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MOVING BEYOND RISK ASSESSMENT: MEASURING THE EFFECTIVENESS OF RISK MITIGATION STRATEGIES

UNIVERSITY OF MASSACHUSETTS SYSTEMWIDE ENTERPRISE RISK MANAGEMENT PROGRAM

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AGENDA

- University of Massachusetts System Overview
- UMass Systemwide ERM Program Overview
- UMass ERM Risk Assessment Process and Systemwide Risk Registry
- Moving Beyond Risk Assessment
- Demo of Mitigation Assessment Tool
- Conclusion and Take Aways
- Questions

Please note: throughout presentation, all underlined text indicates there is a link to additional information

UNIVERSITY OF MASSACHUSETTS SYSTEM

University of Massachusetts System Overview

Five undergraduate & graduate campuses
- Medical School
- Law School
- 75,000 students
- 18,000 new graduates annually

- Third-largest research university in Massachusetts ($752M)
- Fourth-largest research university in New England

- Annual budget of $3.8B
- Responsible for $7.5 B in overall economic impact across Massachusetts

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

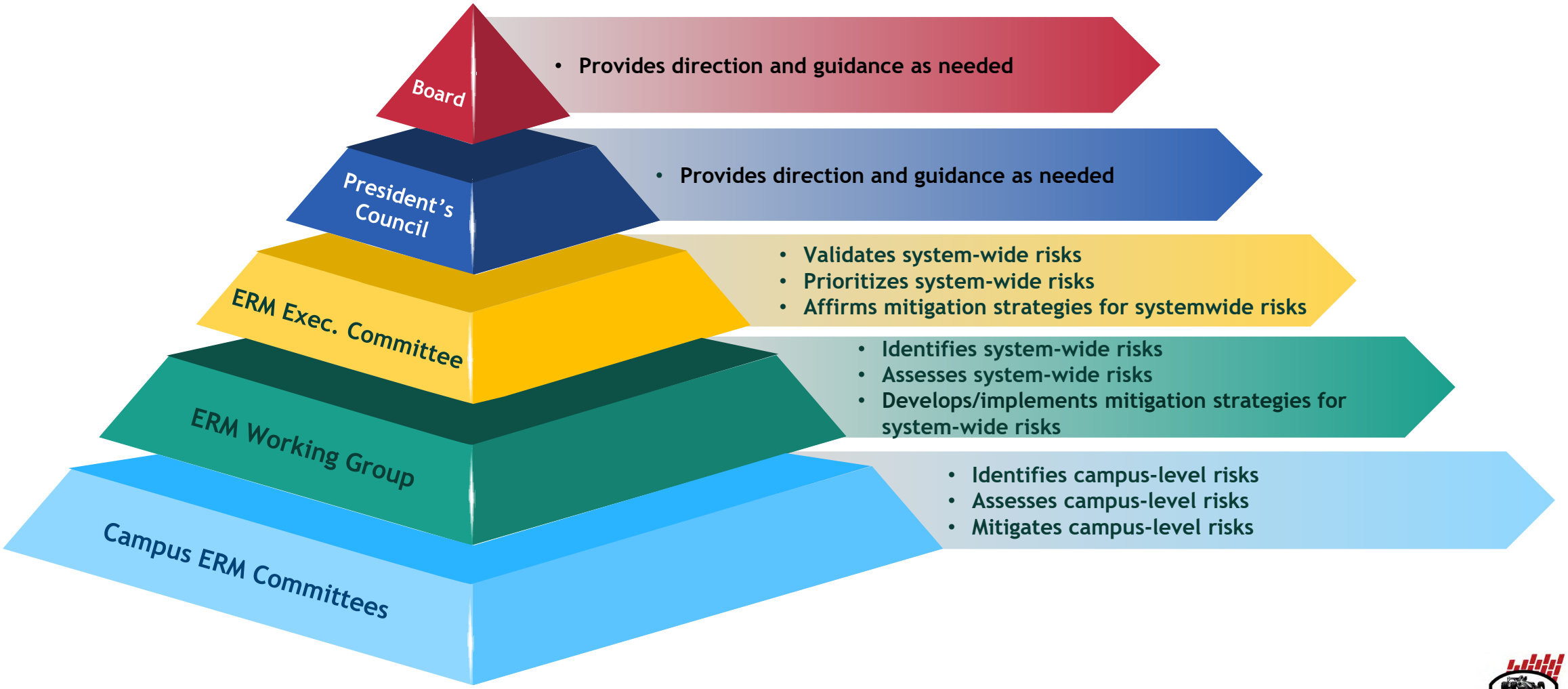
UNIVERSITY OF MASSACHUSETTS SYSTEMWIDE ENTERPRISE RISK MANAGEMENT PROGRAM

University of Massachusetts Systemwide Enterprise Risk Management Program

- Proactively identify risks ***across the University***
- Assess the potential *systemwide* impact of risks
- Prioritize risks across the University
- Document and assess mitigation strategies
- Monitor risks and risk mitigation actions
- Regularly report updates on program

Two-Year ERM Program Cycle

UMass ERM Governance Structure



UMASS ERM RISK ASSESSMENT PROCESS AND SYSTEMWIDE RISK REGISTRY

Risk Assessment Process

- Focused on systemwide impacts
- Evaluates *inherent* exposure of the University to the risk
  - Does *not* account for mitigation strategies
  - Generates an Inherent Risk Score for each risk
- Rates risks across three factors
  - Values are assigned to each rating
    - Likelihood: Could the University system experience this risk?
    - Consequence: How much would the University system be impacted by this risk?
      - Service/Operations Disruption
      - Financial
      - Legal/Compliance
      - Workforce
      - Reputation
      - Life Safety
    - Urgency: How soon does the University system need to prioritize this risk?

Risk Assessment Tool – Likelihood Factor

What is the likelihood the University system could experience this risk?

Assessor chooses from the most pertinent column

Rating	Description	OR	Probability of Occurrence	OR	Rate of Occurrence
4 Certain or Almost Certain	HIGH - Almost certain to occur, expected in most circumstances	OR	>75%	OR	more than 2x per year
3 Likely	MEDIUM HIGH - Likely to occur or will probably occur		50 to 75%		1-2x per year
2 Possible	MEDIUM - Possible, this could occur		25 to 50%		once every 2-5 years
1 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?

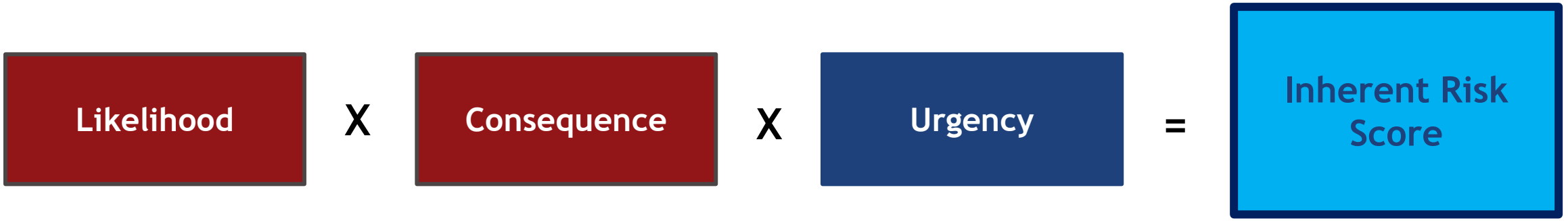
Rating	Service Disruption, Process Impact on Operations	Financial Impact	Legal / Compliance	Workforce	Reputation	Life Safety	Rating
4 High	Serious disruption to or failure of service ***AND/OR*** Significant impacts to more than two campus	State appropriation reduction of more than 15 percent ***AND/OR***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

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

Inherent Risk Score Calculation



- Assessed by ERM Working Group
- Assessed by ERM Executive Committee

FY2022 Systemwide Risk Registry

■ Priority Risks

Rank	Risk
1	Enrollment
2	Information Security
3	Financial Sustainability
4	Facilities and Deferred Maintenance
5	Student Health & Mental Health Support
6	Vendor Risk Management
7	Attract, Recruit, Retain Faculty and Staff
8	International Activities
9	Information Privacy
10	Diversity, Equity, Inclusion and Accessibility

Rank	Risk
11	All Hazards Planning & Response Capabilities
12	Multi-State Payroll Tax
13	Labor Relations
14	Data Management
15	Research
16	Multi-State Business Tax
17	Sexual Assault Policies & Response Procedures
18	IT Disaster Recovery
19	Continuity Planning
20	Environmental Health, Public Health, & Safety Regulations

Rank	Risk
21	Alcohol and Substance Abuse
22	Crisis Communications
23	Immigration Rules and Regulations
24	Fraud, Waste, and Abuse
25	Uninsured Loss
26	Employment Laws and Regulations
27	NCAA Regulations
28	Policies and Procedures Regarding Minors on Campus
29	Academic Quality and Standards
30	Oversight of Student Organizations

INDY RACE FOR RISK MANAGEMENT URMIA 2022
UMASS

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.

D

How effective are these strategies on reducing our risk exposure?

Goals

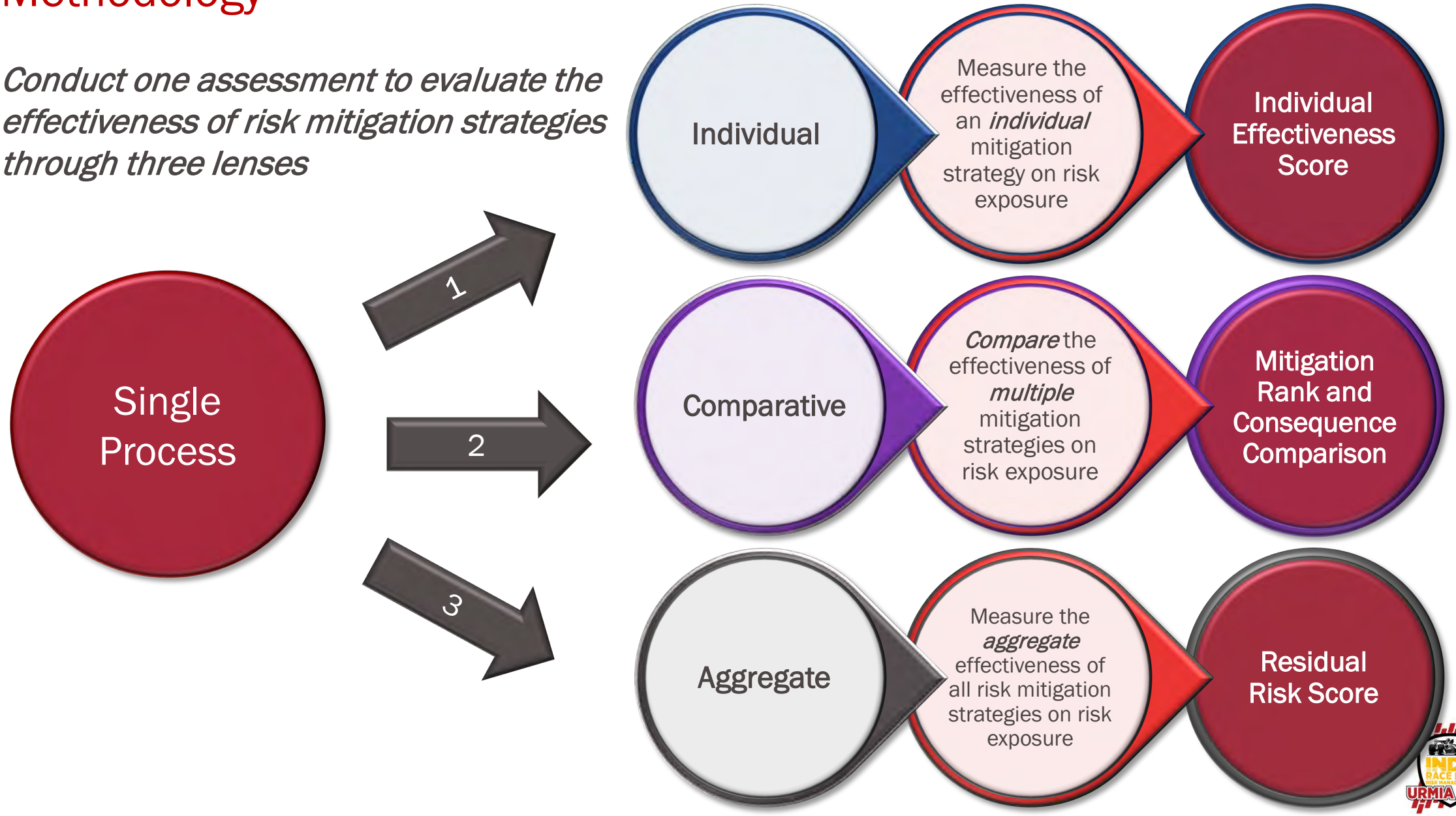
- Document risk mitigation strategies for transparency and common operating picture
- Demonstrate progress – or lack of progress - in reducing our risk exposure
- Correlate assessment of risk mitigation strategies to a risk's Inherent Risk Score
- Achieve all of this through a single, user-friendly process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

Conduct one assessment to evaluate the effectiveness of risk mitigation strategies through three lenses



MITIGATION ASSESSMENT TOOL OVERVIEW

Mitigation Strategy Assessment – Step 1: Data Capture

All data is created by risk partner/evaluator

Data Point	Input	Description
Title	Free Text	• Title of mitigation strategy being documented/assessed
Description	Free Text	• Brief description of mitigation strategy
Type	Dropdown Menu	• Operational (everyday or regularly occurring activity) • Project-based (initiative for project with finite timeframe)
Status	Dropdown Menu	• Proposed (not yet approved/funded) • Planning (approved/funded, but not yet implemented) • Ongoing • Complete

Screen Shot: Mitigation Strategy Assessment – Step 1

Mitigation Strategy Number	Mitigation Strategy Title	Mitigation Strategy Description	Mitigation Strategy Type	Mitigation Strategy Status
1	Strategy 1	Description for 1	Operational	Ongoing
2	Strategy 2	Description for 2	Project-Based	Planned
3	Strategy 3	Description for 3	Project-Based	Completed

Mitigation Strategy Assessment – Step 2: Evaluating Impact on Consequence

Evaluation

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

Rating Options

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

Screen Shot: Mitigation Strategy Assessment – Step 2

Mitigation Strategy Number	Mitigation Strategy Title	Mitigation Strategy Description	Mitigation Strategy Type	Mitigation Strategy Status
1	Strategy 1	Description for 1	Operational	Ongoing
2	Strategy 2	Description for 2	Project-Based	Planned
3	Strategy 3	Description for 3	Project-Based	Completed

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 Rating	Mitigation Strategy Rating	Mitigation Strategy Rating	Mitigation Strategy Rating	Mitigation Strategy Rating	Mitigation Strategy Rating
Significant Effect	Little to No Effect	Moderate Effect	Little to No Effect	Little to No Effect	Little to No Effect
Little to No Effect	Adverse Effect	Significant Effect	Little to No Effect	Moderate Effect	Little to No Effect
Moderate Effect	Little to No Effect	Little to No Effect	Significant Effect	Little to No Effect	Little to No Effect

Mitigation Strategy Assessment – Step 3: Evaluating Impact on Likelihood

Evaluation

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

Rating Options

Does or would this mitigation strategy impact the likelihood of this risk occurring?

Rating	Description
Decreases Likelihood	Mitigation strategy has decreased the likelihood that the risk will occur (made it better)
No Impact on Likelihood	Mitigation strategy has made no impact on the likelihood that the risk will occur (neutral)
Increases Likelihood	Mitigation strategy has increased the likelihood that the risk will occur (made it worse)

Screen Shot: Mitigation Strategy Assessment – Step 3

					Service Disruption, Process Impact on Operations			Reputation	Life Safety	Likelihood Rating
					Inherent Risk Rating: Medium	Inh	ating:	Inherent Risk Rating: Low	Inherent Risk Rating: Medium	Inherent Risk Rating: Likely
Mitigation Strategy Number	Mitigation Strategy Title	Mitigation Strategy Description	Mitigation Strategy Category	Mitigation Strategy Status	Mitigation Strategy Rating		on y	Mitigation Strategy Rating	Mitigation Strategy Rating	Mitigation Strategy Likelihood Rating
1	Strategy 1	Test	Operational	Ongoing	Significant Effect		No	Little to No Effect	Little to No Effect	Decreases
2	Strategy 2	Test	Project-Based	Planned	Little to No Effect	Ac	No	Moderate Effect	Little to No Effect	Increases
3	Strategy 3	Test	Project-Based	Completed	Moderate Effect		nt	Little to No Effect	Little to No Effect	Does Not Change

Likelihood Rating

Inherent Risk Rating: Likely

Mitigation Strategy Likelihood Rating

Decreases

Increases

Does Not Change

MITIGATION TOOL CALCULATIONS AND RESULTS

Values for Mitigation Consequence Ratings

Consequence rating values are ***assigned*** for each mitigation effectiveness rating

Mitigation Strategy Number	Mitigation Strategy Title	Mitigation Strategy Description	Mitigation Strategy Type	Mitigation Strategy Status
1	Strategy 1	Description for 1	Operational	Ongoing
2	Strategy 2	Description for 2	Project-Based	Planned
3	Strategy 3	Description for 3	Project-Based	Completed

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 Rating	Mitigation Strategy Rating	Mitigation Strategy Rating	Mitigation Strategy Rating	Mitigation Strategy Rating	Mitigation Strategy Rating
4	2	3	2	2	2
2	1	4	2	3	2
3	2	2	4	2	2

Values for Likelihood Rating

Likelihood rating values are ***assigned*** for each mitigation effectiveness rating

					Service Disruption, Process Impact on Operations			Reputation	Life Safety	Likelihood Rating
					Inherent Risk Rating: Medium	Inh	ating:	Inherent Risk Rating: Low	Inherent Risk Rating: Medium	Inherent Risk Rating: Likely
Mitigation Strategy Number	Mitigation Strategy Title	Mitigation Strategy Description	Mitigation Strategy Category	Mitigation Strategy Status	Mitigation Strategy Rating		on y	Mitigation Strategy Rating	Mitigation Strategy Rating	Mitigation Strategy Likelihood Rating
1	Strategy 1	Test	Operational	Ongoing	Significant Effect		No	Little to No Effect	Little to No Effect	Decreases
2	Strategy 2	Test	Project-Based	Planned	Little to No Effect	Ac	No	Moderate Effect	Little to No Effect	Increases
3	Strategy 3	Test	Project-Based	Completed	Moderate Effect		nt	Little to No Effect	Little to No Effect	Does Not Change

Likelihood Rating

Inherent Risk Rating: Likely

Mitigation Strategy Likelihood Rating

3

1

2

Individual Effectiveness Score Calculation

Total of Consequence Values X **Likelihood Value** = **Individual Effectiveness Score**

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

Result 1: Individual Assessment/Individual Effectiveness Score

					Service Disruption, Process Impact on Operations			Likelihood Rating	
					Inherent Risk Rating: Medium		Inherent Risk Rating: Low	Inherent Risk Rating: Medium	Likely
Mitigation Strategy Number	Mitigation Strategy Title	Mitigation Strategy Description	Mitigation Strategy Category	Mitigation Strategy Status	Mitigation Strategy Rating	Individual Effectiveness Score	Mitigation Strategy Rating	Mitigation Strategy Rating	Mitigation Strategy Likelihood Rating	Individual Effectiveness Score
1	Treatment 1	Test	Operational	Ongoing	Significant Effect	45	Little to No Effect	Little to No Effect	Decreases	45
2	Treatment 2	Test	Project-Based	Planned	Little to No Effect	14	Moderate Effect	Little to No Effect	Increases	14
3	Treatment 3	Test	Project-Based	Completed	Moderate Effect	30	Little to No Effect	Little to No Effect	Does Not Change	30

Result #2: Comparative Assessment

- Mitigation Strategies are *ranked* based on Individual Effectiveness Score
- Effectiveness of mitigation strategies can be *compared* within each consequence category

Individual Mitigation Strategy Rank
1
3
2

					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	Inherent Risk Rating:: Likely		
Mitigation Strategy Number	Mitigation Strategy Title	Mitigation Strategy Description	Mitigation Strategy Category	Mitigation Strategy Status	Mitigation Strategy Rating	Mitigation Strategy Rating	Mitigation Strategy Rating	Mitigation Strategy Rating	Mitigation Strategy Rating	Mitigation Strategy Rating	Mitigation Strategy Likelihood Rating	Individual Effectiveness Score	Individual Mitigation Strategy Rank
1	Strategy 1	Test	Operational	Ongoing	Significant Effect	Little to No Effect	Moderate Effect	Little to No Effect	Little to No Effect	Little to No Effect	Decreases	45	1
2	Strategy 2	Test	Project-Based	Planned	Little to No Effect	Adverse Effect	Significant Effect	Little to No Effect	Moderate Effect	Little to No Effect	Increases	14	3
3	Strategy 3	Test	Project-Based	Completed	Moderate Effect	Little to No Effect	Little to No Effect	Significant Effect	Little to No Effect	Little to No Effect	Does Not Change	30	2

Residual Risk Score Approach

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

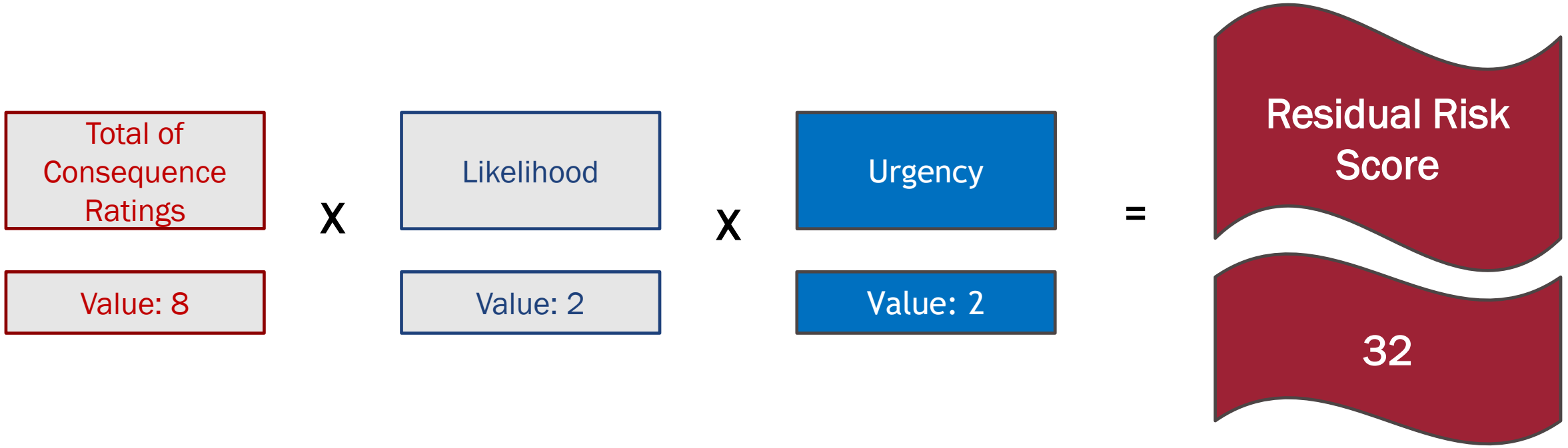
					Consequence Ratings						Likelihood Rating
					Service Disruption, Process Impact on Operations	Financial	Legal/ Compliance	Workforce	Reputation	Life Safety	
					Inherent Risk Rating: Medium	Inherent Risk Rating: Low	Inherent Risk Rating: Medium	Inherent Risk Rating: Low	Inherent Risk Rating: Low	Inherent Risk Rating: Medium	Inherent Risk Rating: Likely
Mitigation Strategy Number	Mitigation Strategy Title	Mitigation Strategy Description	Mitigation Strategy Category	Mitigation Strategy Status	Mitigation Strategy Rating	Mitigation Strategy Rating	Mitigation Strategy Rating	Mitigation Strategy Rating	Mitigation Strategy Rating	Mitigation Strategy Rating	Mitigation Strategy Likelihood Rating
1	Strategy 1	Test	Operational	Ongoing	Significant Effect	Little to No Effect	Moderate Effect	Little to No Effect	Little to No Effect	Little to No Effect	Decreases
2	Strategy 2	Test	Project-Based	Planned	Little to No Effect	Adverse Effect	Significant Effect	Little to No Effect	Moderate Effect	Little to No Effect	Increases
3	Strategy 3	Test	Project-Based	Completed	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 Values

- Rating values are ***relative*** to the inherent rating values of the risk

					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	Inherent Risk Rating: Likely
Mitigation Strategy Number	Mitigation Strategy Title	Mitigation Strategy Description	Mitigation Strategy Category	Mitigation Strategy Status	Mitigation Strategy Rating	Mitigation Strategy Rating	Mitigation Strategy Rating	Mitigation Strategy Rating	Mitigation Strategy Rating	Mitigation Strategy Rating	Mitigation Strategy Likelihood Rating
1	Strategy 1	Test	Operational	Ongoing	1		2		2		2
2	Strategy 2	Test	Project-Based	Planned							
3	Strategy 3	Test	Project-Based	Completed		2		0		3	

Residual Risk Score Calculation



The *lower* the Residual Risk Score is,
the more effective the mitigation strategies are.

Result 3: Residual Risk Score

Inherent Risk Score	Residual Risk Score
96	32

DEMO OF MITIGATION ASSESSMENT TOOL

What the Assessment Does and Does Not Tell Us

Mitigation Assessment Program provides leadership with information to inform discussion about whether to accept the residual risk or take addition actions to avoid, transfer, or further reduce risk.

Yes	No
Provides transparency on risk mitigation strategies	Does not track key performance indicators
Demonstrates progress on mitigating risk or depicts areas that may require additional attention	• Does not define risk tolerance • Scores do not determine adequacy/satisfaction with addressing risk
Enables more robust discussions on risk and risk mitigation	Does not define specific follow-on actions needed
Residual Risk Score • Shows movement in addressing risk • Serves as comparison to Inherent Risk Score	Residual Risk Score • Does not change Inherent Risk Score • Does not conclude satisfaction or dissatisfaction with addressing risk

SAMPLE RESULTS FROM PILOT

Snapshot of Sample Risk

Inherent Risk Score	Residual Risk Score
144	42

Mitigation Strategy Rank	Mitigation Strategy Title	Type	Status	Service Disruption	Financial	Legal/ Compliance	Workforce	Reputation	Life Safety	Likelihood
1	Sample Strategy 3	PB	ON							
	Sample Strategy 14	PB	CM							
2	Sample Strategy 4	OP	ON							
	Sample Strategy 15	OP	ON							
3	Sample Strategy 17	OP	ON							
	Sample Strategy 1	OP	ON							
	Sample Strategy 9	PB	CM							
	Sample Strategy 10	OP	ON							
	Sample Strategy 16	PB	ON							
4	Sample Strategy 2	OP	ON							
	Sample Strategy 8	OP	ON							
	Sample Strategy 18	OP	ON							
	Sample Strategy 6	OP	ON							
	Sample Strategy 7	OP	ON							
5	Sample Strategy 19	OP	ON							
6	Sample Strategy 5	OP	ON							
	Sample Strategy 11	OP	ON							
	Sample Strategy 13	PB	ON							
NA	Sample Strategy 12	PB	PR							

Key

Status	
Completed	CM
Ongoing	ON
Planned	PL
Proposed	PR

Type	
Operational	OP
Project-based	PB

Consequence Rating	
Significant Effect	
Moderate Effect	
Little to No Effect	
Adverse Effect	

Likelihood Rating	
Decreases	
Does Not Change	
Increases	

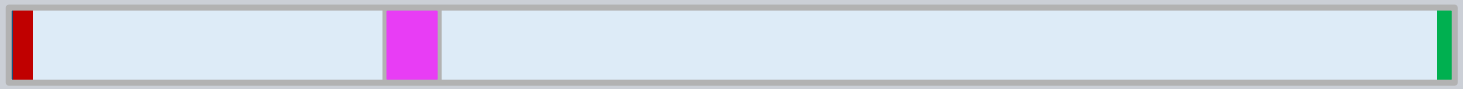
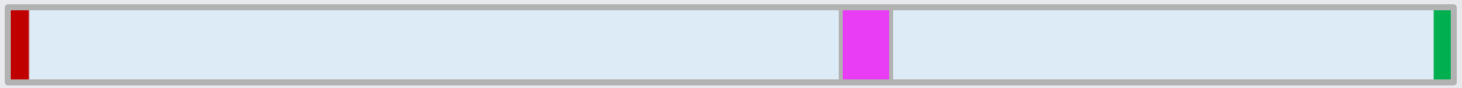
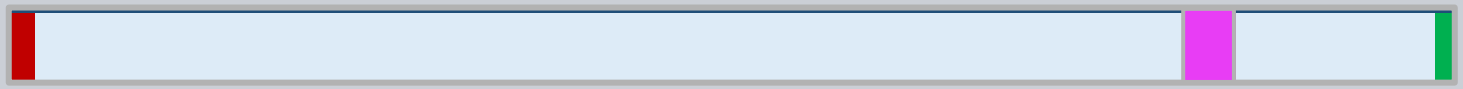
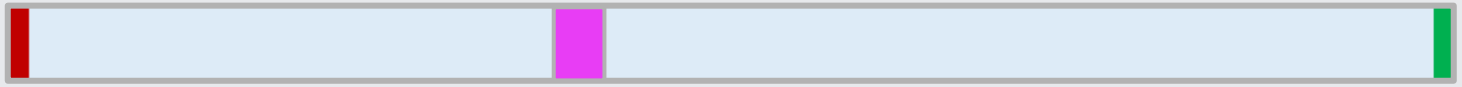
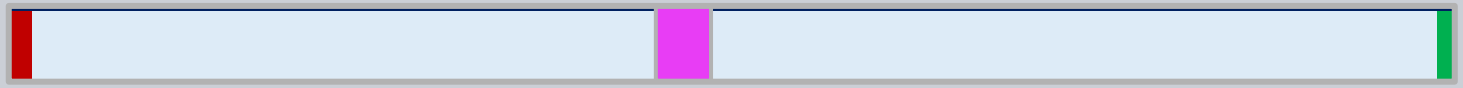
Sample – Movement in Risk Reduction

Sample data is not actual and is being shared for demonstration purposes only.

Inherent Risk Score

Residual Risk Score

Best Possible Residual Risk Score

FY22 Rank	Risk	Movement in Reducing Risk Exposure
1	Sample Risk 1	
2	Sample Risk 2	
3	Sample Risk 3	
4	Sample Risk 4	
5	Sample Risk 5	

Where We Are Now

- Rolling out across the system
  - Focusing on Top 10 Risks
- Present update to Board of Trustees in December 2022

CONCLUSION AND TAKE-AWAYS

LET'S REVIEW

- Aligning assessment of risk mitigation strategies to your risk assessment methodology allows for:
  - Streamlined assessment process
  - Clear visibility on progress in relationship to risk exposure
  - Transparency of risk mitigation strategies and their impact on risk exposure

QUESTIONS?

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