

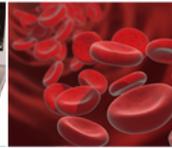


**Risk-Based Management  
within BFA  
Presentation to the NSF Business and  
Operations Advisory Committee**

**Jeffery M. Lupis, DD-DACS**

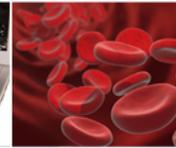
**December 12, 2014**





# Agenda

- “Risk Management” and applying the concept within BFA
- Relationship of Risk Management to BFA Strategic Priorities
- Initial approach to Risk Management being pursued by BFA
- How can we improve our approach to Risk Management going forward

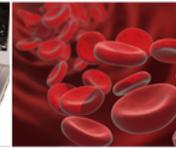


# Risk Management

- **Risk management** is the identification, assessment, and prioritization of risks...followed by coordinated and economical application of resources to minimize, monitor, and control the probability and/or impact of unfortunate events or to maximize the realization of opportunities.<sup>1</sup>
- **Enterprise Risk Management (ERM)** is a discipline that addresses the full spectrum of an organization's risks, including challenges and opportunities, and integrates them into an enterprise-wide, strategically-aligned portfolio view. ERM contributes to improved decision-making and supports the achievement of an organization's mission, goals, and objectives.<sup>2</sup>
- BFA is faced with increased work requirements and limited resources. We are compelled to “do less with less,” making a risk-based approach to managing priorities an attractive option.

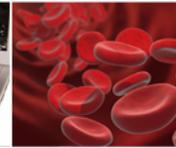
<sup>1</sup> from Wikipedia

<sup>2</sup> from the Association for Federal Enterprise Risk Management



# Risk Management

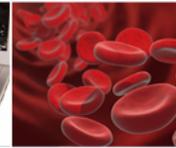
- Enterprise Risk Management has received attention within the Government, and some federal agencies have incorporated ERM Frameworks and designated Chief Risk Officers (CROs)
- OMB has incorporated the consideration of risk management across agency programs (including requirements in the Uniform Guidance)
- OMB has stated that it has not yet determined the need for a CRO or a “one size fits all” approach at federal agencies
- In October 2012, BFA personnel received training in Enterprise Risk Management



# Risk Management

Significant Points from Oct 2012 Training:

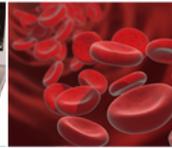
- Considering increasing requirements and limited resources, ability to meet core mission requirements is being challenged
  - Shift towards “Doing less with less”
  - Risk-based approach will become necessary
- Effective Risk Management helps to move us from Reactive Change to Proactive Change
- Also helps us to make conscious decisions concerning Risks we are willing to accept



# Risk Management

Significant Points from Oct 2012 Training (Cont):

- Ultimately, organizations must balance Benefits, Costs, and Risks to Maximize Value
- All organizations consider risk to some degree – However, is it
  - Systematic
  - Strategic
  - A contributor to value maximization
  - An explicit part of the decision-making process
- Risk management is not about eliminating or even minimizing risk; it is about understanding risk to intelligently take advantage of opportunities in a balanced way that maximizes value

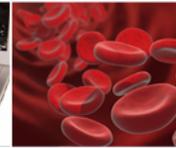


# Risk Management

Significant Points from Oct 2012 Training:

Core Pieces of the ERM Process:

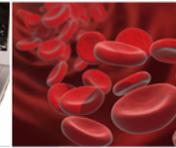
- Establish Context (Organizational Environment)
- Identify and Evaluate Risks
- Treat Risks
- Monitor and Review
- Communicate and Consult (Continuous and from start to finish)



# Risk Management

(Excerpt from NASA Example in Background Slides)

RECOMMENDATION	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9
	Inherent Risk (1-25)	Residual/Composite Risk Index (1-25)	Risk Change (1-24) <i>(Col. 1 minus Col 2)</i>	Life Cycle Cost (1-5) <i>(Estimated.)</i>	Life Cycle ROI (1-25) <i>(Col. 3 over Col 4)</i>	Life Cycle Cost Priority	Initial Cost (1-5) <i>(Estimated.)</i>	Initial Cost ROI (1-25) <i>(Col. 3 over Col 7)</i>	Initial Cost Priority
<b>SAMPLE CALCULATION</b>	16	4	12	1	12	4	2	6	5
Etc.									



# Relationship to BFA Strategic Priorities

- Jan. 2012 – “BFA Summer Study” released, identifying areas for potential improvement based on staff input
- June 2012 – “Strategic Priorities Initiative” begins, focusing on 3 core areas (risks/benefits, duplicate functions, and professional development “SWAT” team)
- June 2013 – “Final Report of Strategic Priorities Group” released – Includes recommendations to implement an ERM program within BFA



# Relationship to BFA Strategic Priorities

Excerpts from Strategic Priorities Report Recommendations:

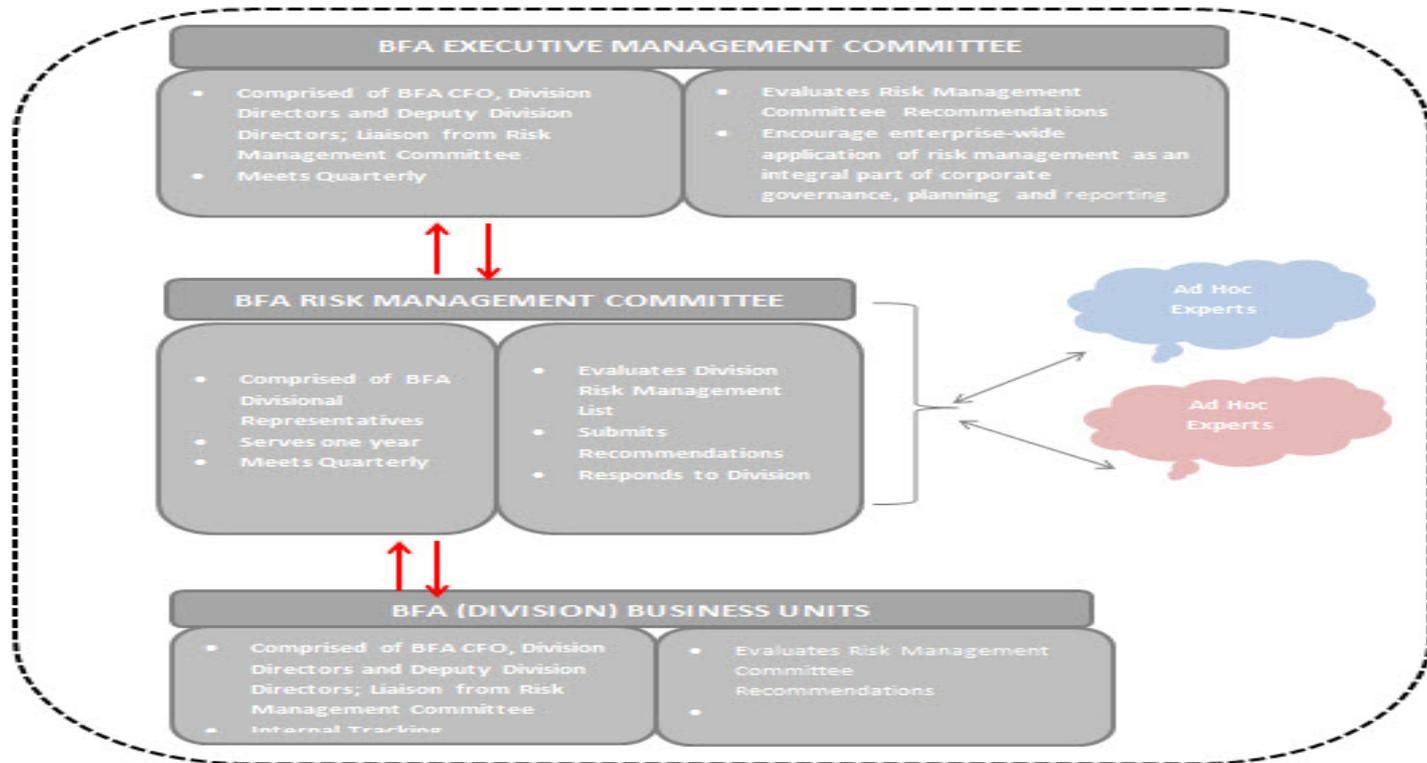
Risk, Cost and Benefits:

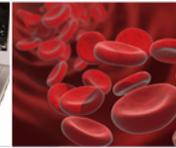
- Implement the BFA ERM Framework by first identifying a BFA Front Office owner
- Help BFA Divisions incorporate systematic processes for assessing risk and/or cost and benefit techniques into their daily decision making
- Designate a BFA-wide Lead to coordinate a risk analysis of the BFA-wide portfolio oversight efforts



# Relationship to BFA Strategic Priorities

Excerpt from Strategic Priorities Report  
Recommendations on a notional ERM  
Framework:

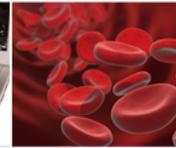




# Initial Approach

## Initial Streamlined Approach to ERM

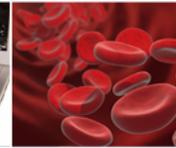
- During August – September 2014, BFA had developed a list of “Organizational Priorities” to discuss with incoming Chief Operating Officer
- Organizational Priorities List: *“Senior BFA leadership identified the following areas as current management priorities being addressed by BFA that are pivotal to NSF’s ability to accomplish its strategic goal to excel as a federal science agency. [These are not in priority order.]”*



# Initial Approach

## Initial Streamlined Approach to ERM

- Use Organizational Priorities and other recently developed materials to identify initial list of major risks
- Discuss risks that should be added or deleted
- In the context of the major tenets of Enterprise Risk Management:
  - Discuss each risk
  - Discuss risk priorities, and current plans to address risks
- Improve the process going forward

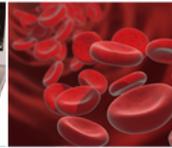


# Improvements Going Forward

- Does your organization have a formal approach for identifying risks, and if so what process and structure are in place?
- What type of investment (time across different personnel levels, funding) do you think is required to launch and then maintain a risk management process?
- In your experience, do you use dedicated resources to support your risk management approach, or do you distribute the effort across the organization?
- What measures would indicate that a risk management approach is successful?



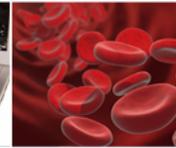
WHERE DISCOVERIES BEGIN



# Background Slides



WHERE DISCOVERIES BEGIN



# Example of Enterprise Risk Management Application (NASA)



## RISK-BASED PRIORITIZATION OF RECOMMENDATIONS

### Overview

NASA's stated goal for this review was to "enhance its Foreign National Access Management in the areas of Mission Strategy and Priorities; Quality and Relevance; and Effectiveness and Efficiency of Management." The Review was to include elements with multiple organizational inputs, and was to focus on performance, as well as providing a risk-based prioritization of observations and recommendations for future enhancements.

As noted, the Academy study team visited NASA HQ and five Centers, evaluated relevant policy and procedural documents, interviewed in excess of one hundred NASA employees and contractors involved in the FNAM process, contacted other federal agencies and non-governmental organizations with experience and expertise in FNAM-related issues, and reviewed internal Agency documents pertaining to organizational performance and incident response.

As requested by NASA, the following sections address the risk-based prioritization of the Panel's twenty-seven Findings and Recommendations. The Risk Management methodology utilized in the process will be explained, followed by prioritization and rationale for the recommendations categorized in two distinct ways: those that have the best long-term Return on Investment ("Life Cycle cost") and those that have the best Return on Investment within a single budget year ("Short term budget considerations").

### Methodology

NASA possesses an unparalleled expertise in identifying and assessing threats to projects and programs, determining the risk, identifying ways to reduce those risks, and prioritizing risk reduction measures based on a strategy. The Panel has sought to provide a risk-based prioritization of the recommendations to enhance NASA programs and processes relevant to Foreign National Access Management. As noted above, the Panel concluded that it might be helpful to the Agency to provide recommendations based upon projected long-term ROI, as well as potential adjustments to priorities based on investment costs and a need to prioritize within existing fiscal constraints.



The Panel used the Composite Risk Index process to determine the priorities. This process involves assigning a numerical value from 1 to 5, to both the *impact/consequence* of a risk event as well as the *probability* of the event occurring, with the higher the number reflecting greater significance. The two designated numbers – probability and consequence - are then multiplied, and the total – up to 25 – reflects the degree of risk.

Two Risk Maps were created, with the numbers in the map cells corresponding to the Panel’s recommendations. The *Current Risk Map* (Figure 4.3) denotes the Panel’s subjective assessment of the current risk associated with each of the twenty-seven recommendations, based upon an educated evaluation of the probability and consequence of each. The *Projected Risk Map* (Figure 4.3) reflects the projected impact on risk should the recommendations be implemented by NASA.

The totals resulting from the multiplication of the numbers assigned to probability and consequence from the Current Risk Map are listed on the Risk Management Assessment (RMA) Table (Table 4.1) in Column 1 as “Inherent Risk.” The totals resulting from the multiplication of the numbers assigned to probability and consequence from the Projected Risk Map are listed on the RMA Table in Column 2 as “Residual Risk,” the level of risk estimated to remain following successful implementation of a recommendation.

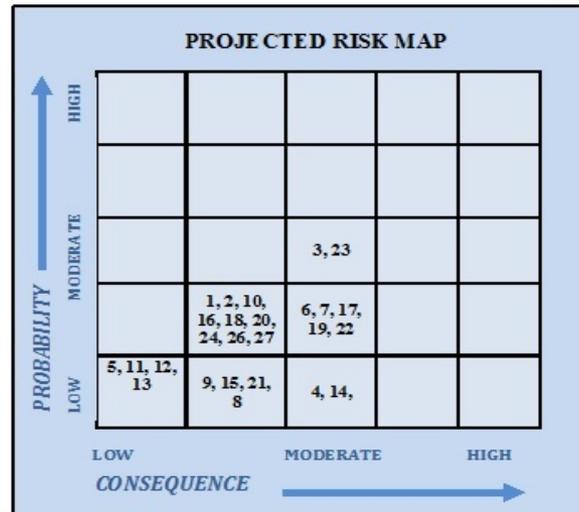
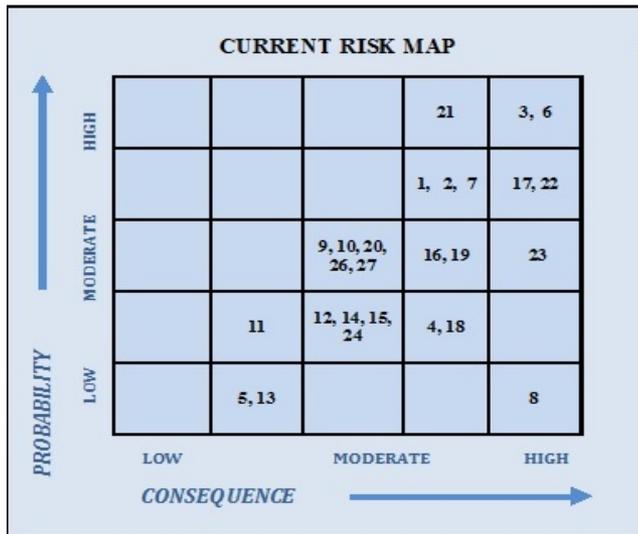
Prioritization of study recommendations are based on the return on investment (ROI) of the individual recommendations. This ROI can be subjectively determined by comparing the relative reduction of risk, as reflected in the decrease from inherent risk to residual risk captured in Column 3 of the RMA Table for each recommendation, compared to the relative cost needed to affect such a reduction in risk. Ideally, the costs and benefits used to calculate a relative ROI should be over the long-term, comparing long-term benefits in risk reduction with long-terms costs, including cost savings from improved efficiencies and reduced redundancies. This analysis and associated prioritization is accomplished by dividing the relative risk reduction in Column 3 by the relative long-term cost, indicated by “Life Cycle Cost”, in Column 4. The quotient shown in Column 5 is the relative long-term ROI. Column 6 (highlighted) lists the priority for implementing each recommendation based on its long-term ROI.

This study recognizes, however, that budget constraints may limit options in implementing recommendations based solely on long-term, or lifecycle, ROI. This study has thus also considered initial investment costs in suggesting possible priorities in light of any such costs and associated budget limitations. An adjusted ROI taking only estimated initial costs (i.e., ignoring potential long-term cost savings) is reflected in columns 7-9. This analysis and associated prioritization is accomplished by dividing the relative risk reduction in Column 3 by the Initial Costs in Column 7. The quotient shown in Column 8 is the Initial Costs ROI. Column 9 (highlighted) lists the priority for implementing each recommendation based on its Initial Costs ROI.



Whether prioritization is based on long-term ROI or short term ROI, it should be kept in mind that the following analysis is intended for prioritization purposes only. Both the numerator of the ROI (benefits) and the denominator (costs) are subjective assessments and cannot be used to confirm a positive payback on investment in terms of dollars. It is also recognized that different individuals with different experiences and insights may estimate the probability and consequences of a risk, as well as the cost to reduce that risk, differently.

While the methodology utilized in assessing, evaluating, and prioritizing risk pertaining to the identified recommendations is subjective, information contained in the RMA Table and related Risk charts provides the basis for legitimate discussions on how NASA can best achieve its stated objective – enhancement of the FNAM-related programs and processes. The collective data on the Table and charts provides the tools to identify, assess, and prioritize the recommendations in a number of different ways.

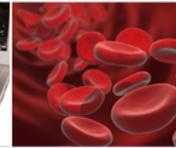




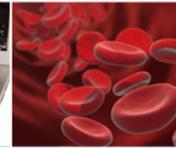
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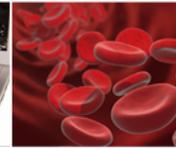


# BFA Significant Risks (From Organizational Priorities List)



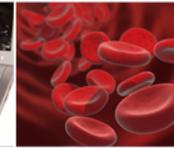
# Significant Risks (from Organizational Priorities List)

- Implementing Systemic, Risk-based Monitoring in a Modernized Environment
- Implementing Legislation & NSB Recommendations to Reduce Administrative Burden on PIs & Awardees
- Implementing Improved Processes relating to Facilities Oversight
- Creating Clarity & Consistency of Policy, Process and Procedures related to Large Facilities
- Developing an Internal Coordination Strategy for Large Facilities Oversight and Assurance



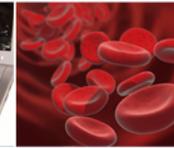
# Significant Risks (from Organizational Priorities List)

- Performance Improvement Officer (PIO) Function/Strategic Reviews – Make the Strategic Review Process a meaningful part of the fabric of the agency
- Implementing iTRAK & Successfully Integrating it into NSF business culture
- Resolving Issues Impacting the Financial Statement Audit
- Optimizing the Award Process to Level Workload
- Migrating to a New Award System to Modernize Grant Management



# Significant Risks (from Organizational Priorities List)

- Planning Effectively for Emerging Human Resource Challenges
  - Retirements/Retention
  - Impact of Systems/Process Modernizations
  - BFA Strategic Priorities
- President's Management Agenda
  - Acquisition
  - Financial Management



# Significant Risks (Potential Other)

From Initial List of Organizational Priorities/OMB Briefing/Other:

- Clarifying the role of the NSF Audit Follow-up Official (AFO)
- Applying Risk Based Approaches to Workload Management based on Resource Constraints
- Grant Accruals
- Strategic Objectives Review
- Questions on use of contracts versus financial assistance for large facility awards
- Impact of potential issues associated with Future NSF
- Unfunded Termination Liability
- *Others?*