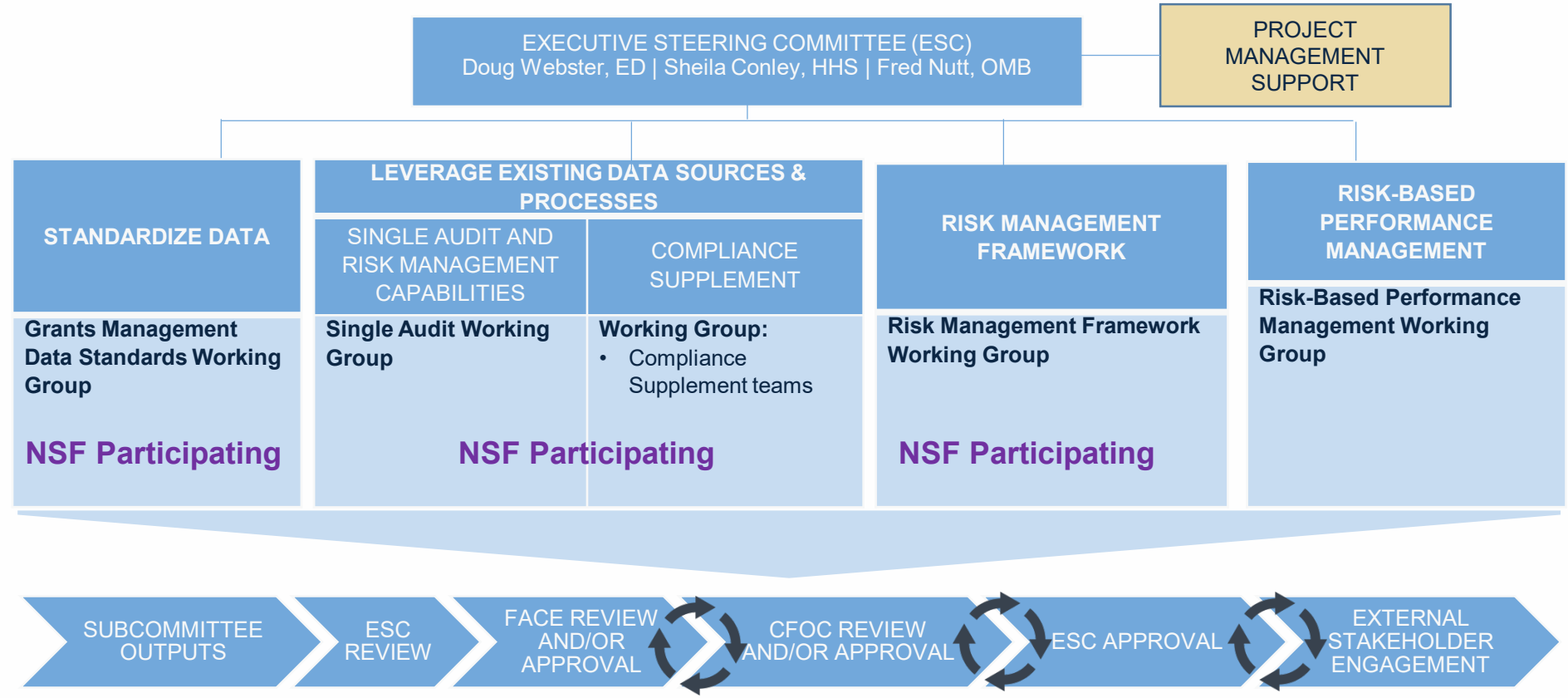
Use digital tools to modernize antiquated form-based compliance processes to assess and manage risk.

Risk-Based Performance Management

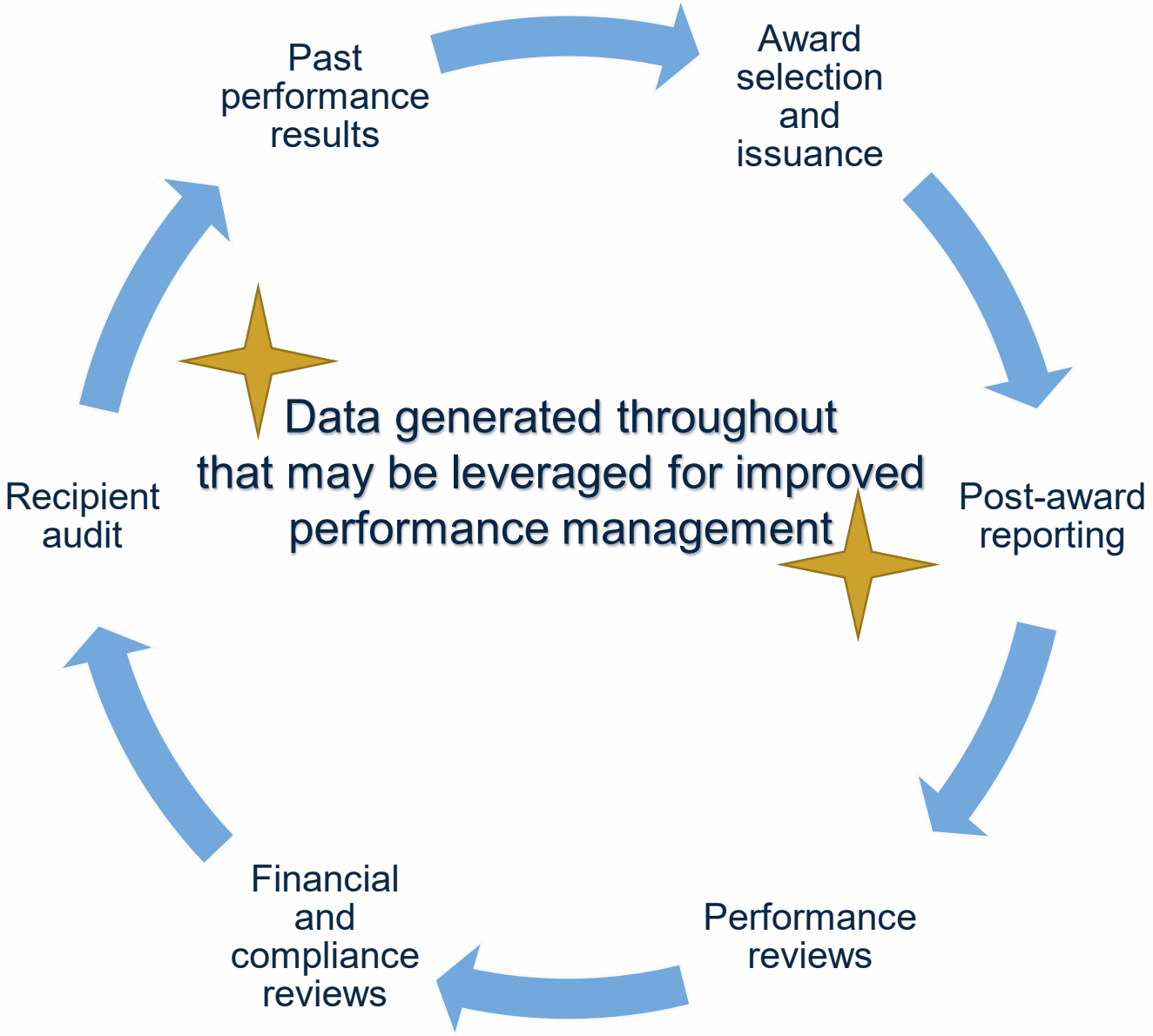
Leverage existing data such as those produced by annual audits of recipients to drive a risk-based framework for performance management that drives results.

Better Results

CAP Goal #8 Governance



Risk-Based Performance Management



Other PMA Elements that Will Impact Financial Assistance

- Reduce Administrative Burden
- Use Risk Management
- Standardize Elements
- Leverage Shared Services
- Innovate with Technology
- Focus on Customer Experience

Questions for B&O

- How can NSF internally organize to support PMA objectives?
- How can the external community assist NSF with meeting goals?
- How can NSF work with other Federal agencies?
- What does success look like?

Questions

NSF Advisory Committee for Business and Operations
President's Management Agenda Cross-Agency Priority Goal
Modernize IT to Increase Productivity and Security
Backgrounder: Spring 2018

Presentation:

The 2018 President's Management Agenda (PMA) lays out a long-term vision for modernizing the Federal Government in key areas that will improve the ability of agencies to deliver mission outcomes, provide excellent service, and effectively steward taxpayer dollars on behalf of the American people. The Modernize IT CAP goal is made up of three overall strategies:

- Modernize the Stack;
- Embrace Cloud Solutions; and
- Mitigate Project Delivery Risks

Through these strategies, this goal will enhance the effectiveness and efficiency of government services, leveraging data-driven, customer-focused strategies to modernize legacy systems, consolidate common agency services, adopt new shared service models, and embrace commercial cloud solutions. The Office of Management and Budget, the Office of American Innovation, and the U.S. Digital Service are leading this goal. Other supporting agencies include GSA and DHS. NSF has long been engaged in these three strategies.

Committee Action/Feedback:

NSF seeks advice and perspective on how to ensure that NSF moves forward effectively and efficiently in implementing the Modernizing IT CAP Goal strategies while implementing artificial intelligence in the merit review and financial management process.

<u>PMA Modernizing IT – What Does Success Look Like for NSF, and How will NSF Get There?</u>

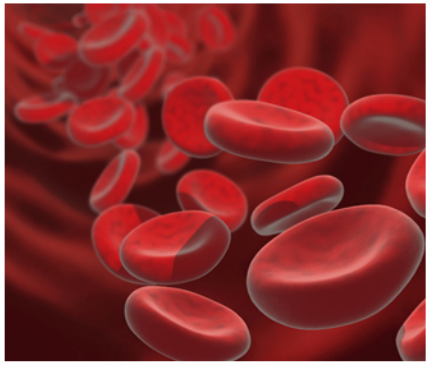
- How can the external community assist NSF with meeting goals?
- Where in the merit review and financial management processes should these new IT tools be deployed?
- What does success look like?

Contact Person(s):

- Dan Hofherr, 703-292-4241, dhofherr@nsf.gov
- Dorothy Aronson, 703-292-4299, daronson@nsf.gov

Cross Agency Priority Goal
Modernize IT to Increase Productivity and Security

Dan Hofherr
Division Director/OIRM/DIS
Dorothy Aronson
NSF CIO



Agenda

- NSF progress on modernization of IT tools and lessons learned to-date.
- Discuss expanded use of artificial intelligence tools at NSF.
- Committee feedback on where to deploy new IT tools.
- What does success look like?

NSF Progress on Modernization of IT tools

Modernize the stack and modernize legacy systems

- Upgrading to Oracle 12C
- Moving from Glassfish to Tomcat
- Moving from Solaris to Redhat Enterprise Linux and X86
- Server virtualization
- Completed upgrade to Windows 10 v1709
- Upgrading to Sierra
- Implemented new IT Security Tools
- Moving off of internal client/server grants management systems
- New Proposal Preparation and Submission System
- New Account Management functionality for external community
- Agile software development

Modernize the Stack
Lessons-learned

- Balance modernizing the stack with rolling out customer-facing enhancements!
- Plan and coordinate modernization efforts across the IT organization!
- Don’t give up! Keep going!

NSF Progress on Modernization of IT tools

- Embrace Cloud Solutions!
  - External SharePoint in 2012.
  - Moved to Cloud email in 2013.
  - Storage of all backups in 2017.
  - Moving internal SharePoint to the cloud this September.
  - Many other things are in the cloud including WebEx, OneDrive, Office 365, ServiceNow, Mobile Device Management (AirWatch), FireEye Email Threat Protection, Application Performance Monitoring (AppDynamics), file storage, and more…
  - Looking to move grants management systems to the cloud in a few years.

Embrace the Cloud
Lessons-learned

- Balance moving to the cloud with rolling out customer-facing enhancements
- Go to the cloud at the right time for you.
- You need to get ready before going to the cloud.
- Email and collaboration tools are a good start.
- Cloud is getting more mature.
- You may not save money.

Expanding use of Artificial Intelligence at NSF

Now What?

Now What?

is no ordinary question.
It is a question about the future.
A state of mind. A curiosity.
An impatience. The restless
pursuit of what can be.
A promise to always
push beyond what is.
To challenge convention.
To constantly ask
"now what"
of ourselves and our clients.

www.nowwhat.com

STEP towards organizational change

- S pace, stop!
- T rue purpose
- E xperiment, explore
- P ut into practice

February 15 presentation to Dr. Ferrini-Mundy

NSF'S SMART TOOL PILOT

Hypothesis

- Computers can (and will…and do already) help people make important decisions.
- Innovative tools can help NSF …

Answer tactical questions:

- Who's the best set of reviewers for this proposal?
- What's the best grouping of proposals?
- How many panels?

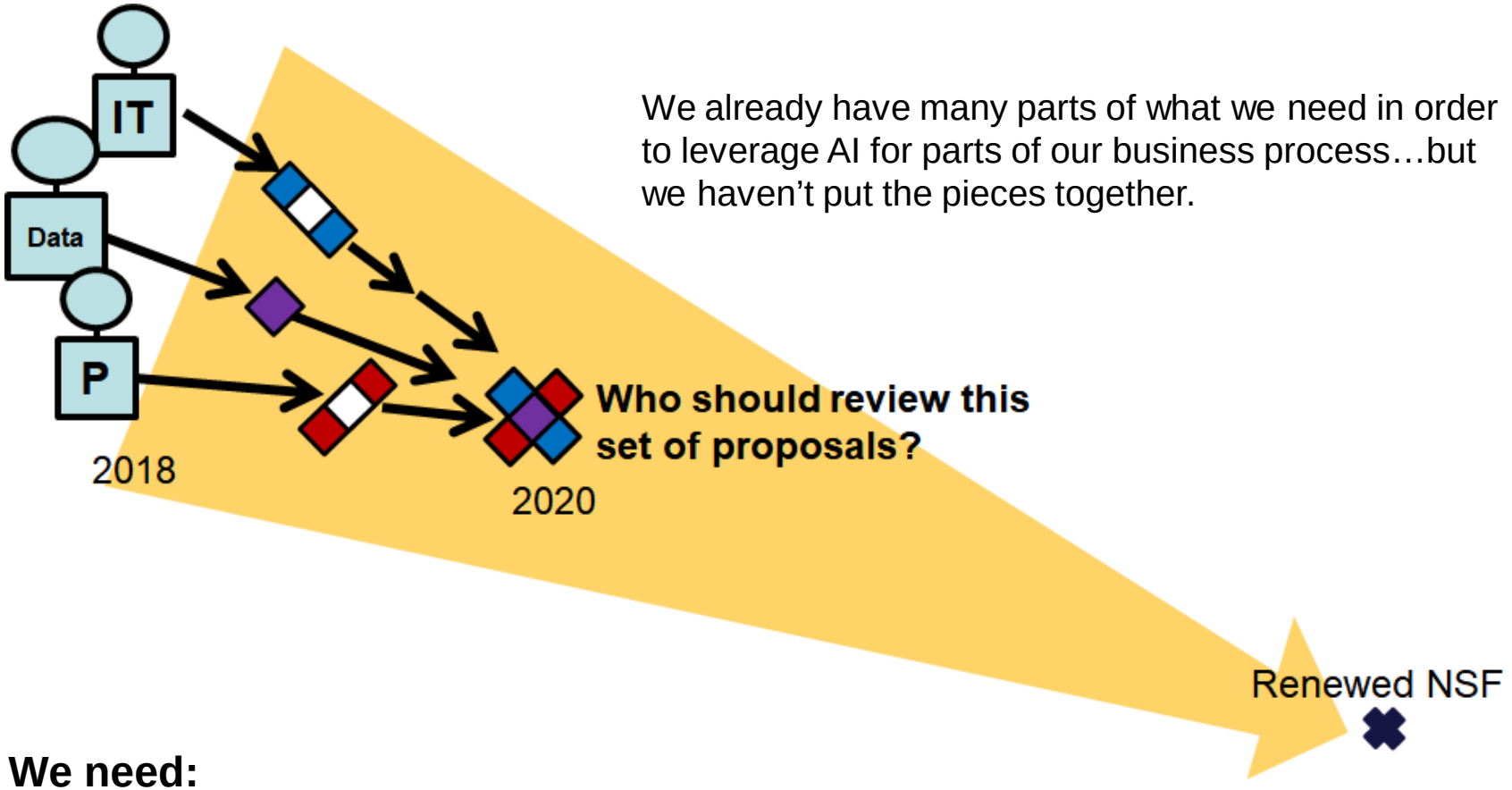
Answer more strategic questions:

- What's the portfolio of staff that I've got?
- How should I change my solicitation?

Model options:

- If I spend money here, what will happen 5 years from now?
- What if?

Let's prove it…



We already have many parts of what we need in order to leverage AI for parts of our business process…but we haven't put the pieces together.

We need:

- **IT** – tools to access data and make suggestions to people based on algorithms
- **Data** – accurate information, policy pertaining to it's use and dissemination
- **P**eople – who understand the business, the flow of information, and who ask and answer questions

Agile approach to Innovation

- Pilot one part of the process
  - Start today → Develop pilot, engage and train stakeholders
  - August 2018 → Kick off six month “production” pilot with one or two divisions
  - February 2019 → Assess and refine pilot, add more divisions
  - August 2019 → Continue to tune and prepare to expand NSF-wide
  - February 2020 → Implement NSF-wide

- Learn from that and select another process

Implement Vertically

Sustainable Innovation

- *Data driven program management and portfolio analysis, integrated data collection/analytics/reporting*
- *Automate proposal processing (Artificial Intelligence, Machine Learning, etc.)*
- *Support evidence-based policy-making, strategic planning, and human capital management*

1. Recommend Reviewers

5. Identify Potential Conflicts

Tools

- *Analytics*
- *Portal (Repository, Reporting)*
- *Collaboration tools*

Infrastructure

- *Secure*
- *Scalable*
- *Accessible*

People

- *Training & Education*
- *Workforce Planning & Development*

Data

- *NSF Administrative Data*
- *External data*
- *Social media*

Innovation Management and Measurement

Leadership and Governance (Vision, Objectives & Goals, Alignment to NSF strategic priorities)

Results of Feb 15 Meeting

- Dr. Ferrini-Mundy approved the 6-month pilot to:
  - Focus on suggesting reviewers for NSF proposals
  - Leverage existing capabilities and a data product called “Reviewer Recommendation” developed by OIA

The Smart Tool Pilot was born!

The Smart Tool Pilot Objectives

- Insert Technology
- Improve Data Management
- Engage and Develop People
- Create a Repeatable Process

OIA’s Reviewer recommendation tool

NSF’S SMART TOOL PILOT

How to use OIA's Reviewer Recommendation Tool

- NSF staff sends an NSF email with 1 or more proposal numbers to an NSF account (Proposal@nsf.gov)
- The tool returns a list of recommended reviewers with:
  - ReviewerID, FirstName, LastName, Institution, Gender, Ethnicity, Race, ActualReviews, ConnectedProposalCount, AveSimilarityScore, AveWordsInReview, MostSimilarPriorProposal, MostSimilarPriorProposalPI, Google_URL

Example of Tool Output

MP

Thu 3/29/2018 1:04 PM

MPS Proposal Check

1830723 Auto-generated reviewer2 results

To McRey, Robyne

1830723_reviewer_results_rev2.csv
14 KB

Rev 2 Reviewer suggestions for proposal:
1830723 - "EAGER: Development of the cyanotoxins cylindrospermopsin and microcystin as paleolimnological tools"

Proposal, ReviewerID, FirstName, LastName, Institution, Gender, Ethnicity, Race, ActualReviews, ConnectedProposalCount, AveSimilarityScore, AveWordsInReview, MostSimilarPriorProposal, MostSimilarPriorProposalPI, Google_URL

1830723, PS0731974, Darrell , Kaufman , Northern Arizona University , M, U, Unknown, 5, 5, 132.66, 568.00, 1203841, Huang Yongsong, http://www.google.com/search?q=Darrell%20+Kaufman%20+Northern%20Arizona%20University

1830723, HP0977532, Allison , Rober , Ball State University , F, U, White, 3, 3, 356.06, 611.67, 1750841, Waters Matthew N., http://www.google.com/search?q=Allison%20+Rober%20+Ball%20State%20University

OIA's Reviewer Recommendation Tool Process

NSF Staff sends email
- Email includes proposal(s) numbers
- Option to include filtering criteria

1

→

AutoIT Script
- Process the email and sends clustering request to Lingo4G

2

→

Lingo4G and SOLR
- Fetches the proposal(s) XML
- Clusters terms and multi word labels
- Identifies a list of similar proposals

3

↓

RPTSQL
- Retrieves review and reviewer data for similar proposals

4

→

R Script
- Generates a list of suggested reviewers

5

→

AutoIT Script
- Sends an email with the results to the requestor

6

OIA Reviewer Rec Tool

- Built using 2 **capabilities**:
  1. Enterprise text management (DIS managed)
     - Document text to machine readable text
     - Stored and integrated machine readable text
  2. Text search and clustering (OIA managed)

- It's a **data product**, generated through an algorithm, using NSF capabilities and NSF data

Approach to the Pilot and Current Status

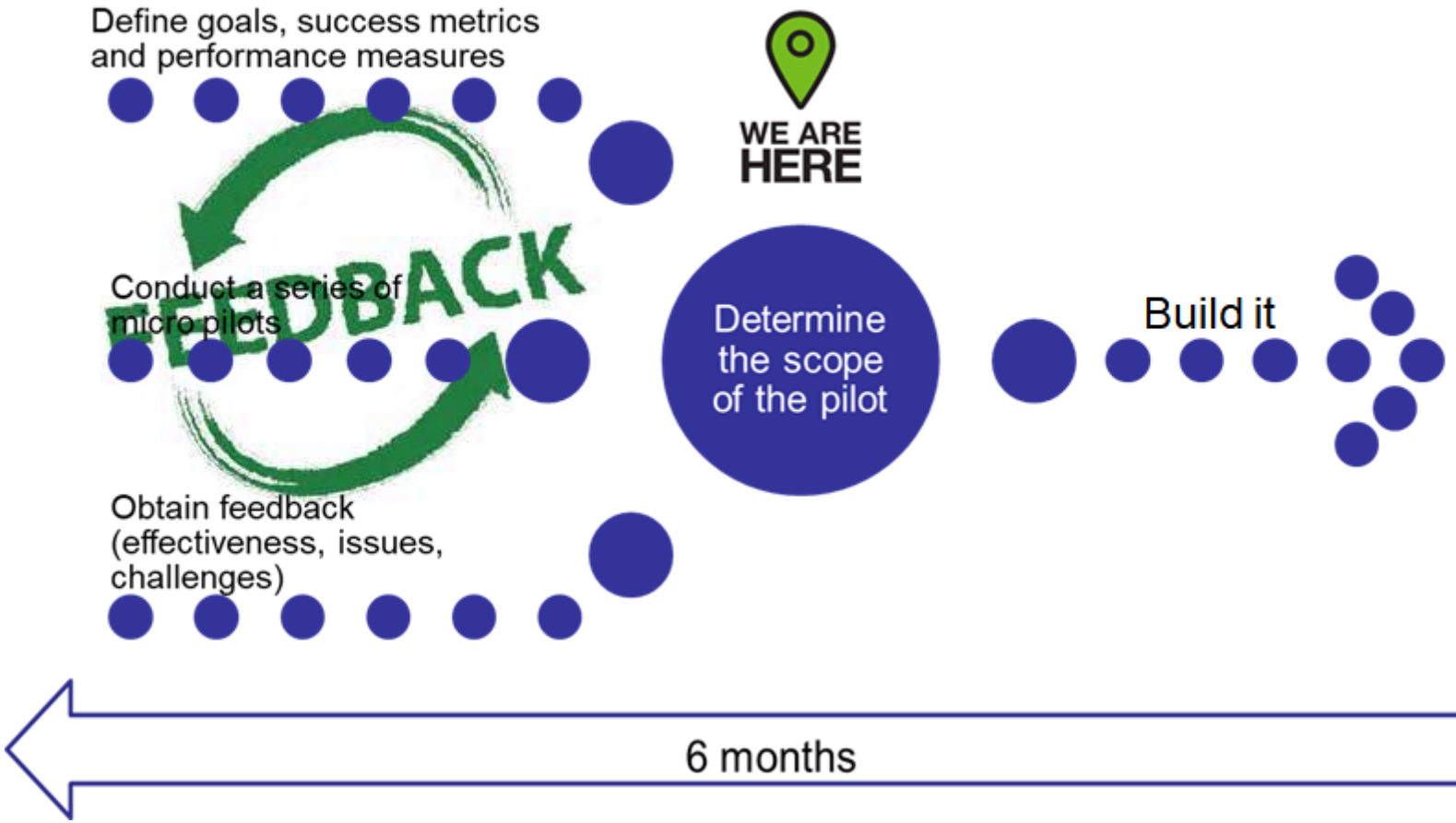
THE SMART TOOL PILOT

The Smart Tool Pilot Team

Dorothy Aronson, CIO (Chair)
Stephen Meacham (OIA)
Paul Morris (OIA)
Jolaina Jeff-Cartier (OIA)
Anand Desai (OIA/EAC)
Nicholas Daly (OIA/EAC)
Linda Blevins (ENG)
Grace Yuan (ENG)
Alan Tessier (BIO)
Brent Miller (BIO)
Thyagarajan Nandagopal (CISE/CCF)

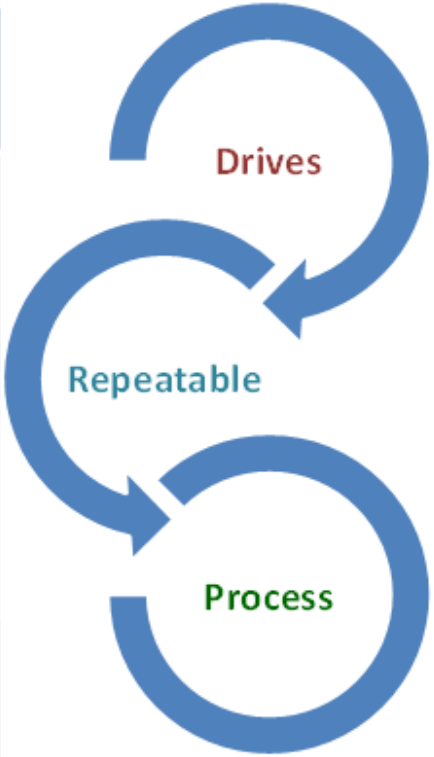
Tie Luo (MPS/DMS)
Tamera Schneider (SBE/BCS)
Peggy Gartner (OIRM/DAS)
Robyne McRey (OIRM/DIS)
Chezian Sivagnanam (OIRM/DIS)
Robyn Rees (OIRM/DIS)
Teresa Guillot (OIRM/DIS)
Priya Jayaraman (OIRM/DIS)
Jorge Linares (OIRM/DIS)
Carylynn Larson (OIRM/HRM)
Bala Erungar Ramamurthy (OIRM/DIS)
Michael Groban (OIRM/DIS)

Approach


Define goals, success metrics and performance measures
WE ARE HERE
FEEDBACK
Conduct a series of micro pilots
Determine the scope of the pilot
Build it
Obtain feedback (effectiveness, issues, challenges)
6 months

A Template to Evaluate Success

Success Measure	Data	People	Infrastructure	Tools
Adoption Rate	▪Is the available data trustable/available/ good?	▪# of Users ▪Do people trust the tool?	▪Availability (is the tool available when the user needs it? Hours/ SLA kind of metrics for discussions)	▪Ease of Use
Scalable	▪Future sources	▪Training needs ▪Workforce Impact	▪Robustness	▪Can it accommodate the needs and use of more? ▪O&M requirements
Business Value/Make IT Work for You	▪Does it provide access to new/improved data?	▪Workforce implications ▪Organizational impact	▪Compatibility – OS (Mac, Windows) and device	▪Does it foster new ideas
Technology Insertion	▪Real-time data? ▪Less time preparing data	▪	▪Secure ▪Reliable/Smooth operations	▪Faster delivery of tools



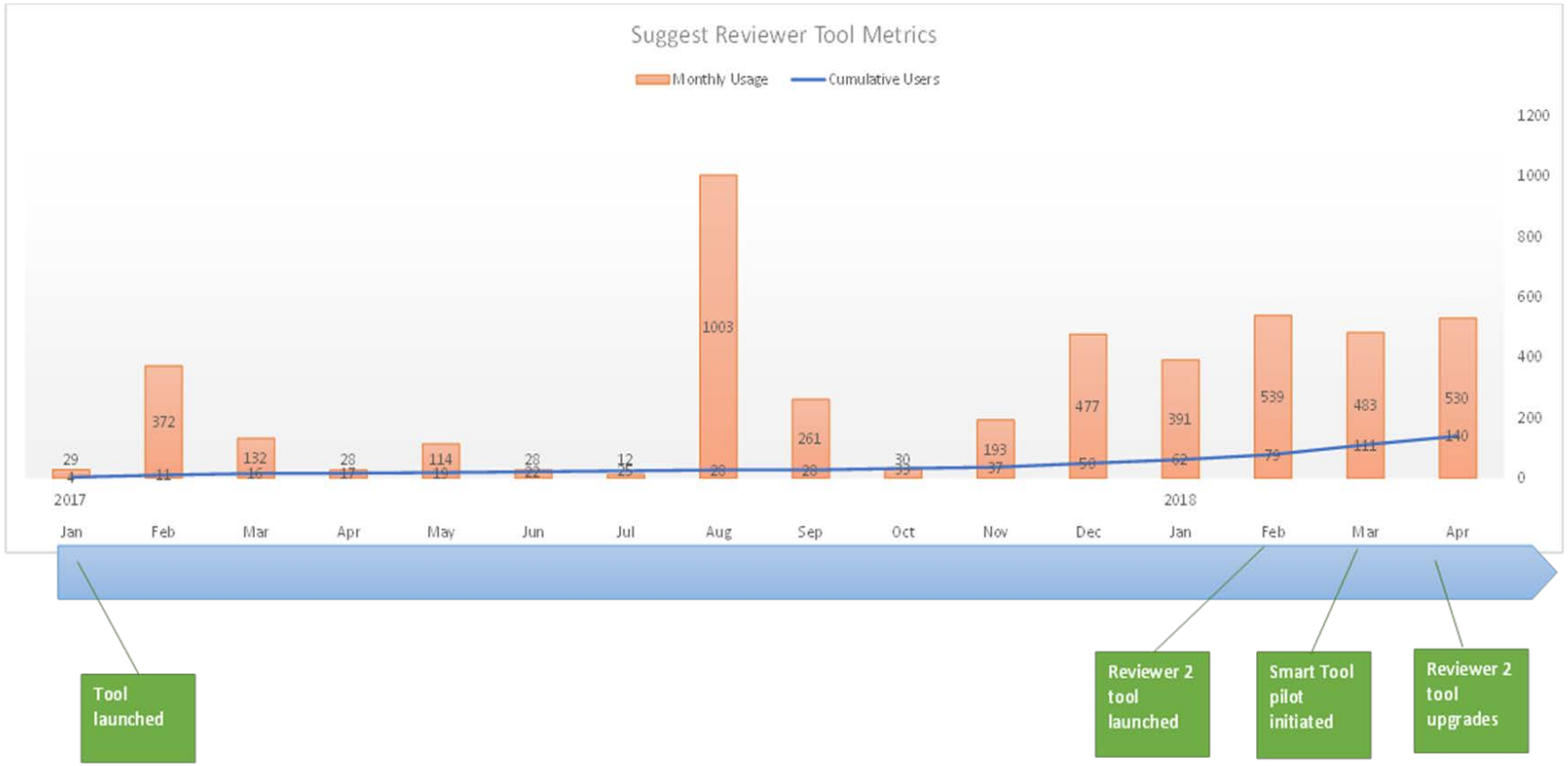
Micro-pilots

- Each micro-pilot documents a series of questions that evaluates each component (data, process, technology, and people), that serves to evolve the end state of a larger project.
- We ran the following micro-pilots:
  - Active panels, both for standard solicitation and for unsolicited proposals, in which panels are being formed
  - Retrospective view
  - Support for the Big Ideas
  - Evaluate tool effectiveness/User experience

Preliminary Finding #1

The Reviewer Recommendation data product adds value. But it takes some work to effectively leverage the output.

Usage Statistics



Preliminary Finding #2

Finding reviewers is part of the larger process of constructing/staffing the panel. Need to consider the entire process (such as COI) to maximize benefits.

Preliminary Finding #3

It needs to be integrated into our merit review systems and managed by DIS to maximize effectiveness.

Preliminary Finding #4

In order to expand adoption, the tool should be easier to use, and it should have functionality to manipulate and visualize the results.

Preliminary Finding #5

People use it differently, some widely different than others. Some divisions have different arrangements, such as science assistants and contractors, than others who do it themselves.

Preliminary Finding #6

POs begin looking for potential reviewers even before the proposals are submitted in the cases of Dear Colleague Letter and Letter of Intent. The solution set currently works based on documents received as proposals.

It's no Silver Bullet, but ….

"Models are not right or wrong; they're always wrong. They're always approximations. The question you have to ask is whether a model tells you more information than you have had otherwise. If it does, it's skillful."

-Gavin Schmidt

The Road to August

- Develop options
- Align with success measures/ metrics
- Finalize scope
- Build the pilot and prepare for roll out

Implement Vertically

Sustainable Innovation

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Innovation Management and Measurement

Leadership and Governance (Vision, Objectives & Goals, Alignment to NSF strategic priorities)

- Discuss use of artificial intelligence at NSF.
- Committee feedback on where to deploy new IT tools.
- What does success look like?

Backgrounder: Spring 2018
NSF Advisory Committee for Business and Operations

Nature of Agenda Item: Interaction of Agency CFO and CIO

Presentation:
Federal CFOs and CIOS are facing a wide range of challenges in managing financial and IT priorities in today's ever-changing environment. Following are some examples of government-wide requirements where careful coordination needs to take place between the CIO and CFO.

Federal IT Acquisition Reform Act (FITARA)
FITARA was enacted in December 2014 in response to specific federal IT challenges:

- Duplication of IT spending between and within agencies
- Struggle to understand cost and performance of IT investments
- Lack of visibility into the IT spend

Key objectives of FITARA include:

- Aligning IT resources with agency missions and requirements
- Strengthening federal agency CIOs' accountability for IT costs, performance, and security
- Enabling effective planning, programming, budget and execution for IT resources
- Providing transparency into IT resources across agencies and programs

An **Executive Order** was released in May 2018 that largely echoes the mandates in FITARA. FITARA hasn't been fully effective, as noted by current administration officials, as only half of department CIOs currently report directly to agency leadership as mandated in FITARA. The Executive Order calls out several issues while adding another layer: requiring a place for CIOs as voting members on agencies' IT governance boards.

NSF is complying with most of the requirements of FITARA and the Executive Order, helped to a great extent by the good working relationship between the CFO, CIO and their respective organizations.

A few examples of the CIO and CFO work well together and are increasingly integrated:

- In FY 2016, NSF's cloud-hosted financial system, iTRAK, was one of the first Federal Agencies to be certified as Fed Ramp compliant. That was made possible by strong collaboration between GSA and a united front between CFO and CIO functions at NSF.
- Internal control and FISMA staff work extremely close together. In FY 2017, together NSF eliminated an IT significant deficiency in one year and in FY 18 we are keeping that partnership going by monitoring risks in other feeder systems that interact with iTRAK.
- The CFO and CIO are strong partners on NSF's Renewal efforts in several ways, our budget and performance offices are on the board and we are exploring significant opportunities to implement robotic technologies to support the NSF Renewal effort.
- Over the past two years, NSF has engaged in extensive discussions with Federal Shared Service providers. The CFO and CIO staffs have worked close together

to understand the risks and opportunities to NSF in a variety of ways including, operations, system security, and contractual issues.

Dorothy Aronson and Teresa Grancorvitz participated on a panel (along with Adam Goldberg) at the May 2018 CFO/CIO Summit of the Association of Government Accountants (AGA) to discuss this subject.

Committee Action/Feedback

NSF seeks the Committee's advice on how to ensure the critical relationship between the CFO and CIO to best serve NSF.

- What additional opportunities does the Committee recommend to further build the relationship?
- Given your experience, what potential roadblocks could occur, either internally or externally, that may diminish the relationship?
- How can NSF firm up the processes behind the relationship such that it will continue to be strong independent of current personalities in the CFO and CIO roles?

Contact Persons:

- Dorothy Aronson, 703-292-4299, daronson@nsf.gov
- Teresa Grancorvitz, 703-292-4435, tgrancor@nsf.gov

CFO Update
B&O Advisory Committee Meeting Spring 2018
(June 5, 2018)

Topics:
- BFA Senior Staff Changes
- FY 2018 Financial Statement Audit
- FY 2017 Financial Statement Audit
- Enterprise Risk Management
- Digital Accountability and Transparency Act
- Government Accountability Office Review of NSF Major Projects
- Evaluation of NSF's Enhanced Cost Surveillance Policies and Procedures via a Subcommittee of BOAC
- Shared Services
- Robotic Process Automation
- SmartPay 3 Program
- Increased Purchase Card Threshold
- Final FY 2018 Appropriation
- FY 2019 Congressional Action
- FY 2019 Budget Request to Congress
- Performance

- **BFA Senior Staff Changes**
  - *BFA leadership*
    - Teresa Grancorvitz became NSF's CFO and BFA Office Head in February.
    - Bill Miller is Acting BFA Deputy Office Head. Bill is on detail from the Directorate for Computer and Information Science and Engineering.
    - Michael Sieverts, previously Acting BFA Deputy Office Head, retired in May.
    - The selection process for the BFA Deputy Office Head has been underway for several months, and an announcement will be made in the coming weeks.
  - *Budget Division*
    - Caitlyn Fife has been hired as the new Division Director for Budget. Caitlyn joins NSF from the Department of Health and Human Services where she was the Director of Discretionary Programs, Office of Budget
    - Janice Hagginbothom, Branch Chief, Program Analysis Branch has announced her planned retirement in June 2018. Beth Blue will be Acting Branch Chief.
  - *Division of Acquisitions and Contract Support*: Keith Boyea was reassigned to the Contracts Branch Chief position in April.

- **FY 2018 Financial Statement Audit**

  On March 28th, the Office of Inspector General (OIG) held an entrance conference with its contractor Kearney & Company to commence the audit of NSF's FY 2018 financial statements. Management has been exchanging information with the auditors and the audit is progressing as expected. During the upcoming weeks, NSF staff will work with the auditors to develop a schedule for meeting the audit and year-end reporting requirements. We are looking forward to another successful audit year.

- **FY 2017 NSF Financial Statement Audit**

  NSF continued to build on its 'clean' audit opinion by developing a Corrective Action Plan (CAP) to address lower-level observations and related suggestions that the auditors did not consider to be significant deficiencies. NSF's planned actions are designed to resolve the auditors' concerns before they rise to a significant level in future audits. Management is providing documentation to the auditors as NSF completes its actions.

- **Enterprise Risk Management (ERM)**

  In 2016, the Office of the Chief Financial Officer facilitated the preparation of NSF's initial risk profile by collaborating with stakeholders from across the agency. Since then, NSF has made significant progress by (1) completing its first risk profile, (2) securing strong leadership support from the Director and engaging the National Science Board, (3) implementing a five step ERM framework, (4) incorporating the Harvard Business Review framework for communicating risks, (5) integrating internal control risk assessments, and (6) incorporating ERM into NSF's strategic plan.

- **Digital Accountability and Transparency Act (DATA Act)**

  NSF recently successfully completed its FY 2018 Quarter 2 DATA Act submission. NSF continues to actively work to reduce the operational and audit risks associated with the DATA Act. NSF submitted a CAP to the OIG on January 16, 2018, which was amended on March 13th. On March 30th, the OIG notified NSF that it had resolved all four of the recommendations it had issued as a result of the DATA Act audit. The amended CAP addressed all of the OIG's concerns and referenced NSF's ongoing work with the joint working group of the CFO Council and the Council of Inspectors General on Integrity and Efficiency (CIGIE) to clarify relevant Office of Management and Budget (OMB) policy. NSF has been working very closely with the joint working group, which will recommend the next iteration of DATA Act policies, internal control, and audit guidance to OMB, Treasury, and CIGIE. Additionally, the DATA Act team recently completed a risk assessment in connection with NSF management challenges progress reporting activities. The assessment showed that NSF has an effective mitigation plan in place for known risks.

  Background: The DATA Act requires each agency's OIG to conduct biennial DATA Act audits. The NSF DATA Act audit report, published on November 17, 2017, reviewed a sample of FY 2017 Quarter 2 data for completeness, timeliness, quality, and accuracy. The report found that NSF spending data did not meet the quality requirements as outlined by OMB. While NSF generally agreed with the auditors' recommendations, we identified a number of key areas of difference with the auditors' report. NSF can confidently state that its submission substantially complies with all required data elements and presents NSF data in all material respects, thus meeting the transparency goals of the DATA Act.

- **Government Accountability Office (GAO) Review of NSF Major Projects**

  Senate Report 114-239, which was part of the Consolidated Appropriations Act of 2017, directed GAO to review programs funded within NSF's Major Research Equipment and Facilities Construction account, including identifying technical risks and cost overruns over the construction life of projects, and explaining any tradeoffs NSF intends to execute to meet its no cost overrun policy. An entrance conference was held with GAO on September 26, 2017. Throughout the process, NSF responded to numerous data requests from GAO and provided technical comment as they reviewed the major projects and associated NSF policies and practices. GAO's final report was published on June 1st; https://www.gao.gov/products/GAO-18-370?utm_campaign=usgao_email&utm_content=daybook&utm_medium=email&utm_source=govdelivery

- **Evaluation of NSF's Enhanced Cost Surveillance Policies and Procedures via a Subcommittee of BOAC**

  Interviews with NSF staff who administer large facility projects began in May 2018. The subcommittee is expected to deliver a final report to BOAC in the late summer or early fall of 2018.

  Background: This BOAC subcommittee was formed to independently evaluate the effectiveness of NSF's current cost surveillance policies and procedures in providing sound oversight of all NSF major facility construction and operations awards.

- **Shared Services**

  Since the fall 2017 NSF obtained cost estimates from shared service providers and determined services were cost prohibitive, in addition capability risks were identified related to grants systems. As a result, shared services efforts are on hold pending discussions between NSF and shared service provider leadership.

- **Robotic Process Automation (RPA)**

  NSF is exploring different ways to uphold its strong commitment to excellence in financial management. In 2018, the agency is piloting the use of RPA that can enhance operational efficiency and productivity. RPA is a form of intelligent automation using automation tools ("bots") which can be deployed and configured to execute tasks across applications and systems. RPA is an alternative to shared services and outsourcing. Many government agencies are beginning to use automation technologies to enhance business functions, such as financial management.

- **SmartPay 3 Program**

  On April 10, 2018, NSF awarded a new task order to Citibank for card services under the General Services Administration's SmartPay 3 program. The competitive award was the result of a joint effort by Division of Financial Management (DFM) and DACS, and the evaluation of offers included representatives from NSF's program offices. The task order with options could have a term of thirteen years. DFM and DACS, who manage the travel and purchase card programs, are now engaged with Citibank in transition activities leading to the change to the new bank on November 30, 2018. NSF expects to receive substantial benefits from the new arrangement, including improved data mining capability and higher rebates.

- **Increased Purchase Card Threshold**

  On March 8, 2018, NSF increased the micro-purchase threshold on its purchase cards from $3,500 to $10,000 in accordance with the National Defense Authorization Act for Fiscal Year 2018 (Pub. L. 115-91). This increase will allow NSF to complete more purchase actions through the purchase card, thereby reducing the administrative burden associated with purchases that are uncomplicated and often repetitive. NSF will continue to maintain its rigorous oversight program to ensure that micro-purchases conform to applicable rules and regulations.

- **Final FY 2018 Appropriation**
  - Congress passed the FY 2018 Consolidated Appropriations Act (P.L. 115-141) on March 23, 2018.
  - In P.L. 115-141, NSF was appropriated $7.8 billion. This is $295 million, or 4 percent, over the FY 2017 Enacted level, and $1.1 billion, or 17 percent, over the FY 2018 Request. Account level details are in Table 1, below.
  - Noteworthy items in the appropriation:
    - Demonstrates strong support for NSF research and other activities
    - Support for three Regional Class Research Vessels

- Continued emphasis on broadening participation programs, including increased support for Hispanic Serving Institutions.
- The current plan letter was submitted to Congress on May 11.
- Rescission:
  - The President submitted a $15 billion rescission package to Congress on May 8. NSF is not included in this package.

Table 1. FY 2018 Appropriation by Account

(Dollars in Millions)

Account	FY 2017 Actual	FY 2018 Request	FY 2018 Enacted
Research & Related Activities	$6,007	$5,362	$6,334
Education & Human Resources	873	761	902
Major Research Equipment & Facilities Construction	223	183	183
Agency Operations & Award Mgmt	382	329	329
National Science Board	4	4	4
Office of Inspector General	15	15	15
Total, NSF	$7,504	$6,653	$7,767

➢ **FY 2019 Congressional Action**

- The House marked up their version of the Commerce, Justice, Science, and Related Agencies (CJS) Appropriation Bill, H.R. 5952 on May 16.
- The House report recommends $8.2 billion for NSF. This is $408 million, or 5 percent, over FY 2018 Enacted, and $703 million, or 9 percent, above the FY 2019 Request. Account level details are in Table 2, below.
- Noteworthy items in House mark:
  - Support for NSF's basic research that improves lives of Americans and expands human understanding.
  - Continued support for research infrastructure, including the Antarctic Infrastructure Modernization for Science program, existing astronomy assets, and high-performance computing.
  - Recommends MREFC funding for three Regional Class Research Vessels.
  - Increased support for Hispanic Serving Institutions, and continues support for other broadening participation programs.
- Senate markup is expected the week of June 11.

Table 2. FY 2019 House CJS Mark
(Dollars in Millions)

NSF by Account	FY 2018 Enacted	FY 2019 Request	FY 2019 House CJS Mark	FY 2019 Mark change over:			
				FY 2018 Enacted		FY 2019 Request	
				Amount	Percent	Amount	Percent
Research & Related Activities	$6,334	$6,151	$6,652	$317	5%	$501	8%
Education & Human Resources	902	873	902	-	0%	29	3%
Major Research Equipment & Facilities Construction	183	95	268	85	47%	173	183%
Agency Operations & Award Management	329	334	334	5	2%	-	0%
National Science Board	4	4	4	-	0%	0	1%
Office of Inspector General	15	15	15	0	1%	0	0%
Total, NSF	**$7,767**	**$7,472**	**$8,175**	**$408**	**5%**	**$703**	**9%**

- **FY 2019 Budget Request to Congress**
  - The President's Budget Request, "An American Budget," was released on February 12, 2018. It included the "Addendum to the President's FY 2019 Budget to Account for the Bipartisan Budget Act of 2018."
  - The Addendum included an additional $2.2 billion for NSF. NSF's request totals $7.5 billion.
  - NSF submitted the FY 2019 Budget Request to Congress at the level provided in the Addendum on February 28.

- **Performance**

  FY 2017 Performance and Financial Highlights Report

  NSF's FY 2017 Performance and Financial Highlights report was issued in February 2018. This report summarizes key financial and performance information from the FY 2017 Agency Financial Report and the Annual Performance Report.

  FY 2019 Annual Performance Plan

  Federal agencies are required by the Government Performance and Results Modernization Act of 2010 (GPRA Modernization) to set annual performance goals. NSF's FY 2019 Annual Performance Plan (APP) was published in the Performance Chapter of NSF's FY 2019 Budget Request to Congress. Four goals, including NSF's new Agency Priority Goal (APG) (see below), were formulated to measure implementation of the four pillars of Renewing NSF. The APP also includes longstanding performance goals that monitor key program investments' implementation progress, timely customer service, construction project cost and schedule variance, and internal diversity and inclusion efforts.

  FY 2018 – 2019 Agency Priority Goal

  GPRA Modernization requires that federal agencies set two-year APGs as part of their APP. APGs reflect near-term priorities within NSF that have the potential to impact the Nation. NSF's new FY 2018 - FY 2019 APG is to "Expand public and private partnerships to enhance the impact of NSF's investments and contribute to American economic competitiveness and security." This APG addresses the Partnerships pillar of the Renewing NSF activity. It is being co-led by the Directorates for Computer

and Information Science and Engineering and Biological Sciences and engages the entire agency. The APG is in the third quarter of implementation and is making good progress. Progress is updated quarterly and published on performance.gov.

FY 2018 Strategic Reviews

Annually, OMB requires that federal agencies assess their progress in achieving the strategic objectives set forth in the agency's strategic plan. The Strategic Review Process provides an opportunity to use data and evidence to inform strategy, planning, decision making, and improvement. NSF is in the process of conducting FY 2018 Strategic Reviews. This year, the Strategic Reviews are being coordinated with and are supporting Renewing NSF.

OIRM Update
for the B&O Advisory Committee Meeting (Spring 2018)

OIRM Senior Staff Changes

- There have been many changes to OIRM Senior Staff since we last saw you in December.
    - Joanne Tornow is currently on a detail as Acting Assistant Director of the Directorate of Biological Sciences. As a result of Joanne's detail, there have been a number of subsequent staffing shifts.
    - In the OIRM Front Office, I (Donna Butler) am Acting Head of OIRM and Acting CHCO. Wonzie Gardner, Director of the Division of Administrative Services, is currently Acting Deputy Head of OIRM.
    - In the Division of Administrative Services (DAS), Javier Inclan, Deputy Director, is currently Acting Director of DAS.
- I'm pleased to announce that Dan Hofherr, Deputy Division Director of the Division of Information Systems (DIS) has very recently been appointed the Division Director, DIS. Dan served as the Deputy for 10 years and the Acting Division Director of DIS since December 2017. We congratulate Dan on his new appointment!

Records Management

- Since we last met, NSF has made additional progress in our records management program. In December, National Archives and Records Administration (NARA) approved NSF's use of the Capstone Approach for managing emails of senior officials. Additionally, in April, NARA conducted a three-hour on-site assessment of NSF's Records Management Training Program and policies related to records management. We demo'd the new Records Management for Everyone and eRecords Management System online training courses, and reviewed five recently issued records management-related internal policy bulletins. At the conclusion of the assessment, NARA praised the training modules and Bulletins, and said they would like to use NSF as a model for building a records management training program.

New Content Management System for NSF.gov

- With the support of GSA's 18F team, OIRM's Division of Administrative Services completed an evaluation and selection of open source content management systems for NSF's external website, NSF.gov. We worked with 18F to set up the environments on cloud.gov and to build a proof of concept. We are currently working to select a contractor to provide user-centered agile development services to build out the site.

Safety and Occupational Health Manager

- In March of this year, NSF hired its first ever Safety and Occupational Health Manager – Barry Carlisle. Barry comes to us from GSA, and has also worked for other agencies including the Army Corps of Engineers and the Army Test and Evaluation Command. Barry is working in DAS, and is focusing on the development of a holistic safety and occupational health program for NSF. He has been quite busy, working on issues such

as indoor air quality and developing a bloodborne pathogen training program for the Office of Inspector General.

FEVS 2018

- The 2018 Federal Employee Viewpoint Survey is underway, and open through June 19. Results will be available starting in late August. HRM will work with directorates and offices to review their results against their existing employee engagement plans in order to update and reprioritize based on progress made and emerging needs.
- This year, OPM is piloting new FEVS questions. Regulations issued in Spring of 2017 reduced the number of required FEVS questions from 45 to 16. OPM is using this as an opportunity to update the instrument while maintaining the ability to benchmark and track key established measures.
- NSF continues to enjoy high participation levels, and with a week left, we are currently well above the government-wide average (to be updated day of the meeting; as of 6/7/18, NSF response rate is 54.9% vs. 31.1% government-wide).

Employee Engagement

- Building on the results from the 2017 FEVS, NSF continues to implement its agency-wide *Plan for Engaging the Workforce*. The plan establishes a framework for engagement that serves as a foundation for agency-wide and directorate action planning.
- HRM manages our internal Employee Engagement SharePoint Site, *Together We Thrive.* The site includes information on engagement at NSF and action planning. Recently published resources address informal recognition, getting employee input on engagement, building employee motivation for supervisors, and enhancing teamwork.

IT News

- In FY18, we remain focused on preserving secure, reliable day-to-day operations of our IT systems and services.
- **Our IT modernization efforts are resulting in incremental improvements for the external research community. We are reducing administrative burden while improving the ability of the workforce to support NSF's mission.** For example, the initial release of the new Proposal Submission System occurred in April - after a two-month preview period when 611 individuals and 354 organizations tried out the new functionality. Thus far, over 350 proposals have been started with 6 being submitted. This is the first phase in replacing the FastLane proposal submission functionality, a major step toward reducing administrative burden on the research community.
- **Internally, modernization of our internal grants processing systems is resulting in retirement of legacy functionality while increasing the resiliency (availability) of IT resources.**
- In addition to these functional improvements, **we are adopting leading technologies and software development practices.** For example, NSF has already implemented numerous business functions following the microservices architecture. This architecture supports cloud readiness and is characterized by building applications based on loosely

coupled components that provide discrete business functions. Currently, NSF is developing a proof of concept (POC) for a new target state architecture platform to improve performance and reliability of our microservices technical stack as re-use of services across business applications expands. After review of the POC, NSF plans to migrate all of its microservices to this platform.

- **We continue to partner with NSF's Evaluation and Assessment Capability office to build out NSF's analytics capabilities.** The funding they provided has led to additional developments in our plans to incorporate artificial intelligence into our merit review processes by automating the identification of qualified reviewers. Additional data and data sources continue to be added to NSF's data warehouse and usage of our business intelligence capability continues to increase.
- DIS is also **laying the groundwork to enable the migration of several of our systems to the cloud.** DIS expects to begin migrating applications to the cloud in 2019 after the network connections are in place.

Backgrounder: Spring 2018

NSF Advisory Committee for Business and Operations

Nature of Agenda Item: Framing Leadership in Customer Service: BFA and OIRM

Presentation:

BFA and OIRM provide agency leadership in management and operations at NSF, and many internal and external NSF customers and stakeholders, including Directorates and Offices and their programs, the external U.S. research community and institutions, and federal and congressional stakeholders. OIRM and BFA also coordinate on many levels to conduct our activities.

The past year has been challenging, given the NSF move, settling into the new building, prolonged budget process, extensive efforts at IT modernization, and planning to operate in new ways with new NSF initiatives such as the 10 Big Ideas, Convergence Accelerators, and Introduction of Enterprise Risk Management.

It therefore seems an opportune moment to open a dialog with the Committee on how we are doing with customer service and on ways to ensure continuous improvement.

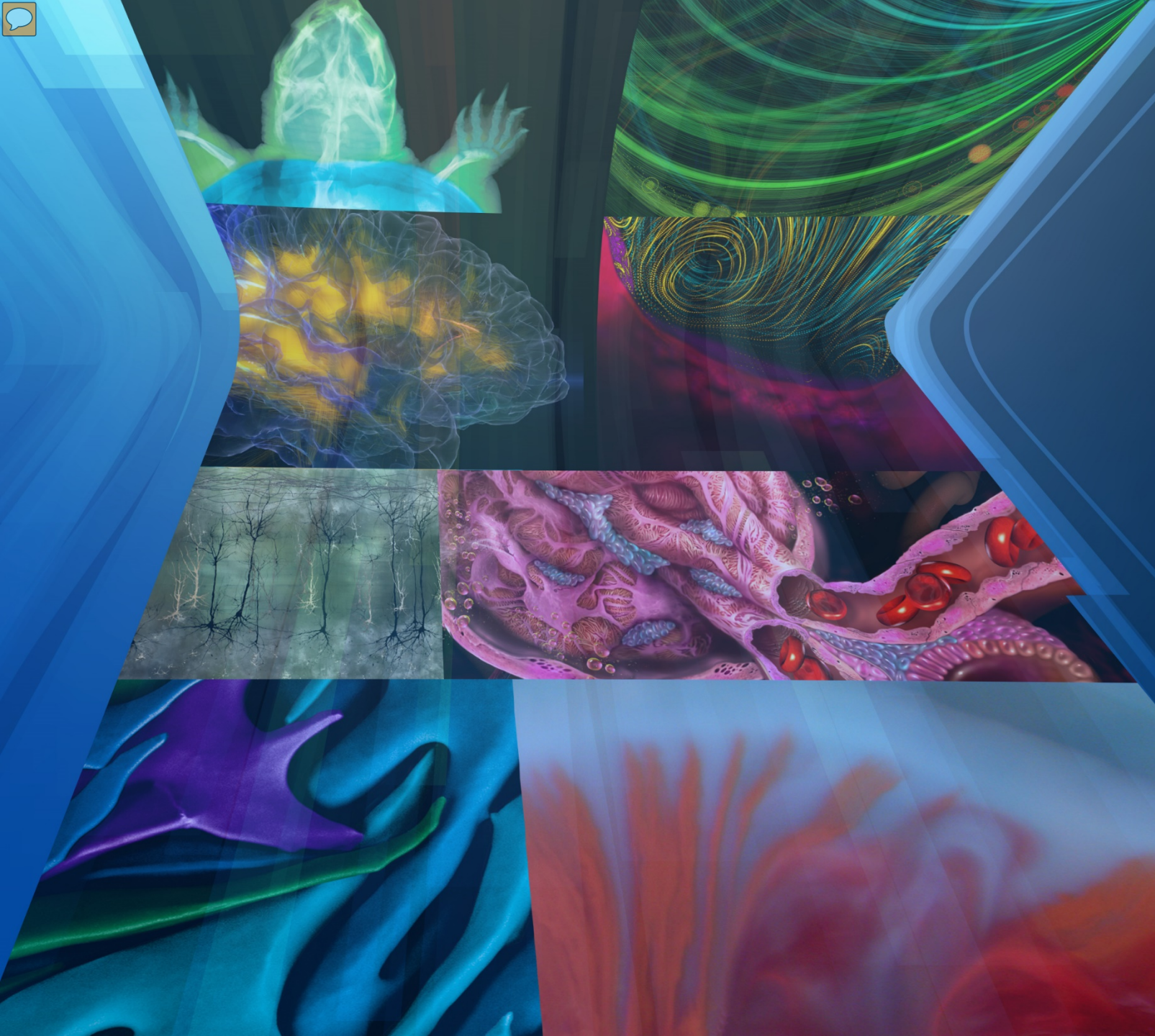
Committee Action/Feedback

We ask the Committee to consider the following "framing" questions regarding OIRM and BFA's customer service and leadership in their areas of expertise:

- **Know our customers.** *How do we maintain strong productive relationships with internal and external customers and stakeholders?*
- **Measure ourselves.** *What are the best means and metrics to assess our effectiveness in serving our internal and external customers?*
- **Serve the NSF Mission.** *How do we ensure that everything we do enables the NSF mission and works towards the advancement of science?*
    - How do we best manage our relative roles in customer support, coordination, and leadership within NSF and in the federal sphere?
    - Are there new approaches we should pursue to support new NSF strategies and initiatives (Big Ideas, Accelerators, …)?

We recognize that these questions are open and not necessarily simple to answer in short form. We most value a dialogue with the Committee on how we can ensure we are going from "good to great" in these areas; any evident gaps, and opportunities given the evolving operations and technology landscapes, and NSF's aspirations to maintain and extend its leadership in advancing science and engineering research.

Contacts: Wonzie Gardner, Acting Deputy Office Head, OIRM, WGardner@nsf.gov, 703-292-7935. Bill Miller, Acting Deputy Office Head, BFA, WLMiller@nsf.gov, 703-292-7886.



Framing Leadership in Customer Service: BFA and OIRM

Wonzie Gardner
Acting Deputy Office Head
Office of Information and Resource Management

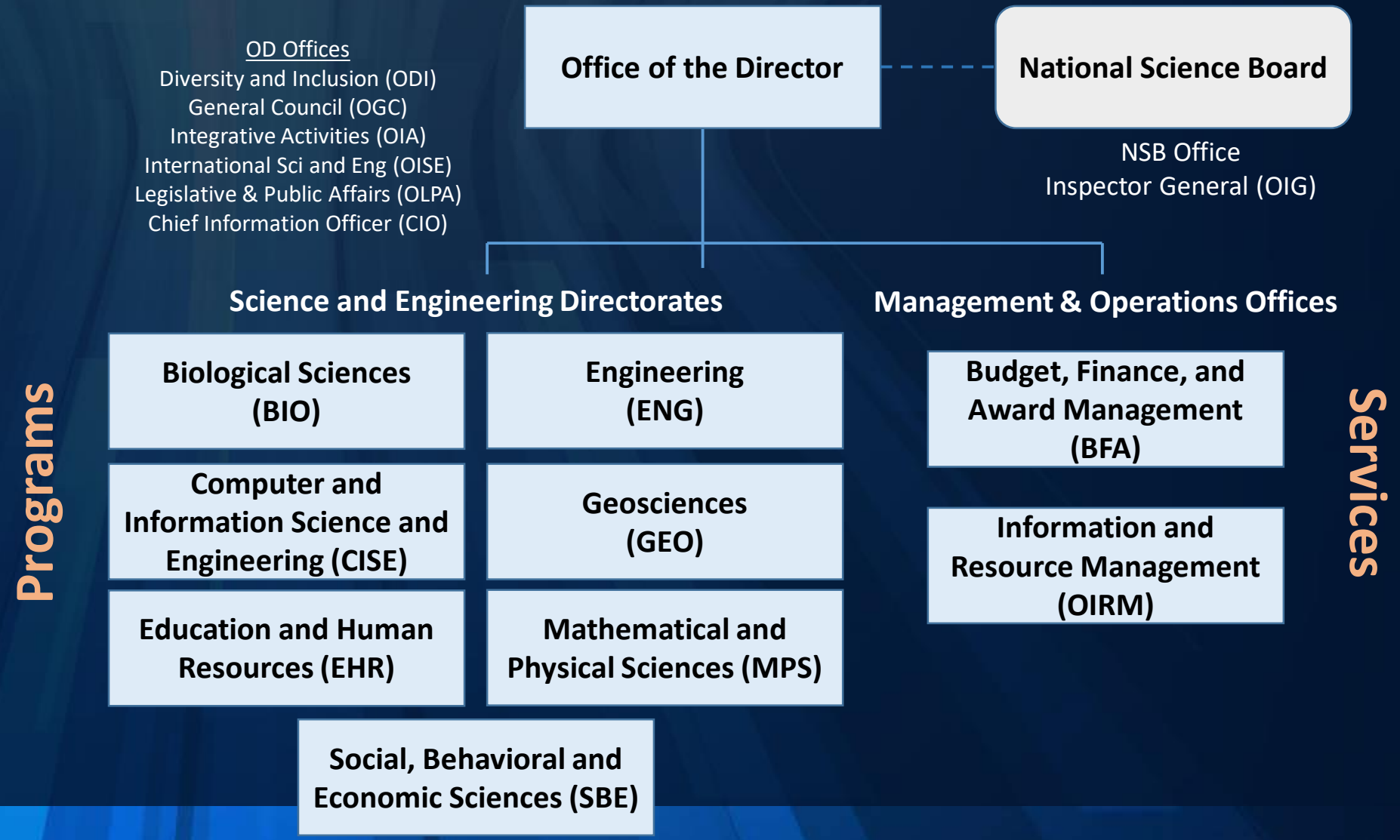
Bill Miller
Acting Deputy Office Head
Office of Budget, Finance and Award Management

Framing Questions

BFA and IRM provide agency leadership in management and operations, and support a host of internal and external NSF customers and stakeholders.

- **Know our customers.** *How do we maintain strong productive relationships with internal and external customers and stakeholders?*
- **Measure ourselves.** *What are the best means and metrics to assess our effectiveness in serving our internal and external customers?*
- **Serve the NSF Mission.** *How do we ensure that everything we do enables the NSF mission and works towards the advancement of science?*
  - How do we best manage our relative roles in customer support, coordination, and leadership within NSF and in the federal sphere?
  - Are there new approaches we should pursue to support new NSF strategies and initiatives (Big Ideas, Accelerators, …)?

NSF Organization



Office of Budget, Finance, & Award Management (BFA)

Teresa Grancorvitz
Chief Financial Officer (CFO)
Office Head, BFA

Bill Miller, Acting Deputy Office Head

Large Facilities Office (LFO)
Matt Hawkins, OH

Budget (BD)
Caitlyn Fife, DD

Acquisition and Cooperative Support (DACS)
Jeff Lupis, DD

Financial Management (DFM)
Mike Wetklow, DD

Grants and Agreements (DGA)
Jamie French, DD

Institution and Award Support (DIAS)
Dale Bell, DD

Office of Information and Resource Management (IRM)

Donna Butler
Acting Office Head, OIRM

Wonzie Gardner, Acting Deputy Office Head

Human Resource Management (HRM)
Dianne Campbell, DD

Information Systems (DIS)
Dan Hofherr, DD

Administrative Services (DAS)
Javier Inclán, DD(A)

Our collective services support many customers

Services they receive

Internal Customers

S&E Directorates and Offices
- Managements
- Scientific Staff
- Administrative Staff

BFA, OIRM, and OD Offices
- Managements
- Business & operations staff
- OD staff
- On-site contractors

Information Management and Dissemination
Websites & Portals
Information Technology
Business Systems & Applications

Human and Administrative Resource Management

Business and Management
Financial Management
Audit/Oversight
Policies, Compliance
Budget Formulation & Management

External Customers

U.S. Research Community
- Proposers
- Awardees
- Institutions
- Facilities, FFRDCs

Government Stakeholders
- Administration
- Congress
- Other agencies
- Federal groups/councils

2017 GSA Support Services Survey – NSF results

NSF Summary Performance Rankings for Agency Support Services, 2017

Rankings for Service Costs and Customer Satisfaction, out of 24 CFO Act Agencies

Contracting Services

Cost Ranking	Satisfaction Ranking
9	2

	2015	2016	Gov't Median
Contracting Cost to Spend Ratio	1.28%	1.26%	1.66%
Satisfaction with Contracting Services	5.07	5.57	4.75

Financial Mgmt Services

Cost Ranking	Satisfaction Ranking
19	3

	2015	2016	Gov't Median
FM Spend to Adj. Obligations	2.07%	2.37%	1.21%
Satisfaction with FM Services	5.47	5.48	5.11

Human Capital Services

Cost Ranking	Satisfaction Ranking
24	1

	2015	2016	Gov't Median
HC Cost per Employee	$9,751.89	$9,660.51	$3,359.77
Satisfaction with HC Services	5.25	5.61	4.46

IT Commodity Services

Cost Ranking	Satisfaction Ranking
18	2

	2015	2016	Gov't Median
Satisfaction with IT Services	5.70	5.81	5.26

Real Property Services

Cost Ranking	Satisfaction Ranking
17	3

	2015	2016	Gov't Median
Reduce the Footprint	100.00%	100.00%	98.73%
Tenant Satisfaction	71.08%	68.38%	61.99%

Survey Stats for NSF

- *94 responses received from supervisors at the GS-13 to GS-15 and Senior Executive level agency wide*
- *Response rate of 42.92% for that population*

Caveats

- Small subset (5) of NSF's spectrum of services.
- NSF does well relative to others. …. *Is this our benchmark?*
- Results on cost may reflect our special mission.

Service Challenges and Opportunities This Year

- NSF move – transitioning while running at full speed
- New building – getting settled and learning to operate here
- Budget process – *ad continuum.*
- Gaining efficiencies – Modernizing IT systems/applications
- Planning to operate in new ways –
  - Renewing NSF, Strategic Reviews, Big Ideas, Convergence Accelerators, Enterprise Risk Management, …
  - Establishing standard procedures for access, visitors, scheduling…

Staying close and responsive to our customers

- “Constant contact” through our regular business channels, and standing groups like BPLG and DLG
- DIS/CIO prioritization process for new projects
- External outreach to Institutions and PIs
- Beyond Customer Service to leadership activities
  - Engage on NSF priority activities such as Renewing NSF (IT, Workforce, Streamlining, Partnerships), Convergence Accelerators, Performance, ERM, …
  - Federal stakeholder interactions (OIG, OMB, Congress, GAO)
  - Periodic Meet & Greets with Directorate leaderships, participation in SMaRT and DAD meetings and activities.
  - Engagement and leadership on federal interagency bodies and initiatives (CFO-C, CXO, PMA, Data Act, …).

Thanks!

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Backgrounder: Spring 2018

NSF Advisory Committee for Business and Operations

Nature of Agenda Item: Establishing and Maturing an Enterprise Risk Management (ERM) Culture at NSF

Presentation:

The Office of Management and Budget (OMB) updated Circular A-123 "Management's Responsibility for Enterprise Risk Management and Internal Control" to ensure federal managers are effectively managing risks an Agency faces towards achieving its strategic objectives and arising from its activities and operations. In 2016, the Office of the Chief Financial Officer (OCFO) facilitated the process of preparing NSF's initial risk profile by collaborating with stakeholders from across the Agency. Since then, NSF has made significant progress by (1) completing its first risk profile (2) securing strong leadership support from the Director and engaging the National Science Board (NSB), (3) implementing a five step ERM framework (4) incorporating the Harvard Business Review framework for communicating risks (5) integrating internal control risk assessments, and (6) incorporating ERM into its strategic plan.

As NSF continues to mature its ERM program, the Agency seeks to create a community of practice regarding ERM techniques and analyses. NSF is well poised to achieve this goal. Assessing risk has always been at the core of making funding decisions to support science. At NSF, we consider our appetite for risk in our decision-making, knowing the potential for these decisions to lead to transformative discoveries. NSF's primary goal is to demonstrate the value of ERM so Agency leadership can leverage it to identify strategic opportunities, make decisions about risks, and build consensus with the Office of Inspector General on top management challenges.

NSF will prepare an updated risk profile in June 2018 that it will discuss with OMB as part of the governmentwide strategic reviews. In addition, the Agency is planning to have a discussion with the Board about ERM in July 2018.

Committee Action/Feedback

BFA seeks Committee advice to ensure that NSF continues to mature its ERM framework and establishes a community of practice as we move to obtain full buy-in from NSF senior managers. The Advisory Committee could help us with some key insights:

- What are the strategies and best practices that can help us mature ERM and move it from an OCFO mindset to an NSF mindset?
- What actions can we take to continue to develop NSF's ERM governance structure?
- How have you changed your organizational culture to create an ERM community of practice?

Contact Person: Rafael Cotto (703) 292-4304 / rcotto@nsf.gov /Charisse Carney-Nunes, (703) 292-5056 / ccarney@nsf.gov

Enterprise Risk Management at NSF

Mike Wetklow
Rafael Cotto
Charisse Carney-Nunes
Office of Budget, Finance, and Award Management
June 14, 2018

Introduction

Purpose:

- To summarize Enterprise Risk Management (ERM) efforts to date and elicit Business Operations Advisory Committee (BOAC) perspectives on maturing ERM at NSF

Outcome:

- Guidance on strategies and best practices that will assist NSF to continue developing ERM

Background

- On July 15, 2017, Office of Management and Budget released an update to Circular A-123, *Management's Responsibility for Enterprise Risk Management and Internal Control*
- NSF implemented ERM to:
  - Determine what risk areas could negatively affect the ability of NSF to carry out its mission
  - Identify resources, processes, policies, and procedures for proactively managing risk
  - Create greater risk management awareness at all levels of the organization
  - Provide a coordinated and common framework for capturing and reporting risk information and getting the right people around the table to discuss risk and incorporate into decision making
- NSF is in its second year of implementing ERM

Top Accomplishments

- Leadership: Director, Chief Operating Officer (COO), and Assistant Directors support ERM
- Director's Watch List and National Science Board (NSB) risk discussions
- Maturity based ERM strategy and process
- OMB concurred with NSF's plan; met first major milestone by developing an initial risk profile in June 2017
- Office of Inspector General (OIG): discussed road rules on collaboration
- NSF's Strategic Plan: Incorporated ERM into Strategic Plan
- NSF's Internal Controls Program: Integrated ERM with internal controls program

NSF ERM Maturity Level

Level 1
Nascent

- Lacks formal ERM process; no basic communication or monitoring; risks addressed as they arise; fails to anticipate potential risks

Level 2
Emerging

- ERM roles and responsibilities defined; governance established; risks are identified and assessed; rarely well prepared for unanticipated events

Level 3
Integrated

- ERM program is endorsed by leadership; policies and processes are in place for some activities; risks are shared across silos; occasionally well prepared for unanticipated events

Level 4
Predictive

- ERM program is recognized by whole organization; policies and processes are in place for all activities; risks are identified and qualitatively assessed; periodically well prepared for unanticipated events

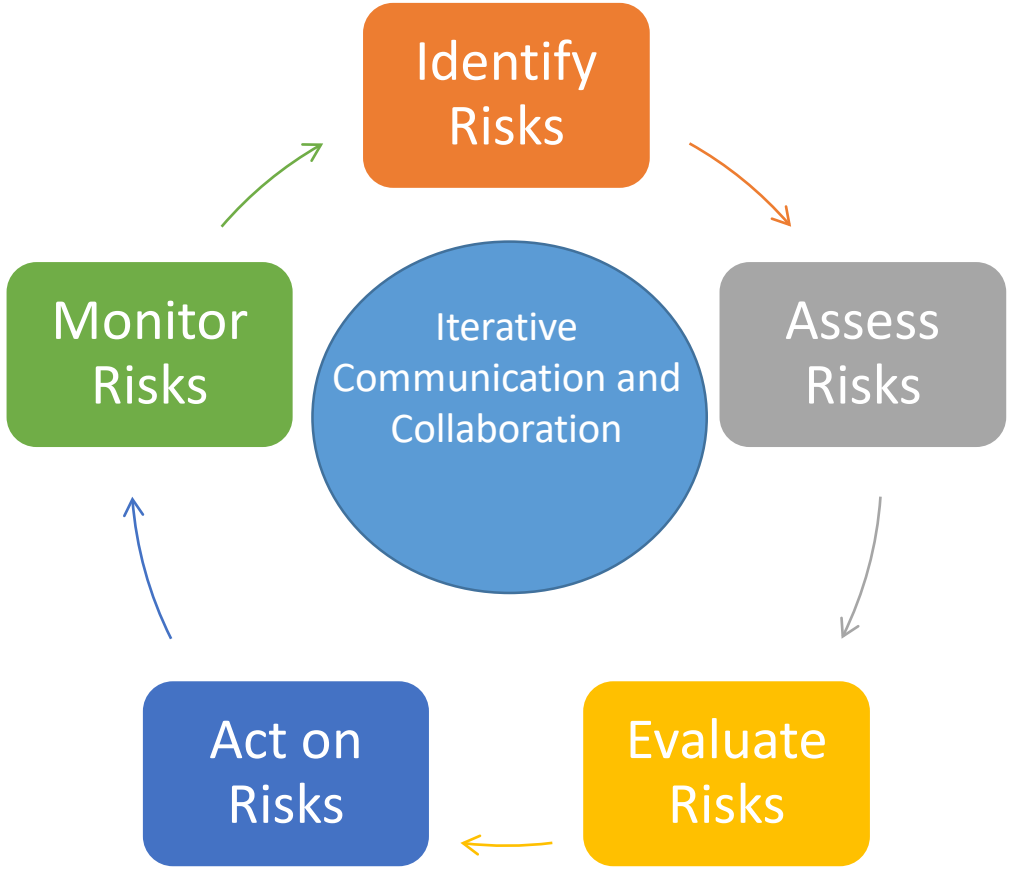
Level 5
Advanced

- Risk discussion is embedded in strategic planning, capital allocation, and other processes and in daily decision-making. An early warning system is in place to notify management of risks above established thresholds; regularly well prepared for unanticipated events and have learned from past events to improve processes

Top Lessons Learned

- Exploring dedicated ERM Accountable Official and/or formal Risk Management Council
- Improving governance and clarifying NSF wide roles and responsibilities for ERM to guard against “compliance exercise” risks and maximize “value” to NSF
- Moving NSF risk management from good to great
- Moving from annual reporting to regular ongoing discussions about risks
- Developing clearer linkages with strategic opportunity initiatives
- Considering governmentwide trends and lessons learned, “where do we go from here?”

NSF's ERM Framework*



Appreciating different meanings of risk, illustrative examples:**

- external
- strategy
- preventable

* Consistent with authoritative guidance from Committee on Sponsoring Organizations of the Treadway Commission (COSO) and Chief Financial Officer (CFO) and Performance Improvement Officer (PIO) Council Playbook

** Based on a Harvard Business Review Article, Managing Risks: A New Framework (available at https://hbr.org/2012/06/managing-risks-a-new-framework)

Harvard Business Review Framework

- External Risks: Risks that arise from outside and are beyond an organization's influence and control

- Strategy Risks: Risks that an organization voluntarily accepts to generate superior returns from its strategy

- Preventable Risks: Internal risks, arising from within the organization, that are controllable and ought to be eliminated or avoided

Harvard Business Review

2018 Risk Reporting

National Science Foundation

BUILDING THE FUTURE

INVESTING IN DISCOVERY AND INNOVATION

NSF Strategic Plan for Fiscal Years (FY) 2018-2022

	External Risk Risks that arise from outside and are beyond the organization's influence and control	Strategy Risk Risks that an organization voluntarily accepts to generate superior returns from its strategy	Preventable Risk Internal risks, arising from within the organization, that are controllable and ought to be eliminated or avoided
NSF Strategic Goal			
Expand knowledge in science, engineering, and learning			
Advance the capability of the Nation to meet current and future challenges			
Enhance NSF's performance of its mission			

STRATEGIC OBJECTIVE – Improve Program Outcomes

Risk	Inherent Assessment		Current Risk Response	Residual Assessment		Proposed Risk Response	Owner	Proposed Risk Response Category
	Impact	Likelihood		Impact	Likelihood			
Agency X may fail to achieve program targets due to lack of capacity at program partners.	High	High	REDUCTION: Agency X has developed a program to provide program	High	Medium	Agency X will monitor capacity of program partners	Primary – Program	Primary – Strategic

OPERATIONS OBJECT

Contract and Grant fraud.	High							

Encouraging the Ethical Conduct of Research (Low Risk Appetite)

Impact					
5 Very High	Severe Impact/Very Rarely Happens	Severe Impact/Unlikely to Happen	Severe Impact/Will Possibly Happen	Severe Impact/Highly Likely to Happen	Severe Impact/Almost Certain to Happen
4 High	Significant Impact/Very Rarely Happens	Significant Impact/Unlikely to Happen	Significant Impact/Will Possibly Happen	Significant Impact/Highly Likely to Happen	Significant Impact/Almost Certain to Happen
3 Moderate	Material Impact/Very Rarely Happens	Material Impact/Unlikely to Happen	Material Impact/Will Possibly Happen	Material Impact/Highly Likely to Happen	Material Impact/Almost Certain to Happen
2 Low	Noticable Impact/Very Rarely Happens	Noticable Impact/Unlikely to Happen	Noticable Impact/Will Possibly Happen	Noticable Impact/Highly Likely to Happen	Noticable Impact/Almost Certain to Happen
1 Very Low	Negligible Impact/Very Rarely Happens	Negligible Impact/Unlikely to Happen	Negligible Impact/Will Possibly Happen	Negligible Impact/Highly Likely to Happen	Negligible Impact/Almost Certain to Happen
Likelihood	1 Very Low	2 Low	3 Medium	4 High	5 Very High

Risk 1: Awards made to scientific projects based on proposals that are, in part, products of research misconduct.

Risk 2: Awards result in purported results, findings, or publications that are, in part, based on research misconduct

ERM and Management Challenges

NSF is using ERM to assist Agency leadership in responding to strategic challenges by:

- Identifying Opportunities
- Making decisions about risks
- Building consensus with stakeholders

BOAC Discussion Questions

- What are the strategies and best practices that can help us mature ERM and move it from an Office of the Chief Financial Officer mindset to an NSF mindset?
- What actions can we take to continue to develop NSF's ERM governance structure?
- How have you changed your organizational culture to create an ERM community of practice?

Attachments

- Guiding Principles for Implementing ERM at NSF
- National Science Board Philosophy and Principles
- NSF Governance Structure

Guiding Principles for Implementing ERM at NSF

- Support from the Top is a Necessity
- Build ERM Using Incremental Steps
- Focus initially on a Small Number of Top Risks
- Leverage Existing Resources
- Build on Existing Risk Management Activities
- Embed ERM into the Decision Making Practices of the Organization
- Provide Ongoing ERM Updates and Continuing Education for Leadership and Senior Management

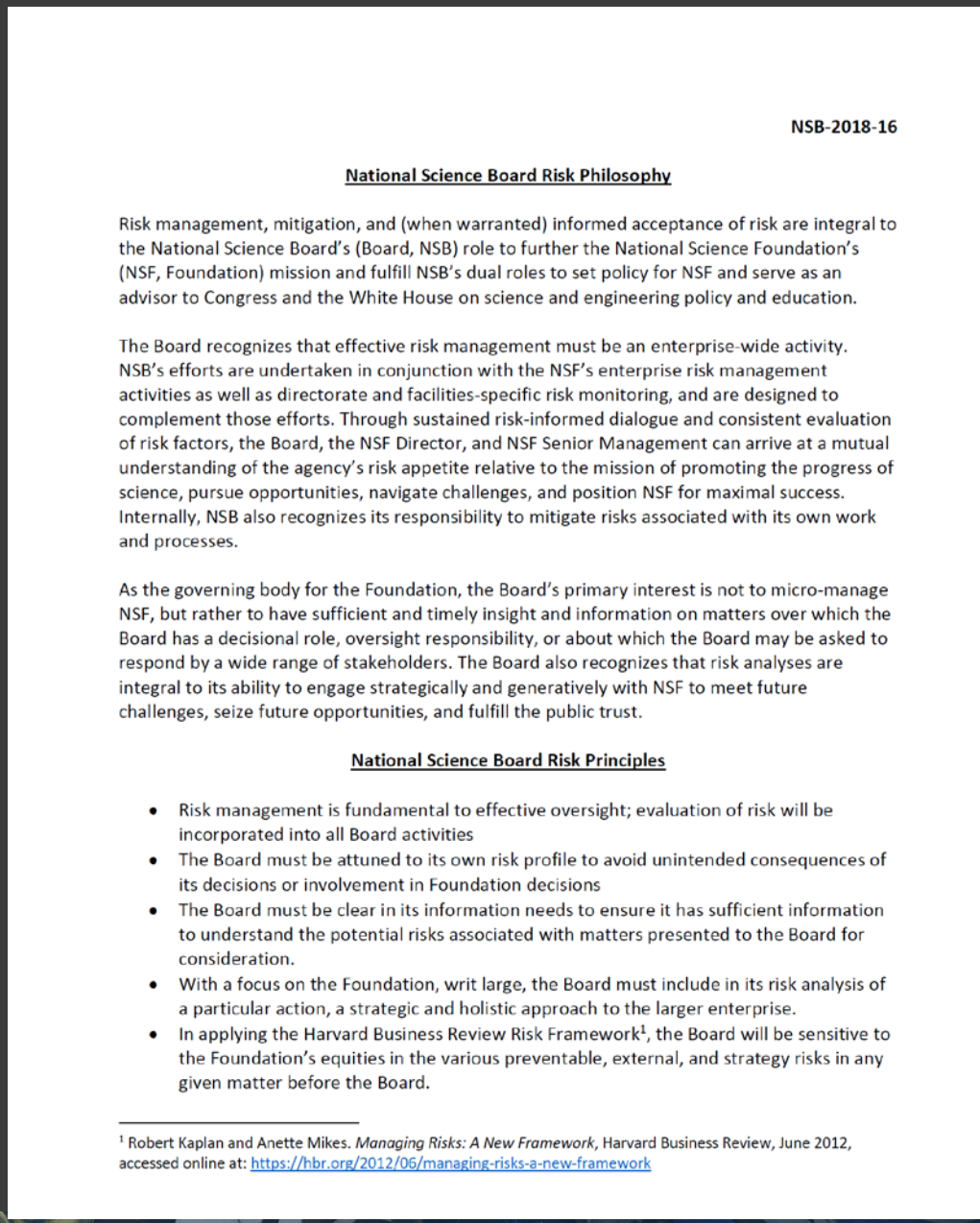
National Science Board (NSB)

Philosophy

- Integral to NSB's role
- Recognizes that effective risk management must be an enterprise-wide activity
- Efforts are undertaken in conjunction with NSF's ERM

Principles

- Risk management is fundamental to effective oversight
- Board must be attuned to its own risk profile
- Strategic and holistic approach to the larger enterprise
- Applying the Harvard Business Review Risk Framework



NSB-2018-16

National Science Board Risk Philosophy

Risk management, mitigation, and (when warranted) informed acceptance of risk are integral to the National Science Board's (Board, NSB) role to further the National Science Foundation's (NSF, Foundation) mission and fulfill NSB's dual roles to set policy for NSF and serve as an advisor to Congress and the White House on science and engineering policy and education.

The Board recognizes that effective risk management must be an enterprise-wide activity. NSB's efforts are undertaken in conjunction with the NSF's enterprise risk management activities as well as directorate and facilities-specific risk monitoring, and are designed to complement those efforts. Through sustained risk-informed dialogue and consistent evaluation of risk factors, the Board, the NSF Director, and NSF Senior Management can arrive at a mutual understanding of the agency's risk appetite relative to the mission of promoting the progress of science, pursue opportunities, navigate challenges, and position NSF for maximal success. Internally, NSB also recognizes its responsibility to mitigate risks associated with its own work and processes.

As the governing body for the Foundation, the Board's primary interest is not to micro-manage NSF, but rather to have sufficient and timely insight and information on matters over which the Board has a decisional role, oversight responsibility, or about which the Board may be asked to respond by a wide range of stakeholders. The Board also recognizes that risk analyses are integral to its ability to engage strategically and generatively with NSF to meet future challenges, seize future opportunities, and fulfill the public trust.

National Science Board Risk Principles

- Risk management is fundamental to effective oversight; evaluation of risk will be incorporated into all Board activities
- The Board must be attuned to its own risk profile to avoid unintended consequences of its decisions or involvement in Foundation decisions
- The Board must be clear in its information needs to ensure it has sufficient information to understand the potential risks associated with matters presented to the Board for consideration.
- With a focus on the Foundation, writ large, the Board must include in its risk analysis of a particular action, a strategic and holistic approach to the larger enterprise.
- In applying the Harvard Business Review Risk Framework[1], the Board will be sensitive to the Foundation's equities in the various preventable, external, and strategy risks in any given matter before the Board.

[1] Robert Kaplan and Anette Mikes. *Managing Risks: A New Framework*, Harvard Business Review, June 2012, accessed online at: https://hbr.org/2012/06/managing-risks-a-new-framework

NSF Governance Structure

- Ultimate accountability and responsibility for ERM rests with NSF's COO
- Senior Management Round Table (SMaRT) supports the COO to ensure ERM is integrated into the NSF culture and that responsibilities have been appropriately delegated throughout agency
- SMaRT provides value by having different points of view all together in the same room (e.g., All Programs with Office of General Counsel, Office of Legislative & Public Affairs, Office of Diversity and Inclusion, etc.)
- SMaRT can provide governance and guidance on which risks to filter or share
- NSF will leverage its CXO Council for integrating ERM with mission support functions
- NSF's Deputy Chief Financial Officer provides senior staffing support to the Director, COO, and SMaRT