

University of Maryland  
**Project Management Symposium**

*NEXT SESSION*

# What Am I Not Thinking Of?

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PROJECT MANAGEMENT  
CENTER FOR EXCELLENCE

A.J. CLARK SCHOOL OF ENGINEERING  
Civil & Environmental Engineering Department

*This session will be recorded.*

# Project Management Symposium

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Executive Sponsor of FedPM CoP



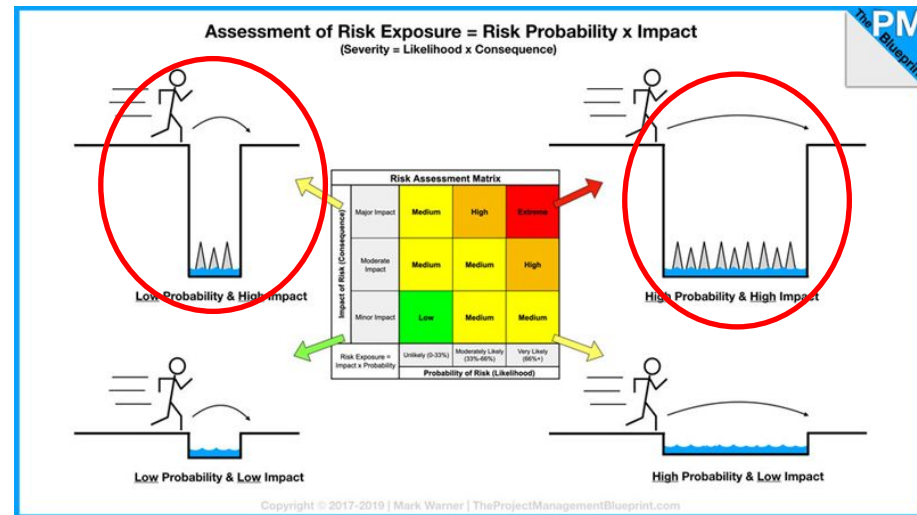
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# Context

- We have been taught to identify and track High Probability/High Impact risks.
- We are excluding similarly impactful risks from regular review simply due to an estimated low probability of occurrence.
- What if the probability estimate is incorrect?
- We will discuss the importance and practical application of identifying, monitoring, and addressing LPHI Risks.



# What is a Risk?

- The **possibility of loss or injury** (Merriam-Webster)
- An **uncertain event or condition, that if it occurs, has a positive or negative effect** on a project's objective. (PMBOK, PMI)
- Managing negative risks involves several possible actions that project managers can take to avoid, lessen, change, or accept the potential effects of risks on their projects
- What can be done to address a negative risk?
  - Avoidance
  - Acceptance



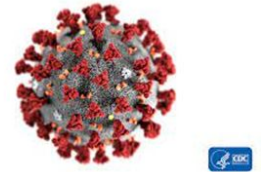
A decorative graphic consisting of three overlapping arrows pointing to the right, colored red, yellow, and black.

# The importance of Project Risk Management

- Project Risk Management helps to increase the probability and/or impact of opportunities and decrease the probability and/or impact of threats, thereby optimizing the chances of project success.
- Here are some benefits of Project Risk Management:
  - Helps to **identify potential risks and opportunities** that could impact the project's success.
  - Enables the project team to **develop effective risk response strategies** to mitigate or avoid potential risks.
  - Helps to **prioritize risks** based on their potential impact on the project's objectives.
  - Provides a **framework for ongoing risk monitoring and control** throughout the project life cycle.
  - Helps to **improve project decision-making** by providing a more comprehensive understanding of the project's risks and opportunities.
  - Helps to **increase stakeholder confidence** in the project's ability to deliver on its objectives.

# Low Probability, High Impact Risks - Overview

- Low Probability, High Impact (LPHI) risks are rare events that can have a significant impact on an organization. Here are some examples:
  - Natural disasters
  - Pandemics
  - Geopolitical events
- **Mitigation of likelihood is not an option, but mitigating the consequences is an option** for LPHI risks
- [“The Risks We Miss”](#) - TAMU-UMD Engineering Project Management Roundtable (03/01/2023)



# Ellicott City flood: Here's what a '1,000-year storm' actually means

<https://www.baltimoresun.com/weather/bs-md-thousand-year-storm-20180529-story.html>



2016



2018



# Low Probability, High Impact Risks (LPHI) – Project Management Examples

- Technology
- Bankruptcy
- New laws
- Change in Corporate leadership
  - Company Merger/Acquisition
- Large increase in funding (*not a bad problem*)

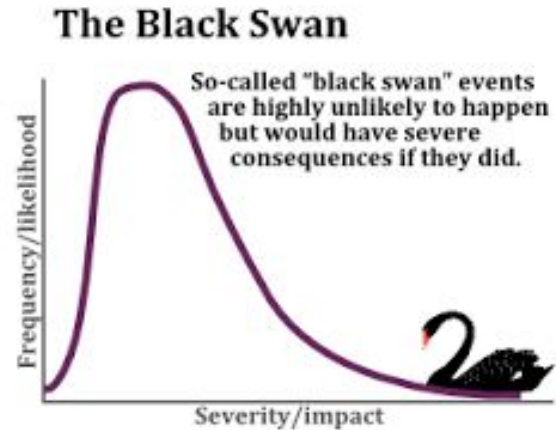






# Preparing for Black Swan events in Project Management

- Nassim Nicholas Taleb popularized the concept of such events in his 2007 book, **The Black Swan**.
- He refers to **events of extreme impact that are not anticipated or prepared for**, and for which people try to create explanations afterwards.
- **Project risk management typically does not prepare for events outside of the usual realm of high probability**, meaning that it uses past experience to predict future



<https://sites.utexas.edu/climatesecurity/2019/12/16/climate-change-and-black-swan-a-case-for-alarmism/>

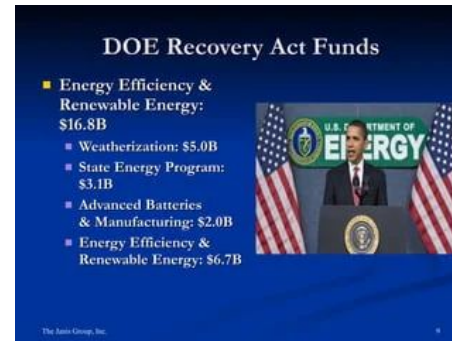




# A federal organization saw its project portfolio budget increase tenfold practically overnight—and had to reassess its project management processes

(<https://www.pmi.org/learning/library/black-swan-event-sizeable-risk-4217>)

- “There's no such thing as having too much money, but this added a lot of complications and complexities to our office”.
- Recovery Act portfolio included approximately 3,000 projects. “We had to be extremely nimble to be able to manage such a visible and high-volume portfolio of projects.”
- “The biggest risk was managing the magnitude of the work in the time allotted”.
- All of this had to be accomplished under intense public scrutiny in a political environment divided by the Recovery Act “it was a real test of





# Identifying Risks

- Understanding what potential events might hurt or enhance a particular project
  - You cannot manage risks if you do not identify them first
- Suggestions for identifying risks: tools and techniques
  - Brainstorming
  - The Delphi Technique
  - Interviewing
  - SWOT analysis



# The Risk Register

- Used for documenting potential risk events and related information
- Risk register content examples:
  - Identification number for each risk event
  - Risk owner will take responsibility for each risk
  - Description of each risk event
  - Risk score
  - Probability and impact of each risk occurring
  - Category under which each risk event falls
  - Root cause of each risk
  - Triggers for each risk; indicators or symptoms of actual risk



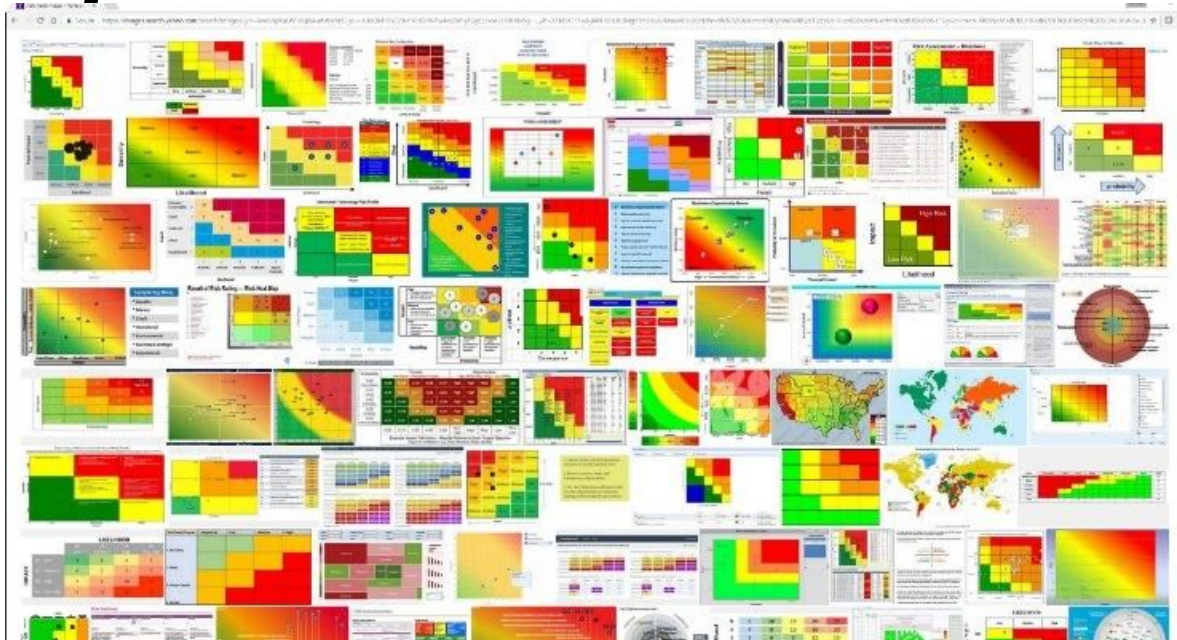


# Risk Register Template - Example

Risk ID	Task Order	Risk Owner	Risk Description	Risk Identification Date	Risk Score	Probability Score	Impact Score	Risk Strategy	Mitigation Plan	Notes



# Risk Register Heat Maps – *Lots of Examples*



<https://www.linkedin.com/pulse/risk-register-david-vose/>



# Using Probability/Impact Matrixes to Calculate Risk Factors

- Lists relative probability of a risk occurring on one side of a matrix or axis on a chart and the relative impact of the risk occurring
  - List the risks and then label each one as high, medium, or low in terms of its probability of occurrence and its impact if it did occur
  
- Calculates risk factors
  - Numbers that represent the overall risk of specific events based on their probability of occurring and the consequences to the project if they do occur

Impact	Catastrophic	5	5	10	15	20	25
	Significant	4	4	8	12	16	20
	Moderate	3	3	6	9	12	15
	low	2	2	4	6	8	10
	Negligible	1	1	2	3	4	5
			1	2	3	4	5
			Improbable	Remote	Occasional	Probable	Frequent
							Likelihood

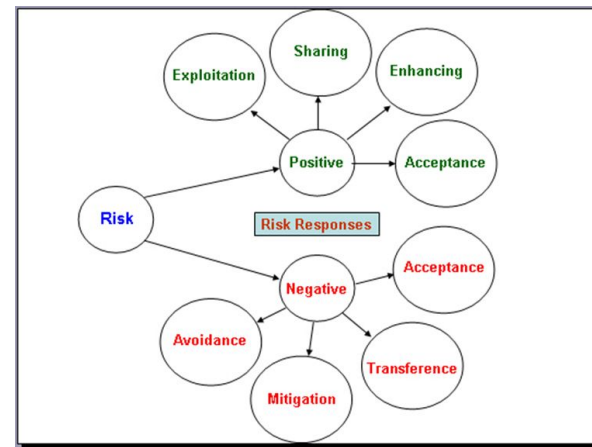
- Catastrophic ■ Stop
- Unacceptable ■ Urgent Action
- Undesirable ■ Action
- Acceptable ■ Monitor
- Desirable ■ No Action

<https://www.balbix.com/insights/cyber-risk-heat-map/>



# Monitoring Risks

- Involves ensuring the appropriate risk responses are performed
- Tracking, identifying and analyzing risks
- Evaluating effectiveness of risk management throughout the entire project



<https://leadershipchamps.wordpress.com/2008/06/14/risk-response-planning/>







# Risk Monitoring - Best Practices

- Conduct Monthly Risk Register Review
  - Invite PM and Risk Owners
- Risk Register Review Agenda
  - Review Action Items
  - Review Heat Map
    - Risks with Risk Score  $\geq 12$  [top right on Heat Map]
    - Risks with Impact of 4 or 5 [top left on Heat Map]
  - Increased Risk Score(s)
  - Decreased Risk Score(s)
  - Risks recommended for closure
  - New risks



<https://www.balbix.com/insights/cyber-risk-heat-map/>





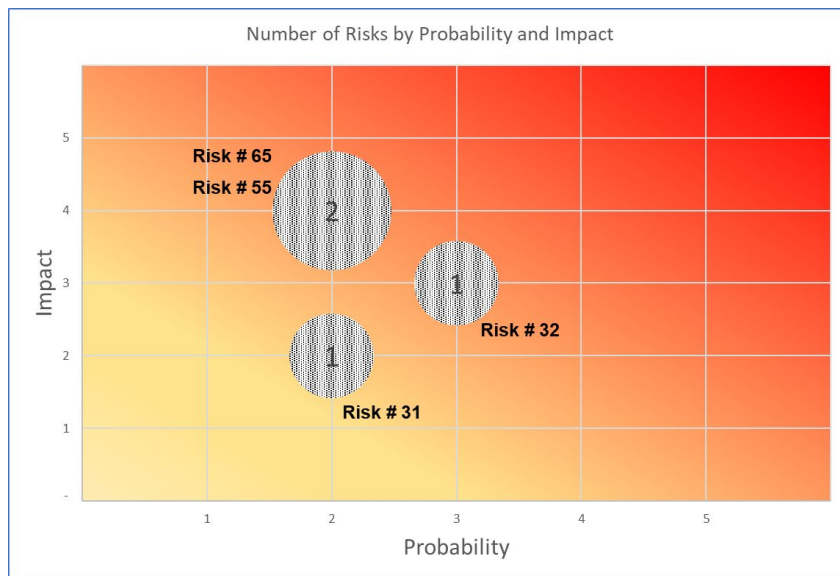
# Risk Monitoring - Best Practice

Risk ID	Risk Description	Risk Identification Date	Risk Score	Probability	Probability Score	Impact	Impact Score	Risk Strategy	Notes
31	IF the high number of identified vulnerabilities in the BFADS environments (293 as of 07/25/2022) are not resolved or mitigated, THEN additional findings may impact the audit or compromise the system.	8/5/2022	4	Unlikely (10%-40%)	2	Med-Low (Can meet dates if additional resources are available, minor areas of scope affected, only very demanding applications are affected, or 5-9% cost change)	2	Mitigate	3/11/2024 - Keep this on register as per Pavani Gundamraju even though it is a low score of 4 (Prob of 2 + Impact of 2 = 4)  5/15 - There is a downward trend in the vulnerabilities in the past few months. And EITS, DBAs are working towards resolving vulnerabilities in a timely manner. Recommend downgrading this risk to Probability = 2 and Impact = 2, for a risk score of 4.  4/16 - Vulnerabilities at 118.
32	IF CF40 takes ownership and maintenance of transfer.doe.gov scripts from OCIO, THEN current support level may be impacted.	9/23/2022	9	Likely (40%-60%)	3	Medium (Unable to meet deadlines or float consumed (5-10% schedule slip), major areas of scope affected, quality reduction requires sponsor approval, or 10-20% cost change)	3	Mitigate	11/29 - Risk will remain open. CF-40 Leadership does not anticipate any updates on this issue for the next 3-6 months  10/19 - Risk will remain open, but will be resolved once the cloud native solution is in place.  9/28 - OCIO has retained the M&A because they





# Risk Monitoring - Best Practice



Risk ID	Short Description	Risk Score	Risk Score Changes (since last month)
31	TO2 - High number of identified vulnerabilities in the BFADS environments	4	0 ↔
32	TO2 - Ownership and Maintenance of transfer.doe.gov scripts	9	0 ↔
55	TO2 - STRIPES Windows 2019 server shutdown problem : <b>Impact = 4</b>	8	12 ↓
65	TO2 - PRISM values are not mapped correctly to FABS and USA Spending: <b>Impact = 4</b>	8	0 ↔

Risks with Risk Score  $\geq 12$  [top right on Heat Map]  
Risks with (Probability of 1 or 2) and (Impact of 4 or 5) [top left on Heat Map]





# Questions, Answers, Discussion





# Contact Information

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# Evaluate Session

