



# Enterprise Risk Management at NSF

A background image showing children playing in a park. In the foreground, a child in a red shirt is holding a rainbow flag. To the right, another child is running. The background features a large, colorful mural of a rainbow and clouds. The text is overlaid on the left side of the image.

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# Introduction

## Purpose:

- To summarize Enterprise Risk Management (ERM) efforts to date and elicit National Science Board (NSB) perspectives on embracing and managing risks

## Outcome:

- Understanding of ERM next steps at NSF
- Ensuring alignment of NSB & NSF Management approaches to ERM



# ERM Progress to Date

- NSF leadership supports ERM
- Office of Management and Budget (OMB) concurs
- ERM Community of Practice at NSF is emerging
- Communications with NSF staff are underway
- Office of Inspector General (OIG) provides input



## Features

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Staff Briefing on NSF's 10 Big Ideas



Director Presents the FY18 Budget Request



NSF Staff Contribute to Grateful Tree for PSRW



Revised Proposal & Award Policies & Procedures



COO Message on Enterprise Risk



Renewing NSF - Information Technology

# Harvard Business Review Framework



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

# NSB Risk Philosophy & Principles



## 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 enterprise risk management

## 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



# Three Types of Risk Reporting

1. OMB recommends detailed risk profile
2. NSB framework is helpful for what's most important about ERM
3. Heat maps show a visual presentation on inherent and residual risk as well as their impact and likelihood





# ERM Approach to OIG Management Challenges

NSF is using OMB and NSB frameworks to address the OIG Management Challenges by identifying opportunities and making decisions about risks.

Major Multi-User Research Facilities  
Management

Business Operations – DATA Act

Business Operations – Subrecipient Monitoring

U.S. Antarctic Program Management

Encouraging the Ethical Conduct of Research

Business Operations – Improper Payments

Business Operations – Managing Government  
Records

IPA Program Management

Cybersecurity and IT Management

# Digital Accountability and Transparency Act of 2014 (DATA Act)

## Harvard Business Review Framework



- **External Risks**
  - Evolving Federal Guidance
  - Late Release of Treasury Department System for Validation and Testing
- **Strategy Risk**
  - Reputational
- **Preventable Risks**
  - Inaccurate or incomplete data in NSF's systems
  - Inaccurate or incomplete reporting

## OMB Framework



- **Inherent Risk Assessment**
  - Moderate Impact, High Likelihood
- **NSF Response**
  - NSF leadership of DATA Act Playbook for Chief Financial Officers
- **Residual Risk Assessment**
  - Low Impact, Low Likelihood



# OMB Risk Profile: Promoting Accountability and Transparency

## Business Operations Management – Promoting Accountability and Transparency

STRATEGIC GOAL 3: Enhance NSF's performance of its mission.

STRATEGIC OBJECTIVE 3.2– Processes and Operations. Continually improve agency operations.

RISK Category: Operational/ Compliance	Inherent Assessment		Current Risk Response	Residual Assessment		Proposed Risk Response	Owner	Proposed Risk Response Category
	Impact	Likelihood		Impact	Likelihood			
OPERATIONAL OBJECTIVE (MANAGEMENT CHALLENGE) – To report financial and spending data in accordance the <i>Digital Accountability and Transparency Act of 2014</i> requirements.								
<b>Risk:</b> 1) Inaccurate or incomplete data in NSF’s systems 2) Reporting data to Treasury and USASpending.gov that does not accurately and completely reflect what’s in our system	<b>1) Rating:</b> Moderate Score: 3  <b>2) Rating:</b> Moderate Score: 3	<b>1) Rating:</b> High Score: 4  <b>2) Rating:</b> Medium Score: 3	<b>Reduction:</b> Develop and implement Corrective Action Plan in Response to FY 2017 Audit with the following actions: <ul style="list-style-type: none"><li>Examining processes identified as potential audit risks, identify ways to improve or strengthen the processes and document changes in the Standard Operating Procedures</li><li>Submit corrections for any data errors identified in the audit</li><li>Include comments with NSF’s submissions to explain legitimate differences in Files C to D1/D2</li><li>Review submission process with the internal controls team and identify opportunities for improvement</li><li>Perform policy review of the application of “legitimate differences” guidance to warnings when linking Files C to D1/D2</li><li>Work closely with the DATA Act Audit Collaboration Working Group of the CFO Council and the Council of the Inspectors General on Integrity and Efficiency (“CIGIE”) to identify issues to be addressed to improve DATA Act implementation and clarify government-wide guidance and audit standards.</li><li>Review SharePoint processes to ensure all Division Director validations are complete, properly labelled and available for SAO review (FY18)</li></ul>	<b>1) Rating:</b> Low Score: 2  <b>2)Rating:</b> Low Score: 2	<b>1)Rating:</b> Low Score: 2  <b>2)Rating:</b> Low Score: 2	<b>Reduction:</b> <ul style="list-style-type: none"><li>NSF is leading development of the CFOC Data Act Playbook</li><li>Develop an NSF DATA ACT data quality plan</li><li>Monitor changes to NSF systems to determine impact on DATA Act reporting</li></ul>	Teresa Grancorvitz (BFA)	Internal Control Assessment



# NSB Format: DATA Act

## Promoting Accountability and Transparency

	Preventable Risk Internal risks, arising from within the organization, that are controllable and ought to be eliminated or avoided	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
NSF Strategic Goal			
<i>Expand knowledge in science, engineering, and learning.</i>			
<i>Advance the capability of the Nation to meet current and future challenges.</i>			
<i>Enhance NSF's performance of its mission.</i>	<ol style="list-style-type: none"> <li>1. Inaccurate or incomplete data in NSF's systems.</li> <li>2. Reporting data to Treasury and USASpending.gov that does not accurately and incompletely reflect what's in our system</li> </ol>	<ol style="list-style-type: none"> <li>1. Evolving federal guidance.</li> <li>2. Late release of the of the Department of Treasury's system that tests and validates and the patches to the software program used by NSF and other agencies for financial systems.</li> <li>3. Lack of a clear source of funding for NSF DATA Act implementation efforts.</li> </ol>	<ol style="list-style-type: none"> <li>1. Reputational Risk</li> </ol>

# Heat Map: DATA Act

Promoting Accountability and Transparency (Low Risk Appetite)					
IMPACT	LIKELIHOOD				
	1 Very Low	2 Low	3 Medium	4 High	5 Very High
	5 Very High Severe Impact/ Very Rarely Happens	Severe Impact/ Unlikely to Happen	Severe Impact/ Will Possibly Happen	Severe Impact/ Likely to Happen	Severe Impact/ Very likely to Happen
	4 High Significant Impact/ Very Rarely Happens	Significant Impact/ Unlikely to Happen	Significant Impact/ Will Possibly Happen	Significant Impact/ Likely to Happen	Significant Impact/ Very likely to Happen
	3 Moderate Material Impact/ Very Rarely Happens	Material Impact/ Unlikely to Happen	I Material Impact/ Will Possibly Happen	I Material Impact/ Likely to Happen	Material Impact/ Very Likely to Happen
	2 Low Noticeable Impact/ Very Rarely Happens	R Noticeable Impact/ Unlikely to Happen	R Noticeable Impact/ Will Possibly Happen	Noticeable Impact/ Likely to Happen	Noticeable Impact/ Very Likely to Happen
	1 Very Low Negligible Impact/ Very Rarely Happens	Negligible Impact/ Unlikely to Happen	Negligible Impact/ Will Possibly Happen	Negligible Impact/ Likely to Happen	Negligible Impact/ Very Likely to Happen



Risk 1: Inaccurate or incomplete data in NSF's systems



Risk 2: Reporting data to Treasury and USASpending.gov that does not accurately and completely reflect what's in our system

I – Inherent Risk  
R – Residual Risk  
- Risk assessment change  
resulting from current risk  
response.



# Strategic Risk and NSF Response: Grants Under Scrutiny

## Harvard Business Review Framework



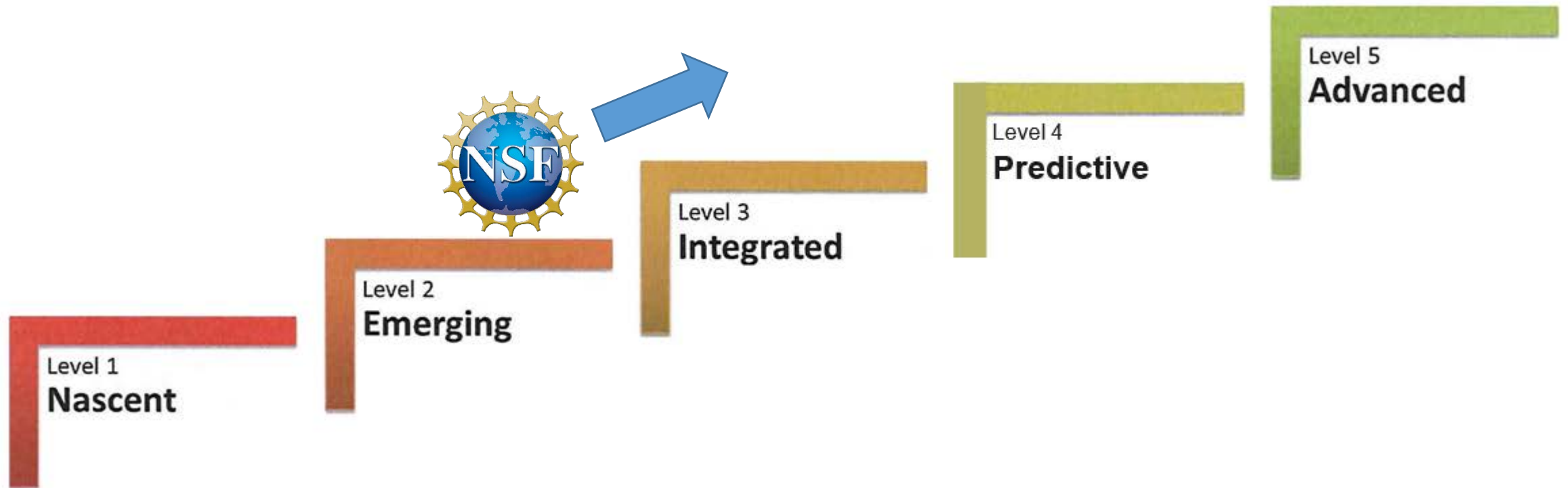
- **External Risk**
  - Federal Context, Public Awareness
- **Strategy Risk**
  - Reputational
- **Preventable Risk**
  - NSF Execution of Merit Review Process

## OMB Framework



- **Inherent Risk Assessment**
  - High Impact, High Likelihood
- **NSF Response**
  - Committee of Visitor reviews
  - Multi-stage review of program recommendations
- **Residual Risk Assessment**
  - High Impact, Medium Likelihood

# NSF ERM Maturity Level



Maturity Model Source: CFO and Performance Improvement Council's ERM Playbook