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

University of Massachusetts Systemwide Enterprise Risk Management Program
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Agenda

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

- UMASS System Overview

- UMASS Systemwide ERM Program Overview

- UMASS ERM Risk Assessment Process and Systemwide Risk Registry

- Moving Beyond Risk Assessment
  - MATRX Overview
  - Mitigation Assessment Values and Calculations
  - Results
  - Demo
  - Stakeholder Engagement
  - Results from Pilot

- Conclusion and Take Aways

- Questions

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Overview of the University of Massachusetts System

UMASS System Overview

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

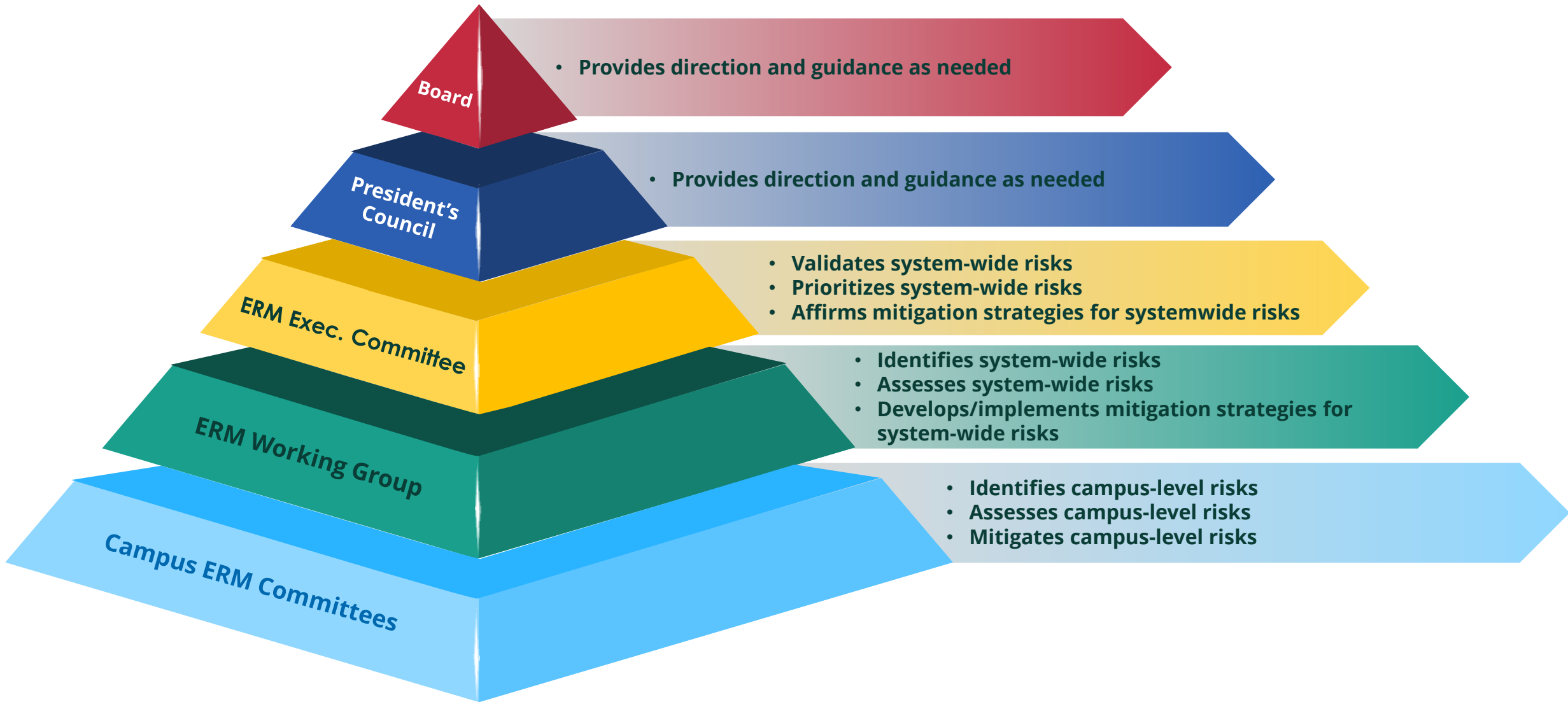- **Third-largest research university in Massachusetts ($813M)**
- **Fourth-largest research university in New England**

- **Annual budget of $4.1B**
- **Responsible for $7.5 B in overall economic impact across Massachusetts**

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

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Systemwide Enterprise Risk Management Program

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ERM Governance Structure

- Board
  - Provides direction and guidance as needed

- President's Council
  - Provides direction and guidance as needed

- ERM Exec. Committee
  - Validates system-wide risks
  - Prioritizes system-wide risks
  - Affirms mitigation strategies for systemwide risks

- ERM Working Group
  - Identifies system-wide risks
  - Assesses system-wide risks
  - Develops/implements mitigation strategies for system-wide risks

- Campus ERM Committees
  - Identifies campus-level risks
  - Assesses campus-level risks
  - Mitigates campus-level risks

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Systemwide ERM Program Cycle

- 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

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How the Systemwide ERM Program Functions at UMass

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- **Identify and assess risks with systemwide implications**

- **Support informed decision-making**
  - **Transparency of information/activity**
  - **Normalized review/prioritization of risk**

- **Facilitate systemwide coordination on risk identification and assessment**

- **Assist in identifying risk owners**

- **Facilitate coordination of mitigation activities for crisis response**

- **Facilitate the assessment of effectiveness of mitigation activities on risk**

- **Own risk**

- **Own risk mitigation strategies**

- **Implement risk mitigation strategies**

- **Own compliance review or monitoring**

- **Own campus ERM programs or plans**

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Risk Assessment Process & Systemwide Risk Registry

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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
    - <u>Likelihood</u>: Could the University system experience this risk?
    - <u>Consequence</u>: How much would the University system be impacted by this risk?
      - Service/Operations Disruption
      - Financial
      - Legal/Compliance
      - Workforce
      - Reputation
      - Life Safety
    - <u>Urgency</u>: How soon does the University system need to prioritize this risk?

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Risk Assessment – Likelihood Factor

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

Risk partners 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		>75%		more than 2x per year
3 **Likely**	MEDIUM HIGH - Likely to occur or will probably occur	**OR**	50 to 75%	**OR**	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

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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

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Inherent Risk Score Calculation

| Likelihood | X | Consequence | X | Urgency | = | Inherent Risk Score |
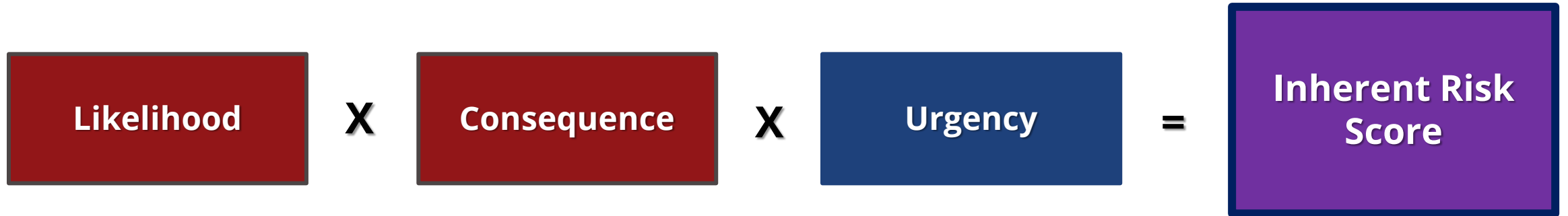
■ Assessed by ERM Working Group
■ Assessed by ERM Executive Committee

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FY2022 Systemwide Risk Registry

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

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Reality Sets In...
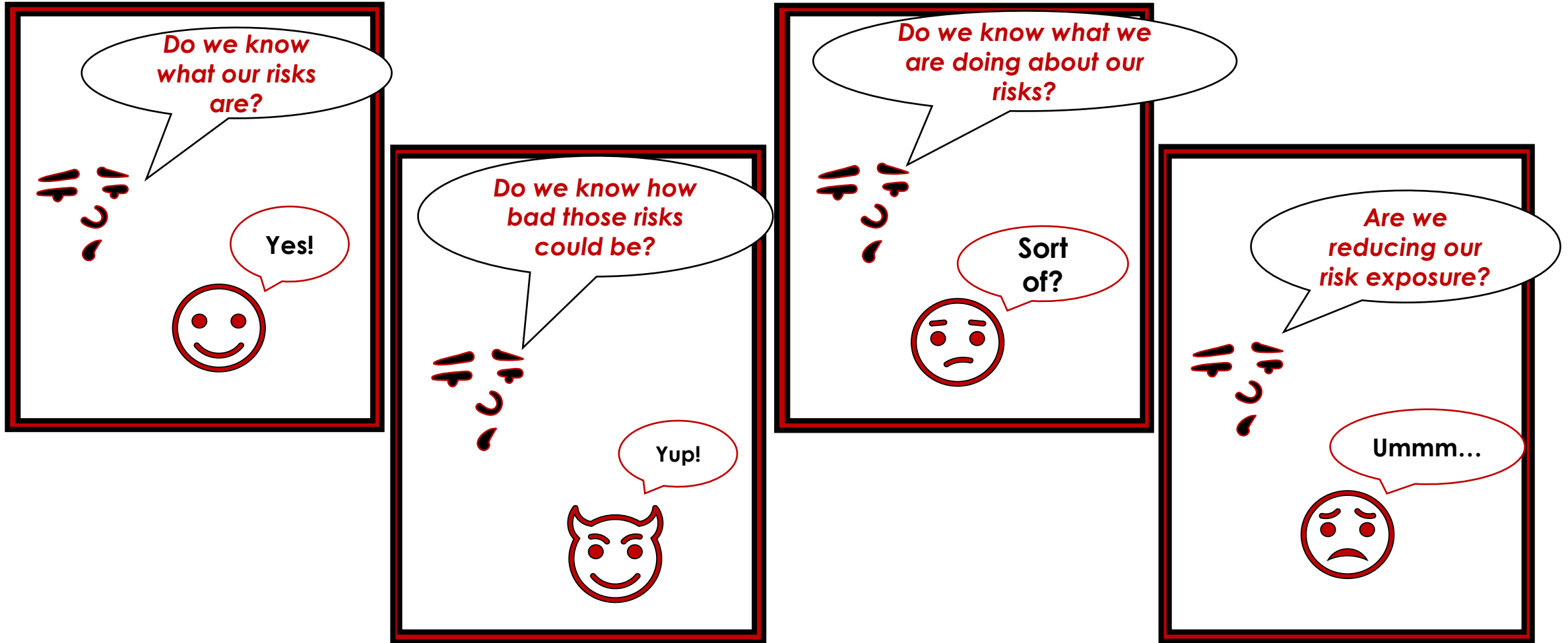
Moving Beyond Risk Assessment

Goals

- Document risk mitigation strategies for transparency and enhance our 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

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Approach
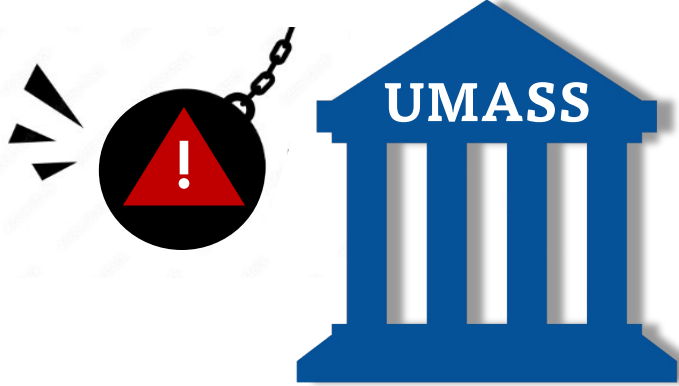
- Research publicly available tools

  - Few available

  - Existing tools involved two processes to assess the impact of mitigation on a 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

  - Created UMass Mitigation Assessment Tool for Reducing Risk Exposure (MATRX)

Overview

Mitigation Assessment Aligns with Risk Assessment

Factor	Risk Assessment Process *Evaluates impact of risk on the University*	Risk Mitigation Assessment Process *Evaluates impact of mitigation on risk exposure*
	UMASS	RISK MITIGATION
Consequence	Assesses impact a risk has on the University system across six risk exposure categories	Assesses how much the mitigation strategy reduces exposure across six categories of impact
Likelihood	Assesses the likelihood of the risk impacting the University system	Assesses whether the mitigation strategy influences the likelihood of the risk impacting the University
Urgency	Identifies how soon the University needs to prioritize the risk	

MATRX Follows a Three-Step Process

1 Capture Mitigation Strategy Data

2 Assess Impact of Mitigation Strategy on Risk's Consequence

3 Assess Impact of Mitigation Strategy on Risk's Likelihood

Step 1: Capturing Mitigation Strategy Data

All Data is provided by mitigation partner(s) conducting the assessment of the mitigation strategy.

Data Point		Description
Free-Form Text	**Title**	• Title of mitigation strategy being documented & assessed
	Description	• Brief description of mitigation strategy
Dropdown Menu	**Mitigation Type**	• Everyday|Operational (regularly occurring) activity • Project-based (initiative or time-bound) activity
	Mitigation Status	• Proposed (not yet approved or funded) • Planned (approved and funded, but not yet implemented) • Ongoing • Complete
	Implementation Level	• Fully: Mitigation strategy is fully implemented • Partially: Mitigation strategy is not yet implemented at full capacity • N/A: Not applicable or not yet implemented

Step 1: Capturing Mitigation Strategy Data

Enlarged Screenshot

Mitigation Strategy Number	Mitigation Strategy Title	Mitigation Strategy Description	Mitigation Strategy Type	Mitigation Strategy Status	Implementation Level
1	Strategy 1	Description	Operational	Ongoing	Partially
2	Strategy 2	Description	Project-Based	Planned	N/A
3	Strategy 3	Description	Project-Based	Completed	Fully
4	Strategy 4	Description	Project-Based	Proposed	N/A

Step 2: Assessing Mitigation Strategy's Impact on the Risk's Consequences

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

These consequence categories align with the consequence categories used in the risk assessment process.

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

Step 2: Assessing Mitigation Strategy's Impact on the Risk's Consequences

Enlarged Screenshot

						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: Negligible
Mitigation Strategy Number	**Mitigation Strategy Title**	**Mitigation Strategy Description**	**Mitigation Strategy Type**	**Mitigation Strategy Status**	**Implementation Level**	**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	Strategy 1	Description	Operational	Ongoing	Partially	Significant Effect	Little to No Effect	Moderate Effect	Little to No Effect	Little to No Effect	Little to No Effect
2	Strategy 2	Description	Project-Based	Planned	N/A	Little to No Effect	Adverse Effect	Significant Effect	Little to No Effect	Moderate Effect	Little to No Effect
3	Strategy 3	Description	Project-Based	Completed	Fully	Moderate Effect	Little to No Effect	Little to No Effect	Significant Effect	Little to No Effect	Little to No Effect
4	Strategy 4	Description	Project-Based	Proposed	N/A	Significant Effect	Little to No Effect	Little to No Effect	Little to No Effect	Moderate Effect	Little to No Effect

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Step 3: Assessing Mitigation Strategy's Impact on Risk's 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)

Step 3: Assessing Mitigation Strategy's Impact on the Risk's Likelihood
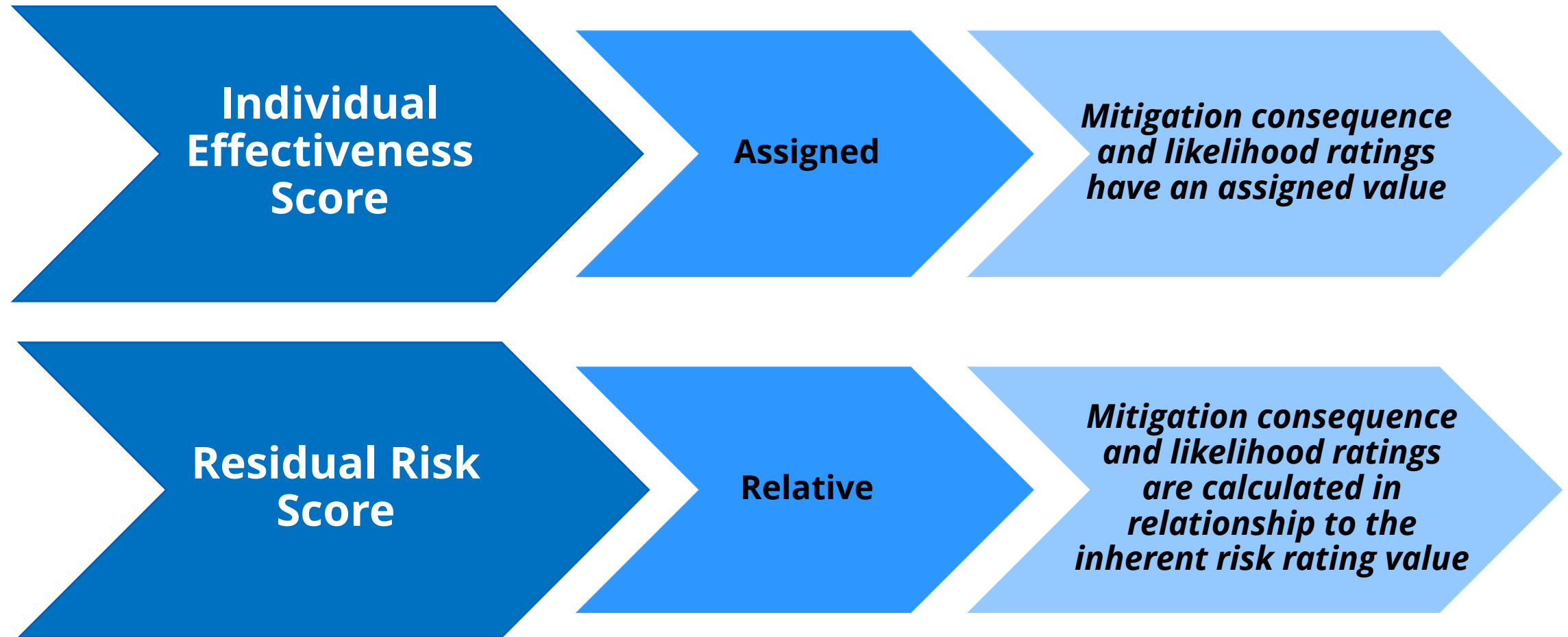## *Enlarged Screenshot*

Mitigation Strategy Number	Mitigation Strategy Title	Mitigation Strategy Description	Mitigation Strategy Type	Mitigation Strategy Status	Implementation Level	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: Negligible	Inherent Risk Rating: Likely
						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	Strategy 1	Description	Operational	Ongoing	Partially	Significant Effect	Little to No Effect	Moderate Effect	Little to No Effect	Little to No Effect	Little to No Effect	Decreases
2	Strategy 2	Description	Project-Based	Planned	N/A	Little to No Effect	Adverse Effect	Significant Effect	Little to No Effect	Moderate Effect	Little to No Effect	Increases
3	Strategy 3	Description	Project-Based	Completed	Fully	Moderate Effect	Little to No Effect	Little to No Effect	Significant Effect	Little to No Effect	Little to No Effect	Does Not Change
4	Strategy 4	Description	Project-Based	Proposed	N/A	Significant Effect	Little to No Effect	Little to No Effect	Little to No Effect	Moderate Effect	Little to No Effect	Does Not Change

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Mitigation Assessment Values and Calculations

Mitigation Assessment Values are Based on Rating and Type of Calculation

Individual Effectiveness Score → **Assigned** → *Mitigation consequence and likelihood ratings have an assigned value*

Residual Risk Score → **Relative** → *Mitigation consequence and likelihood ratings are calculated in relationship to the inherent risk rating value*

Mitigation Assessment Scoring is Impacted by Mitigation Strategy Status and Implementation Level

Mitigation Strategy Status → **Inclusion/ Exclusion** → *Mitigation strategy is included or excluded from IES, ranking and/or residual risk score calculations based on strategy status*

Implementation Level → **Weighted** → *Mitigation consequence ratings are weighted based on implementation level*
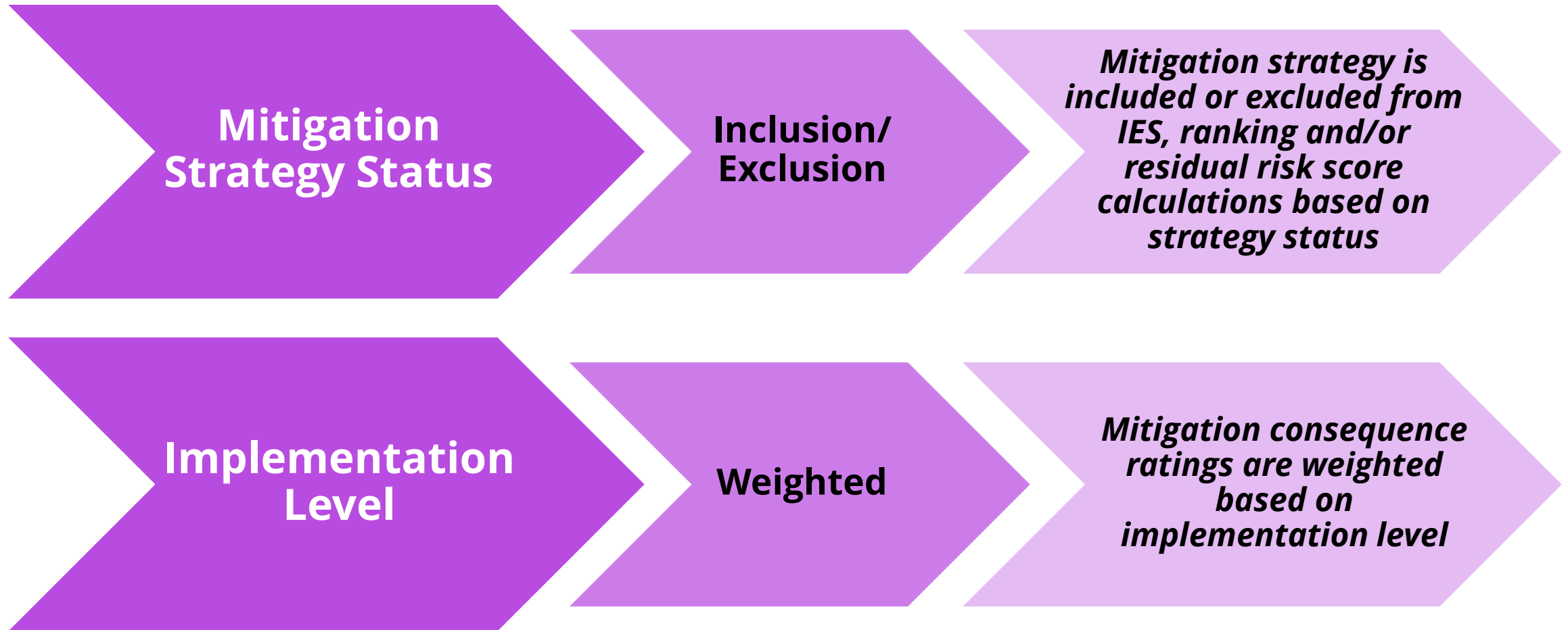
Mitigation Assessment Scoring is Impacted by Mitigation Strategy Status and Implementation Level

Mitigation Strategy Status

Mitigation Strategy Status	Is the Mitigation Strategy Included in the Calculation?		
	Individual Effectiveness Score (IES)	IES Rank	Residual Risk Score
Ongoing	Included	Included	Included
Completed	Included	Included	Included
Planned	Included	Included	Excluded
Proposed	Excluded	Excluded	Excluded

Implementation Level

Mitigation Implementation Level	Are the Mitigation Strategy Ratings Weighted?	
	Individual Effectiveness Score	Residual Risk Score
Fully	No	No
Partially	Yes	Yes
N/A	No	No

Results

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Result #1: Individual Effectiveness Score

Individual Assessment

The higher the score, the more effective the mitigation strategy

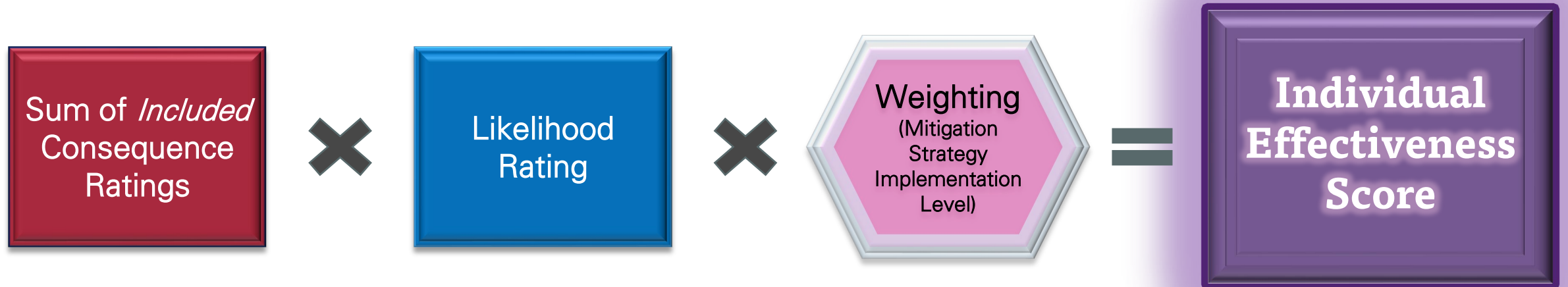|						Consequence Ratings						Likelihood Rating
						Service Disruption, Process Impact on Operations	Financial	Legal/ Compliance	Workforce	Reputation	Life Safety	
						Inherent Risk Rating: Medium	Inherent Risk Rating: Low	Inherent Risk Rating: Medium	Inherent Risk Rating: Low	Inherent Risk Rating: Low	Inherent Risk Rating: Medium	Inherent Risk Rating: Likely
Mitigation Strategy Number	Mitigation Strategy Title	Mitigation Strategy Description	Mitigation Strategy Type	Mitigation Strategy Status	Implementation Level	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	Individual Effectiveness Score
1	Strategy 1	Description	Operational	Ongoing	Partially	Significant Effect	Little to No Effect	Moderate Effect	Little to No Effect	Little to No Effect	Little to No Effect	Decreases	34
2	Strategy 2	Description	Project-Based	Planned	N/A	Little to No Effect	Adverse Effect	Significant Effect	Little to No Effect	Moderate Effect	Little to No Effect	Increases	14
3	Strategy 3	Description	Project-Based	Completed	Fully	Moderate Effect	Little to No Effect	Little to No Effect	Significant Effect	Little to No Effect	Little to No Effect	Does Not Change	30
4	Strategy 4	Description	Project-Based	Proposed	N/A	Significant Effect	Little to No Effect	Little to No Effect	Little to No Effect	Moderate Effect	Little to No Effect	Does Not Change	N/A

Result #1: Individual Effectiveness Score

Individual Assessment

Values are assigned based on rating

							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 Type	Mitigation Strategy Status	Implementation Level		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	Individual Effectiveness Score
1	Strategy 1	Description	Operational	Ongoing	Partially		4	2	3	2	2	2	3	34
2	Strategy 2	Description	Project-Based	Planned	N/A		2	1	4	2	3	2	1	14
3	Strategy 3	Description	Project-Based	Completed	Fully		3	2	2	4	2	2	2	30
4	Strategy 4	Description	Project-Based	Proposed	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Individual Effectiveness Score Calculation

- The Consequence Rating Values for Individual Effectiveness Score Calculations are a set value that are separate from the ratings from the Inherent Risk Score

- Each of the Consequence and Likelihood Ratings are multiplied by the Implementation Level before being multiplied and rounded to the nearest whole number for the Individual Effectiveness Score

Sum of *Included* Consequence Ratings **✕** Likelihood Rating **✕** Weighting (Mitigation Strategy Implementation Level) **=** **Individual Effectiveness Score**

Result #2A: Mitigation Strategy Rank

Comparative Assessment

Mitigation strategies are ranked based on Individual Effectiveness Score

						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 Type	Mitigation Strategy Status	Implementation Level	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	Individual Effectiveness Score	Individual Mitigation Strategy Rank
1	Strategy 1	Description	Operational	Ongoing	Partially	Significant Effect	Little to No Effect	Moderate Effect	Little to No Effect	Little to No Effect	Little to No Effect	Decreases	34	1
2	Strategy 2	Description	Project-Based	Planned	N/A	Little to No Effect	Adverse Effect	Significant Effect	Little to No Effect	Moderate Effect	Little to No Effect	Increases	14	3
3	Strategy 3	Description	Project-Based	Completed	Fully	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
4	Strategy 4	Description	Project-Based	Proposed	N/A	Significant Effect	Little to No Effect	Little to No Effect	Little to No Effect	Moderate Effect	Little to No Effect	Does Not Change	N/A	N/A

Result #2B: Consequence Category Comparison

Comparative Assessment

Effectiveness of mitigation strategies can be compared within each consequence category

Mitigation Strategy Number	Mitigation Strategy Title	Mitigation Strategy Description	Mitigation Strategy Type	Mitigation Strategy Status	Implementation Level	Consequence Ratings						Likelihood Rating	Individual Effectiveness Score	Individual Mitigation Strategy Rank
						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 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	Individual Effectiveness Score	Individual Mitigation Strategy Rank
1	Strategy 1	Description	Operational	Ongoing	Partially	Significant Effect	Little to No Effect	Moderate Effect	Little to No Effect	Little to No Effect	Little to No Effect	Decreases	34	1
2	Strategy 2	Description	Project-Based	Planned	N/A	Little to No Effect	Adverse Effect	Significant Effect	Little to No Effect	Moderate Effect	Little to No Effect	Increases	14	3
3	Strategy 3	Description	Project-Based	Completed	Fully	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
4	Strategy 4	Description	Project-Based	Proposed	N/A	Significant Effect	Little to No Effect	Little to No Effect	Little to No Effect	Moderate Effect	Little to No Effect	Does Not Change	N/A	N/A

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Result #3: Residual Risk Score

The lower the score, the more effective the mitigation strategies are collectively

Aggregate Assessment

Consequence Ratings

	Inherent Risk Score	Residual Risk Score
	90	75

							Likelihood Rating
Service Disruption, Process Impact on Operations	F...						
Inherent Risk Rating: Medium	Inh...						Inherent Risk Rating: Likely

Mitigation Strategy Number	Mitigation Strategy Title	Mitigation Strategy Description	Mitigation Strategy Type	Mitigation Strategy Status	Implementation Level	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	Strategy 1	Description	Operational	Ongoing	Partially	Significant Effect	Little to No Effect	Moderate Effect	Little to No Effect	Little to No Effect	Little to No Effect	Decreases
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3	Strategy 3	Description	Project-Based	Completed	Fully	Moderate Effect	Little to No Effect	Little to No Effect	Significant Effect	Little to No Effect	Little to No Effect	Does Not Change
4	Strategy 4	Description	Project-Based	Proposed	N/A	Significant Effect	Little to No Effect	Little to No Effect	Little to No Effect	Moderate Effect	Little to No Effect	Does Not Change
						Average	Average	Average	Average	Average	Average	Average

Result #3: Residual Risk Score

Aggregate Assessment

Values are relative to the inherent risk ratings

	Inherent Risk Score	Residual Risk Score
	90	75

Consequence Ratings

Mitigation Strategy Number	Mitigation Strategy Title	Mitigation Strategy Description	Mitigation Strategy Type	Mitigation Strategy Status	Implementation Level	Service Disruption, Process Impact on Operations — Inherent Risk Rating: Medium — Mitigation Strategy Rating (Select)	Fi... Inh... Mitigation Strategy Rating (Select)	Mitigation Strategy Rating (Select)	Mitigation Strategy Rating (Select)	Mitigation Strategy Rating (Select)	Mitigation Strategy Rating (Select)	Likelihood Rating — Inherent Risk Rating: Likely — Mitigation Strategy Likelihood Rating
1	Strategy 1	Description	Operational	Ongoing	Partially	Significant Effect	Little to No Effect	Moderate Effect	Little to No Effect	Little to No Effect	Little to No Effect	Decreases
2	Strategy 2	Description	Project-Based	Planned	N/A	Little to No Effect	Adverse Effect	Significant Effect	Little to No Effect	Moderate Effect	Little to No Effect	Increases
3	Strategy 3	Description	Project-Based	Completed	Fully	Moderate Effect	Little to No Effect	Little to No Effect	Significant Effect	Little to No Effect	Little to No Effect	Does Not Change
4	Strategy 4	Description	Project-Based	Proposed	N/A	Significant Effect	Little to No Effect	Little to No Effect	Little to No Effect	Moderate Effect	Little to No Effect	Does Not Change
						Average	Average	Average	Average	Average	Average	Average

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Residual Risk Score Calculation

- The Mitigation values for each consequence rating are relative to the inherent consequence rating

- The inherent Urgency Value is used for the calculation

- Each of the Consequence and Likelihood Rating are multiplied by the Implementation Level

| Sum of *Averaged Included* Consequence Ratings | ✖ | *Averaged* Likelihood Rating | ✖ | Inherent Urgency Rating | ✖ | Weighting (Mitigation Strategy Implementation Level) | = | Residual Risk Score |

UMASS MATRX Demo

Stakeholder Engagement

Mitigation Assessment - Stakeholder Engagement Process

Outreach
ERM Program makes outreach to stakeholders (risk and/or mitigation partners)
- Leverage existing systemwide affinity groups where possible
- Coordinate with ERM governance members to identify stakeholder

Meeting
ERM Program convenes meeting with stakeholder(s)
- Include systemwide representation wherever possible
- Alternately, meet with stakeholders campus by campus

Identification
Stakeholder(s) identify mitigation strategies to be documented and assessed

Assessment
Stakeholder(s) assess mitigation strategies
- ERM facilitates and navigates tool

Compilation
ERM Program compiles resulting information
- Identify trends across individual campus assessments
- Share results with ERM governance members and stakeholders prior to leadership

ERM

Stakeholders

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Mitigation Assessment Program Data

🔒 Information Security

Preliminary Individual and Comparative Mitigation Strategy Assessment

# Strategies	17
Risk Mitigation Partners	• Campus Chief Information Security Officers • UITS

Individual Mitigation Effectiveness Scale

Effective   More Effective

Rank	Mitigation Title	Implementation Status
1	Incident Detection and Response	Fully
2	Attack Resistance	Fully
3	Communications Protection	Fully
3	Identity and Access Management	Fully
3	Vulnerability Management	Fully
4	Business Continuity/Disaster Recovery	Fully
4	Data Management	Fully
4	Data Theft Resistance	Fully
5	Data Loss Prevention	Fully
5	Network Protection	Fully
5	Third-Party Assessment	Fully
6	Administrative System Access	Fully
6	Managed Cloud Environments (Iaas)	Fully
6	Third Party Penetration Testing	Fully
6	Training/Awareness	Fully
7	Cyber Security Insurance	Fully
7	Optimization	Fully

Financial Sustainability

# Strategies	20
Risk Mitigation Partners	• UMPO A&F Team • Campus Budget Directors • Campus Controllers

Individual Mitigation Effectiveness Scale

Effective — More Effective

Rank	Mitigation Title	Implementation Status
1	State Financial Support	Fully
	State Funding of CBA Increases	Planned
2	Reporting: Q'ly Budget Projections & Annual Budget Reporting	Fully
	Reporting: Q'ly Capital Reporting & Biennial Capital Plan	Fully
3	Reaching/Maintaining 2% Operating Margin	Fully
	Cash Flow Modeling and Projections	Fully
	Reporting - Annual Five-Year Forecast Refresh	Fully
	Reserve Policy	Fully
	SPARC Dashboard	Fully
	UMass Global Financial Reporting	Fully
4	Maintaining Availability of Line of Credit	Fully
	Operating Cash Invested with Foundation	Fully
	Implementation of UMPlan for Annual Budgeting	Fully
	UMPlan - Financial Forecast Module	Fully
	UMPlan - Tuition Planning Module	Fully
5	Chart of Accounts Update	Partially
6	Compliance with Federal Grants	Fully
7	Monitoring Standard Metrics	Fully
	Adoption and Forecasting of Changes in GASB	Fully
	Appropriate Account Treatment for P3s	Fully

UMATRX

Movement in Reducing Risk Exposure

More → Possible Overall Range of Risk Exposure ← **Less**

Information Security

Financial Sustainability

Facilities and Deferred Maintenance

Vendor Risk Management

International Activities
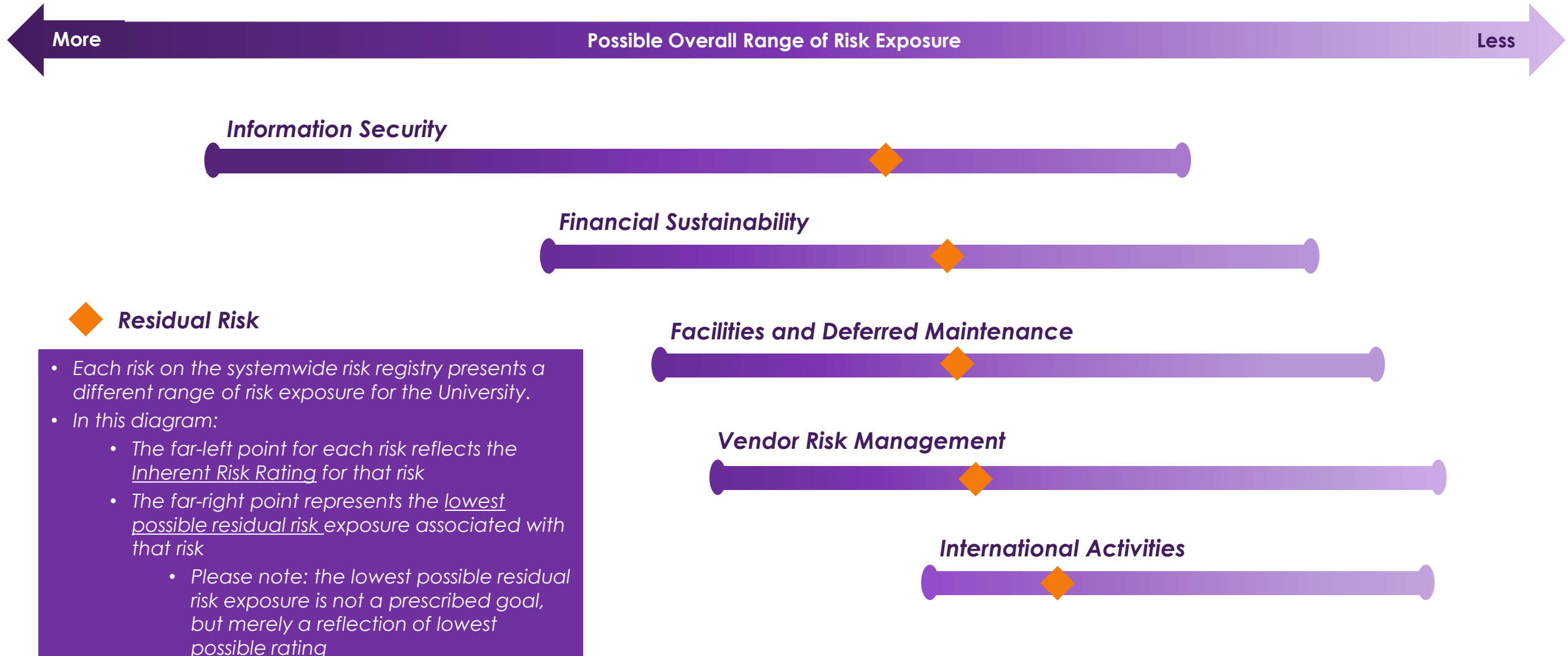
◆ **Residual Risk**

- Each risk on the systemwide risk registry presents a different range of risk exposure for the University.
- In this diagram:
  - The far-left point for each risk reflects the _Inherent Risk Rating_ for that risk
  - The far-right point represents the _lowest possible residual risk_ exposure associated with that risk
    - Please note: the lowest possible residual risk exposure is not a prescribed goal, but merely a reflection of lowest possible rating
  - The orange diamond reflects the current residual risk having accounted for existing mitigation strategies.

Conclusion and Take-Aways

MATRX: What It Does and Does Not Tell Us

MATRX provides leadership with information to inform discussion about whether to accept the residual risk or take additional actions to avoid, transfer or further reduce risk

Does

☑ Provides transparency on risk mitigation strategies

☑ Demonstrates progress on mitigating risk or depicts areas that may require additional attention

☑ Enables more robust discussions on risk and risk mitigation

☑ Demonstrates movement in addressing risk

Does Not

🚫 Does not track key performance indicators

🚫 Does not define risk tolerance

🚫 Does not define specific follow-on actions needed

🚫 Does not conclude satisfaction or dissatisfaction with status of addressing risk

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Impacts to Our ERM Program

Operationalization of Enterprise Risk Management
- Developing a risk informed culture
- ERM as a resource for the University

Higher Program visibility to and buy-in from stakeholders
- Internal and External Stakeholders
- A resource for other ERM Programs to take lessons from

Comprehending the value of ERM

A more in-depth view on not only the risks, but what is being done about them, and how effective the mitigation strategies are

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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

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Questions?

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