



Risk Management Technical Skills

April 4-5, 2022

Babson Executive Conference Center

UNIVERSITY RISK MANAGEMENT & INSURANCE ASSOCIATION

# Moving Beyond Risk Assessment: Measuring the Effectiveness of Risk Mitigation Strategies

University of Massachusetts  
System-Wide Enterprise Risk Management Program

Christine Packard, Director, Enterprise Risk Management  
Olivia Watson, Analyst, Enterprise Risk Management



# Agenda

- Overview of the University of Massachusetts System
- Overview of UMASS System-wide ERM Program
- Moving Beyond Risk Assessment
- Demo
- Conclusion and Take Aways
- Questions



# UMASS System Overview

## Five undergraduate & graduate campuses

- Medical School
- Law School
- 75,000 students
- 18,000 new graduates annually

- Third-largest research university in Massachusetts (\$687M)
- Fourth-largest research university in New England

- Annual budget of \$3.7B
- Responsible for \$7.5 billion in overall economic impact across Massachusetts

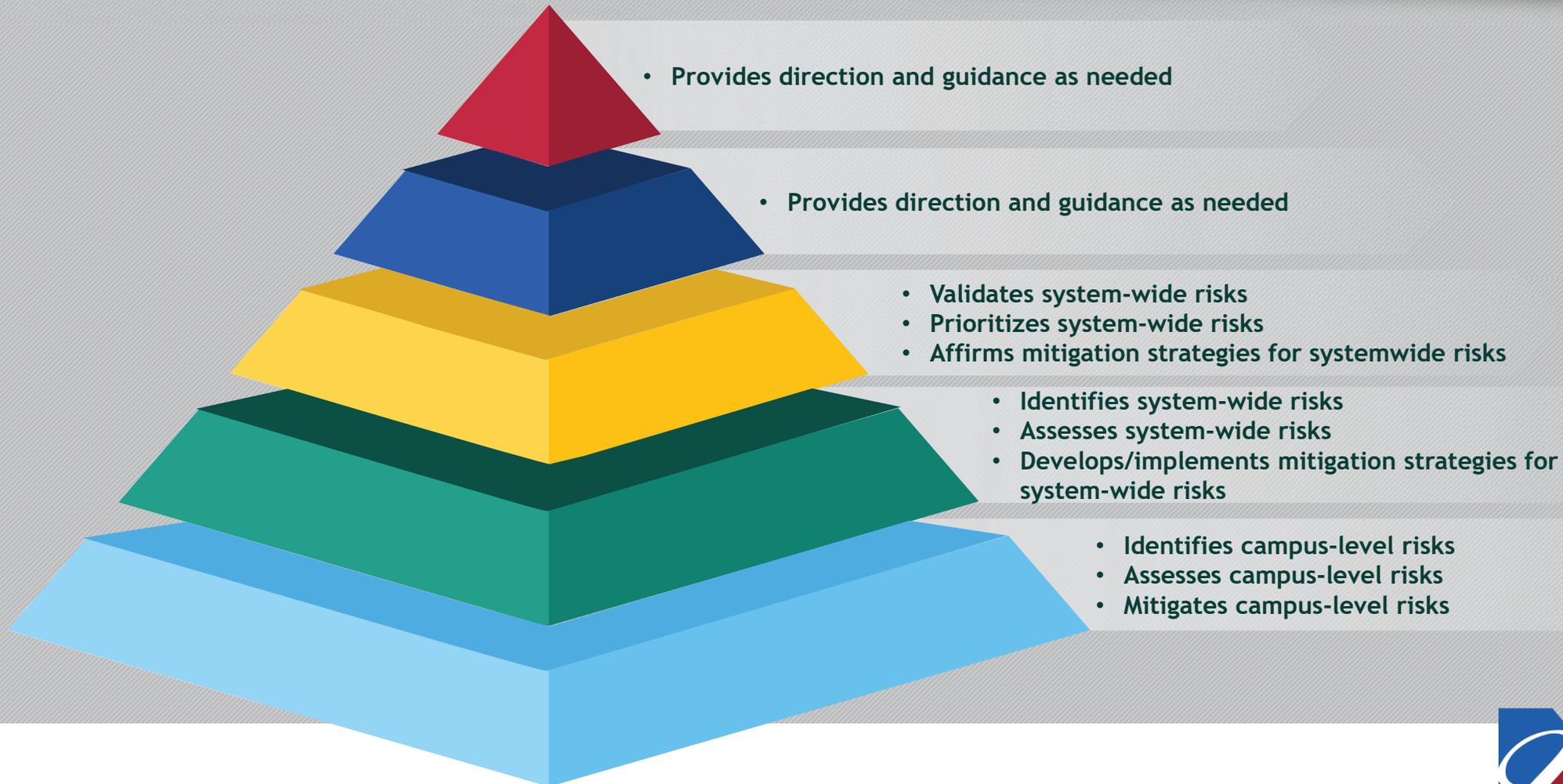
Third largest employer in Massachusetts with more than 24,000 employees



# Overview of UMASS System-wide Enterprise Risk Management Program



# UMass ERM Governance Structure

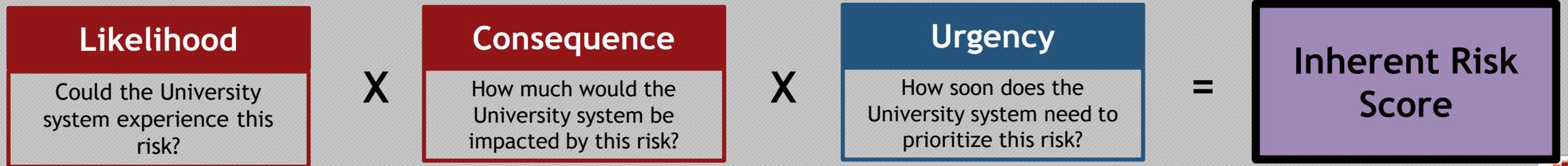


# Two-Year ERM Program Cycle



# Risk Assessment Process

- UMass System-wide ERM Program assesses the University system's inherent exposure to risks
  - Assessment does not consider impact of risk mitigation strategies
- Rate risks across three factors
  - ERM Working Group assesses **Likelihood** and **Consequence**
    - Does not consider mitigation strategies
  - ERM Executive Committee assesses **Urgency** (risk tolerance)
- The risk ratings are then multiplied to generate an Inherent Risk Score



Key: Assessed by ERM Working Group Assessed by ERM Exec. Committee



# Risk Assessment Tool- Likelihood Factor

Could the university system experience this risk?

Rating	Description	OR	Probability of Occurrence	OR	Rate of Occurrence
<b>4</b> Certain or Almost Certain	HIGH - Almost certain to occur, expected in most circumstances	OR	>75%	OR	more than 2x per year
<b>3</b> Likely	MEDIUM HIGH - Likely to occur or will probably occur		50 to 75%		1-2x per year
<b>2</b> Possible	MEDIUM - Possible, this could occur		25 to 50%		once every 2-5 years
<b>1</b> Unlikely	LOW - Unlikely, not expected to occur		Up to 25%		more than 5 years



# Risk Assessment Tool - Consequence Factor

How much would the University system be impacted by this risk?



Rating	Service Disruption, Process Impact on Operations	Financial Impact	Legal / Compliance	Workforce	Reputation	Life Safety	Rating
4 High	<p>Serious disruption to or failure of service</p> <p><i>AND/OR</i></p> <p>Significant impacts to more than two campus</p>	<p>State appropriation reduction of more than 15 percent</p> <p><i>AND/OR</i></p> <p>Loss of revenue or increase in expenses of greater than 15 percent or combination of both</p> <p><i>AND/OR</i></p> <p>Need to use stabilization fund</p> <p><i>AND/OR</i></p> <p>Impacts to all campuses</p>	<p>Increased state or federal regulatory scrutiny for additional campus(es)</p> <p><i>AND/OR</i></p> <p>External agency sanctions such as debarment or civil and/or criminal liability</p> <p><i>AND/OR</i></p> <p>Litigation exposure with significant financial (\$10M+), reputational or precedent exposure</p> <p><i>AND/OR</i></p> <p>Substantial audit findings</p>	<p>Inability to recruit or retain employees with essential knowledge, skills and abilities</p> <p><i>AND/OR</i></p> <p>Work culture is defined by excessive internal conflict or widespread negativity</p> <p><i>AND/OR</i></p> <p>Inability to collaborate across the system or limited information sharing and cooperation</p> <p><i>AND/OR</i></p> <p>Low level of trust among colleagues</p>	<p>Negative national media coverage or negative social media activity ("viral") for multiple days</p> <p><i>AND/OR</i></p> <p>Tangible, long-term impacts to enrollment (more than one cycle), philanthropy and public support</p> <p><i>AND/OR</i></p> <p>Significant personnel actions</p> <p><i>AND/OR</i></p> <p>Widespread internal reaction</p>	<p>Fatality or permanent disability of one or more people</p>	4 High
3 Medium	<p>Moderate disruption to service</p> <p><i>AND/OR</i></p> <p>Significant impact to one campus</p>	<p>State appropriation reduction of 10-15 percent</p> <p><i>AND/OR</i></p> <p>Loss of revenue or cost increase of 5-10 percent, or combination of both (est. \$175M - \$350M)</p> <p><i>AND/OR</i></p> <p>Impacts to BDL or UMA or UMMS</p>	<p>Restrictions or requirements placed on the University's operational activities</p> <p><i>AND/OR</i></p> <p>Substantial (\$1M+) regulatory fines and/or response costs</p> <p><i>AND/OR</i></p> <p>Moderate audit findings</p> <p><i>AND/OR</i></p> <p>Litigation with substantial financial (\$1M - \$10M), reputational or precedent exposure</p>	<p>Difficulty recruiting or retaining employees with essential knowledge, skills and abilities</p> <p><i>AND/OR</i></p> <p>Work culture experiences frequent internal conflict or significant</p> <p><i>AND/OR</i></p> <p>Significant obstacles to system-wide collaboration</p> <p><i>AND/OR</i></p> <p>Decreased information sharing in many circumstances</p>	<p>Negative regional (northeast) media coverage or some negative social media activity</p> <p><i>AND/OR</i></p> <p>Tangible, short-term impacts to enrollment (one cycle), philanthropy and public support</p> <p><i>AND/OR</i></p> <p>Significant internal reaction</p>	<p>Serious injury of one or more people</p>	3 Medium
2 Low	<p>Minor impact on service</p> <p><i>AND/OR</i></p> <p>Some impact to more than one campus</p>	<p>Between \$5M and 1 - 5 percent revenue loss or expense increase or combination of both (est. \$5M to \$175M impact)</p> <p><i>AND/OR</i></p> <p>Impacts to up to two campuses</p>	<p>Regulatory fines (less than \$1M)</p> <p><i>AND/OR</i></p> <p>Minor audit findings</p> <p><i>AND/OR</i></p> <p>Litigation with financial (less than \$1M), reputational or precedent exposure</p> <p><i>AND/OR</i></p> <p>Internally-imposed consequences or requirement for formal corrective action</p>	<p>Minor impact to recruitment or retention</p> <p><i>AND/OR</i></p> <p>Work culture experiences some internal conflict or negativity</p> <p><i>AND/OR</i></p> <p>Challenges with system-wide collaboration</p> <p><i>AND/OR</i></p> <p>Decreased information sharing and cooperation in limited circumstances</p>	<p>Negative local media coverage or minimal social media activity</p> <p><i>AND/OR</i></p> <p>Moderate on-campus/internal reaction</p>	<p>Minor injury to more than one person</p>	2 Low
1 Negligible	<p>Annoyance</p>	<p>Less than \$5M impact</p>	<p>No to minimal impact</p>	<p>No to minimal impact to recruitment or retention</p> <p><i>AND/OR</i></p> <p>No to minimal impact to workplace culture</p> <p><i>AND/OR</i></p> <p>No to minimal impact to system-wide collaboration or information sharing</p>	<p>No to minor internal reaction</p>	<p>No impact or minor injury to individual</p>	1 Negligible
Rating	3	3	3	3	3	3	Total Consequence Rating <b>18</b>

# Risk Assessment Tool - Urgency Factor

How soon do we need to prioritize this risk?

Level		Timeframe
3	High	Within the next 12 months
2	Moderate	1-3 years
1	Low	More than 3 years

# Top 10 Systemwide Risks

Rank	Risk Name
1	Enrollment
2	Information Security
3	Financial Sustainability
4	Facilities and Deferred Maintenance
5	Student Health & Mental Health Support

Rank	Risk Name
6	Vendor Risk Management
7	Attract, Recruit, Retain Faculty and Staff
8	International Activities
9	Information Privacy
10	Diversity, Equity and Inclusion



# Moving Beyond Risk Assessment



# What We Knew

- Understanding risk exposure is very beneficial
- Equally important - if not more so:
  - What are we doing about our risk exposure?
  - How effective are those risk reduction strategies on our risk exposure?

*We use the terms “risk mitigation strategy”, “risk reduction strategy” and “risk treatment” interchangeably.*



ad

How effective are these strategies  
on reducing our risk exposure?

April 4-5 | Boston

# Goals

- Document risk mitigation strategies for transparency and common operating picture
- Demonstrate progress - or lack of progress - in reducing our risk exposure
- Correlate assessment of risk mitigation strategies to a risk's Inherent Risk Score
- Achieve all of this through a single, user-friendly process and tool



# Approach

- Researched publicly available tools
  - Few available
  - Existing tools involved two processes to assess the impact of mitigation on risk
    - Stand alone process to evaluate risk mitigation strategy
    - Separate re-evaluation of risk against the mitigation strategy
- Sought to develop our own methodology and tool
  - Engaged with a consultant to provide guidance



# Methodology

Developed a tool (Excel platform) to conduct three assessments of mitigation strategies through one evaluation process.

Conduct this Assessment ...	To Generate ...
Measure the effectiveness of an <i>individual</i> mitigation strategy on risk exposure	Individual Effectiveness Score
<i>Compare the effectiveness</i> of multiple mitigation strategies on risk exposure	Mitigation Strategy Rank
Measure the <i>aggregate effectiveness</i> of all risk mitigation strategies on risk exposure	Residual Risk Score



# Individual Effectiveness Score Part 1: Evaluate Effectiveness of Mitigation on Consequence of Risk

1. Evaluate the degree of effectiveness the mitigation strategy has on a risk within each risk consequence category:

- *Service Disruption/Impact to Operations*
- *Finance*
- *Legal/compliance*
- *Workforce*
- *Reputation*
- *Life Safety*

1a. Intuitive and user-friendly ratings

*What effect does or would the mitigation strategy have on this risk category?*

Rating	Description
Significant Effect	Greatly reduces the University's exposure in this risk category
Moderate Effect	Somewhat reduces the University's exposure in this risk category
Little to No Effect	Barely or does not reduce the University's exposure in the risk category
Adverse Effect	Creates additional/increases exposure in the risk category



# Individual Effectiveness Score Part 1: Evaluate Effectiveness of Mitigation on Consequence of Risk



Risk Mitigation Strategy Assessment Table			Consequence Ratings					
			Service Disruption, Process Impact on Operations	Financial	Legal/ Compliance	Workforce	Reputation	Life Safety
			Inherent Risk Rating: Medium	Inherent Risk Rating: Low	Inherent Risk Rating: Medium	Inherent Risk Rating: Low	Inherent Risk Rating: Low	Inherent Risk Rating: Medium
Mitigation Strategy Reference Number	Mitigation Strategy Title	Mitigation Strategy Description	Mitigation Strategy Rating (select)	Mitigation Strategy Rating (select)	Mitigation Strategy Rating (select)	Mitigation Strategy Rating (select)	Mitigation Strategy Rating (select)	Mitigation Strategy Rating (select)
1	Treatment 1	Test	Significant Effect	Little to No Effect	Moderate Effect	Little to No Effect	Little to No Effect	Little to No Effect
2	Treatment 2	Test	Little to No Effect	Adverse Effect	Significant Effect	Little to No Effect	Moderate Effect	Little to No Effect
3	Treatment 3	Test	Moderate Effect	Little to No Effect	Little to No Effect	Significant Effect	Little to No Effect	Little to No Effect



# Individual Effectiveness Score Part 1: Evaluate Effectiveness of Mitigation on Consequence of Risk

## Assigned Values for Consequence Ratings

Risk Mitigation Strategy Assessment Table			Consequence Ratings					
			Service Disruption, Process Impact on Operations	Financial	Legal/ Compliance	Workforce	Reputation	Life Safety
			Inherent Risk Rating: Medium	Inherent Risk Rating: Low	Inherent Risk Rating: Medium	Inherent Risk Rating: Low	Inherent Risk Rating: Low	Inherent Risk Rating: Medium
Mitigation Strategy Reference Number	Mitigation Strategy Title	Mitigation Strategy Description	Mitigation Strategy Rating (select)	Mitigation Strategy Rating (select)	Mitigation Strategy Rating (select)	Mitigation Strategy Rating (select)	Mitigation Strategy Rating (select)	Mitigation Strategy Rating (select)
1	Treatment 1	Test	4	2	3	2	2	2
2	Treatment 2	Test	2	1	4	2	3	2
3	Treatment 3	Test	3	2	2	4	2	2

# Individual Effectiveness Score Part 2: Mitigation Strategy Impact on Likelihood

2. Evaluate whether the likelihood of the risk occurring has been impacted as a result of the risk mitigation strategy

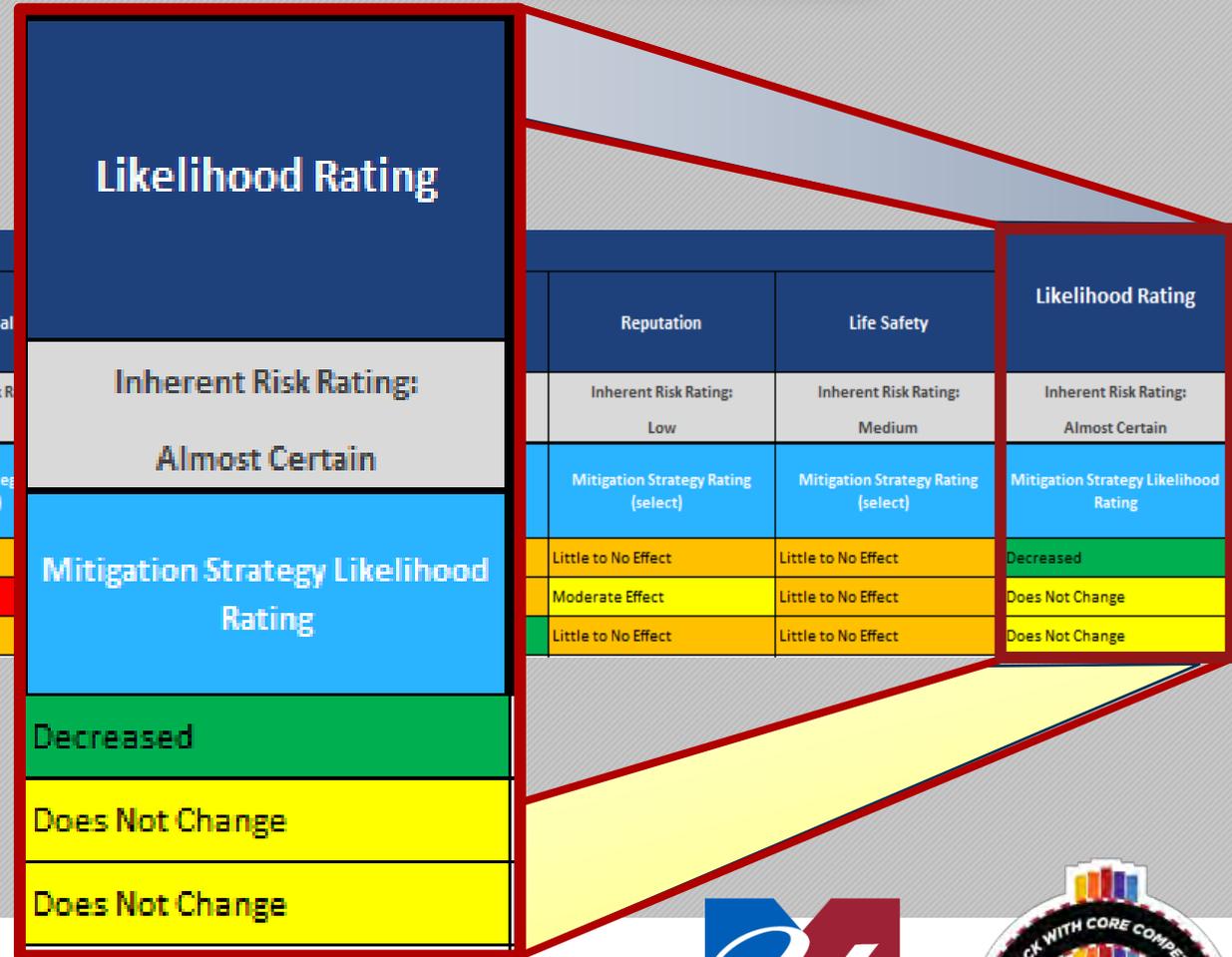
2a. Intuitive and user-friendly ratings

<i>Has or would this mitigation strategy impact the likelihood of this risk occurring?</i>	
<b>Rating</b>	<b>Description</b>
<b>Decreased Likelihood</b>	Mitigation strategy has decreased the likelihood that the risk will occur (made it better)
<b>No Impact on Likelihood</b>	Mitigation strategy has made no impact on the likelihood that the risk will occur (neutral)
<b>Increased Likelihood</b>	Mitigation strategy has increased the likelihood that the risk will occur (made it worse)



# Individual Effectiveness Score Part 2: Mitigation Strategy Impact on Likelihood

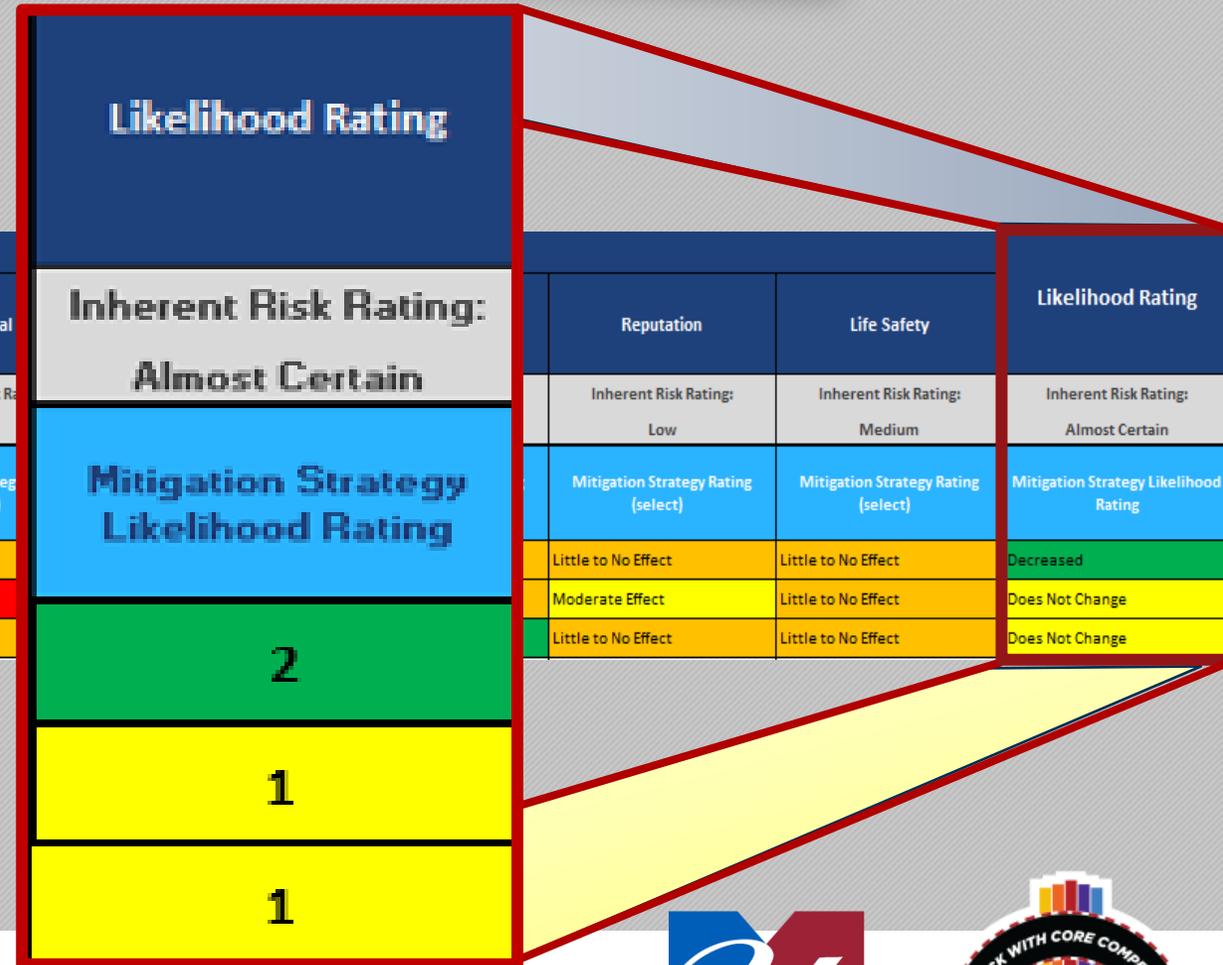
Risk Mitigation Strategy Assessment Table			Service Disruption, Process Impact on Operations	Financial
Mitigation Strategy Reference Number	Mitigation Strategy Title	Mitigation Strategy Description	Mitigation Strategy Rating (select)	Mitigation Strategy Rating (select)
1	Treatment 1	Test	Significant Effect	Little to No Effect
2	Treatment 2	Test	Little to No Effect	Adverse Effect
3	Treatment 3	Test	Moderate Effect	Little to No Effect



# Measuring Effectiveness of Individual Mitigation Strategy - Likelihood

## Assigned Values for Likelihood Ratings

Risk Mitigation Strategy Assessment Table			Service Disruption, Process Impact on Operations	Financial
Mitigation Strategy Reference Number	Mitigation Strategy Title	Mitigation Strategy Description	Mitigation Strategy Rating (select)	Mitigation Strategy Rating (select)
1	Treatment 1	Test	Significant Effect	Little to No Effect
2	Treatment 2	Test	Little to No Effect	Adverse Effect
3	Treatment 3	Test	Moderate Effect	Little to No Effect



# Measuring Effectiveness of Individual Mitigation Strategy (Part 3)

## 3. Calculate Individual Effectiveness Score



*The higher the Individual Effectiveness Score is, the more effective the risk mitigation strategy is.*

# Individual Effectiveness Score

Risk Mitigation Strategy Assessment Table			Consequence Ratings				Likelihood Rating		Individual Effectiveness Score
			Service Disruption, Process Impact on Operations	Financial	Legal/ Compliance				
Mitigation Strategy Reference Number	Mitigation Strategy Title	Mitigation Strategy Description	Mitigation Strategy Rating (select)	Mitigation Strategy Rating (select)	Mitigation Strategy Rating (select)	Mitigation Strategy Rating (select)	Mitigation Strategy Likelihood Rating	Individual Effectiveness Score	
1	Treatment 1	Test	Significant Effect	Little to No Effect	Moderate Effect	Little to No Effect	Decreased	30	
2	Treatment 2	Test	Little to No Effect	Adverse Effect	Significant Effect	Little to No Effect	Does Not Change	14	
3	Treatment 3	Test	Moderate Effect	Little to No Effect	Little to No Effect	Significant Effect	Does Not Change	15	

## Individual Effectiveness Score

30
14
15



# Compare Effectiveness of Risk Mitigation Strategies

Once individual risk mitigation strategies have been entered and assessed, the effectiveness of mitigation strategies can be compared in two ways:

- Mitigation strategies are ranked based on Individual Effectiveness Score
- Effectiveness of mitigation strategies in each category of consequence can be compared
  - Depicts which categories are and are not being adequately mitigated

Individual Mitigation Strategy Rank	
1	1
3	3
2	2

Risk Mitigation Strategy Assessment Table											
Mitigation Strategy Reference Number	Mitigation Strategy Title	Mitigation Strategy Description	Consequence Ratings						Individual Effectiveness Score	Individual Mitigation Strategy Rank	
			Service Disruption, Process Impact on Operations	Financial	Legal/ Compliance	Workforce	Reputation	Life Safety			Likelihood Rating
			Inherent Risk Rating: Medium	Inherent Risk Rating: Low	Inherent Risk Rating: Medium	Inherent Risk Rating: Low	Inherent Risk Rating: Low	Inherent Risk Rating: Medium	Inherent Risk Rating: Almost Certain		
			Mitigation Strategy Rating (select)	Mitigation Strategy Rating (select)	Mitigation Strategy Rating (select)	Mitigation Strategy Rating (select)	Mitigation Strategy Rating (select)	Mitigation Strategy Rating (select)	Mitigation Strategy Likelihood Rating		
1	Treatment 1	Test	Significant Effect	Little to No Effect	Moderate Effect	Little to No Effect	Little to No Effect	Little to No Effect	Decreased	3	1
2	Treatment 2	Test	Little to No Effect	Diverse Effect	Significant Effect	Little to No Effect	Moderate Effect	Little to No Effect	Does Not Change	1	3
3	Treatment 3	Test	Moderate Effect	Little to No Effect	Little to No Effect	Significant Effect	Little to No Effect	Little to No Effect	Does Not Change	1	2



# Aggregate Impact of All Mitigation Strategies on A Risk

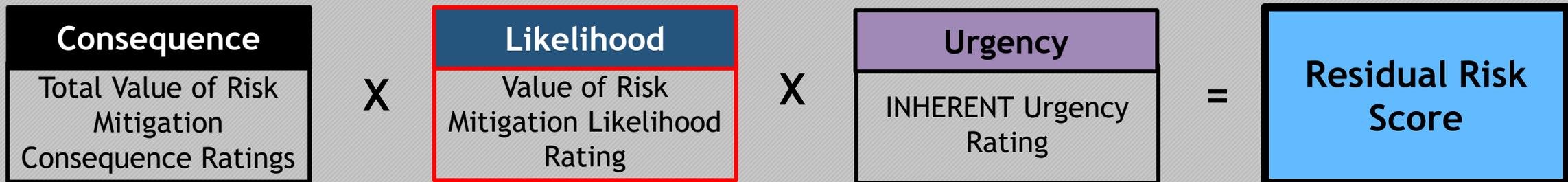
- Residual Risk Score demonstrates overall effectiveness of all risk mitigation strategies being implemented
  - The lower the Residual Risk Score is, the more effective the mitigation strategies are
- Residual Risk Score is calculated based on the most effective rating for each consequence category and the most effective rating in the likelihood category

Risk Mitigation Strategy Assessment Table			Consequence Ratings						Likelihood Rating
			Service Disruption, Process Impact on Operations	Financial	Legal/ Compliance	Workforce	Reputation	Life Safety	
			Inherent Risk Rating: Medium	Inherent Risk Rating: Low	Inherent Risk Rating: Medium	Inherent Risk Rating: Low	Inherent Risk Rating: Low	Inherent Risk Rating: Medium	
Mitigation Strategy Reference Number	Mitigation Strategy Title	Mitigation Strategy Description	Mitigation Strategy Rating (select)	Mitigation Strategy Rating (select)	Mitigation Strategy Rating (select)	Mitigation Strategy Rating (select)	Mitigation Strategy Rating (select)	Mitigation Strategy Rating (select)	Mitigation Strategy Likelihood Rating
1	Treatment 1	Test	Significant Effect	Little to No Effect	Moderate Effect	Little to No Effect	Little to No Effect	Little to No Effect	Decreased
2	Treatment 2	Test	Little to No Effect	Adverse Effect	Significant Effect	Little to No Effect	Moderate Effect	Little to No Effect	Does Not Change
3	Treatment 3	Test	Moderate Effect	Little to No Effect	Little to No Effect	Significant Effect	Little to No Effect	Little to No Effect	Does Not Change



# Residual Risk Score Calculation

Residual Score Data			Consequence Ratings						Likelihood Rating
Inherent Risk Score	Residual Risk Score		Service Disruption, Process Impact on Operations	Financial	Legal/ Compliance	Workforce	Reputation	Life Safety	Inherent Risk Rating:
120	48		Inherent Risk Rating: Medium	Inherent Risk Rating: Low	Inherent Risk Rating: Medium	Inherent Risk Rating: Low	Inherent Risk Rating: Low	Inherent Risk Rating: Medium	Inherent Risk Rating: Almost Certain
Mitigation Strategy Reference Number	Mitigation Strategy Title	Mitigation Strategy Description	Mitigation Strategy Rating (select)	Mitigation Strategy Rating (select)	Mitigation Strategy Rating (select)	Mitigation Strategy Rating (select)	Mitigation Strategy Rating (select)	Mitigation Strategy Rating (select)	Mitigation Strategy Likelihood Rating
1	Treatment 1	Test	1	2	1	0	1	3	3
2	Treatment 2	Test							
3	Treatment 3	Test							



# DEMO of Tool



# Using Information Generated Through the Tool

What the Tool Does	What the Tool Does Not Do
Documents risk mitigation strategies	Does not track key performance indicators
Provides transparency on risk mitigation strategies <ul style="list-style-type: none"><li>• Demonstrates progress on mitigating risk</li><li>• Depicts areas that may require additional attention</li></ul>	Does not define specific action items
Enables more robust discussions on risk and risk mitigation	
Generates Residual (Treated) Risk Score	Does not change the Inherent Risk Score



# Where We Are Now

- Pilot phase of implementation
  - Leverage ERM Working Group to create pilot groupings of stakeholders
  - Focused on top 10 risks
- Next steps
  - Implement with full ERM Working Group and risk mitigation contributors
  - Expand focus to all 30 risks on our system-wide FY22 Risk Registry
  - Provide visibility of progress in reducing risk exposure to leadership



# Conclusion and Take-Aways



# Conclusion and Take Aways

- Where possible, leverage your ERM Governance Structure on both risk assessment and risk mitigation assessment
- Aligning assessment of risk mitigation strategies to your risk assessment methodology allows for:
  - Streamlined assessment process
  - Clear visibility on progress
  - Transparency of risk mitigation strategies and their impact on risk exposure



Questions?



**Thank you for attending!**

