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ALEXANDER  
HOLBURN

# BRIDGING CLIMATE, ASSETS, AND INSURANCE: ALIGNING DECISIONS FOR RESILIENT COMMUNITIES

**MIABC Conference 2026**

**Lachlan MacLean**, icInfrastructure

**Arnold Schwabe**, Asset Management BC

**Jeremy Poole**, Alexander Holburn Beaudin + Lang

9<sup>th</sup> April 2026



# Lachlan MacLean

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- Professional Engineer specializing in Asset Management and Energy strategy
- 15+ years of experience in both private and public organizations
- Manager of Asset Management & GIS for City of Yellowknife 2020-2022
  - **Passionate about training and building AM capacity**
- Committee Member - CSA TS-506: A climate risks-informed approach to asset management in Northern regions
- Currently based in Jasper, Alberta
  - **Lived through, and continue to live with, the impacts of 2023 Wildfire**



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*Lachlan I MacLean*

# Arnold Schwabe - Executive Director, AMBC

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- 30+ years of experience in private sector and different levels of government, including 15+ years in local government in BC
- Past experience in local government as manager of: IT, GIS, Operations, Asset Management, and Strategic Initiatives
- Work with UBCM and partners to coordinate programs and training for AMBC



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# Jeremy Poole - Partner, Alexander Holburn Beaudin + Lang LLP

- Leader of the Local Government Liability practice at Alexander Holburn LLP
- Has been defending British Columbia municipalities in civil actions for over 25 years in both the BC Supreme Court and the BC Court of Appeal.
- Has been involved in cases involving all aspects of municipal operations
- Currently representing a British Columbia local government that is a defendant in a class action lawsuit relating to the alleged migration of PFAS contaminated groundwater.



*jpoole@AHBL.CA*



# Our Agenda

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- ◆ Big Picture – Sustainable Services
- ◆ Asset Management and Risk Management
- ◆ Climate Action and Risk Management
- ◆ The Tools of Risk Management
- ◆ Legal Insight on Municipal Risk and Treatment
- ◆ The Role of Insurance in Risk Management
- ◆ AMBC Training Resources

Copy of slides available MIABC

# First the Basics

Assets

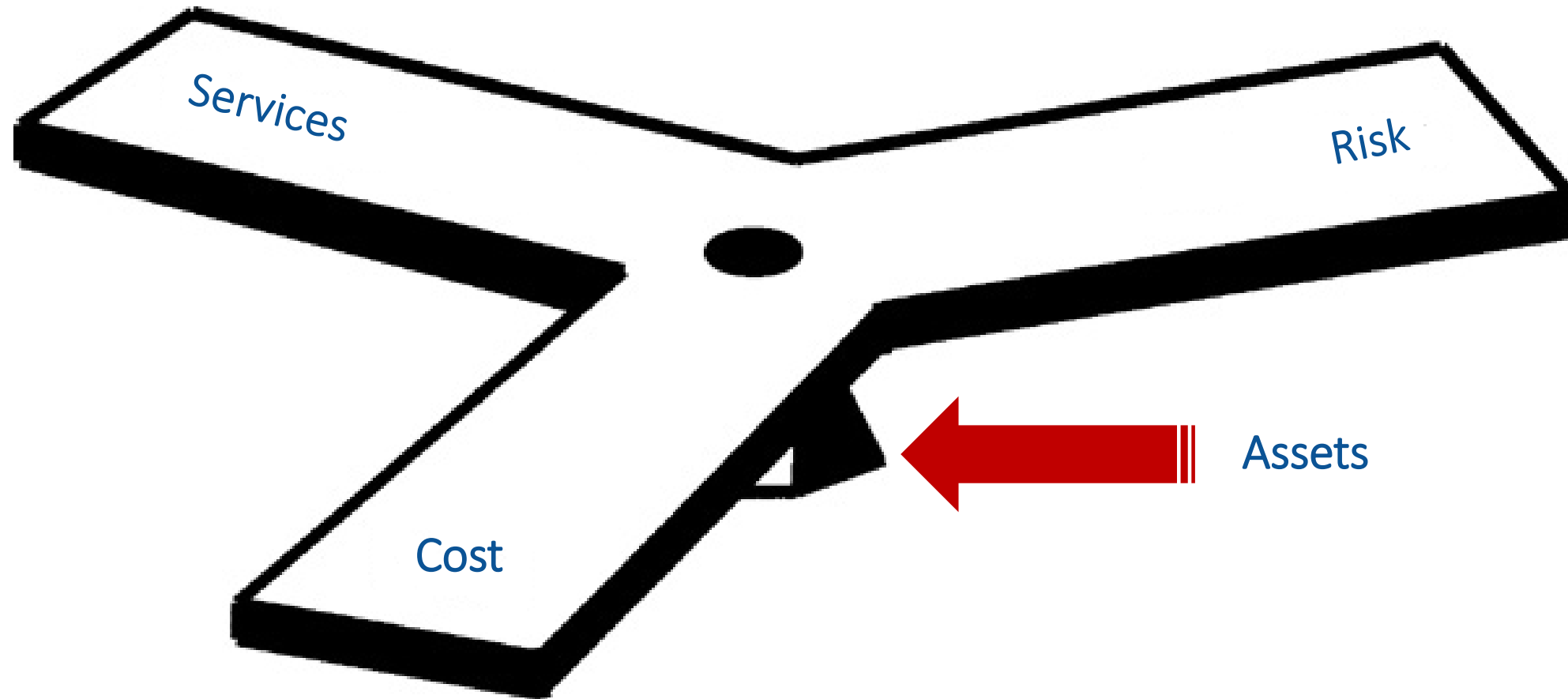


Services

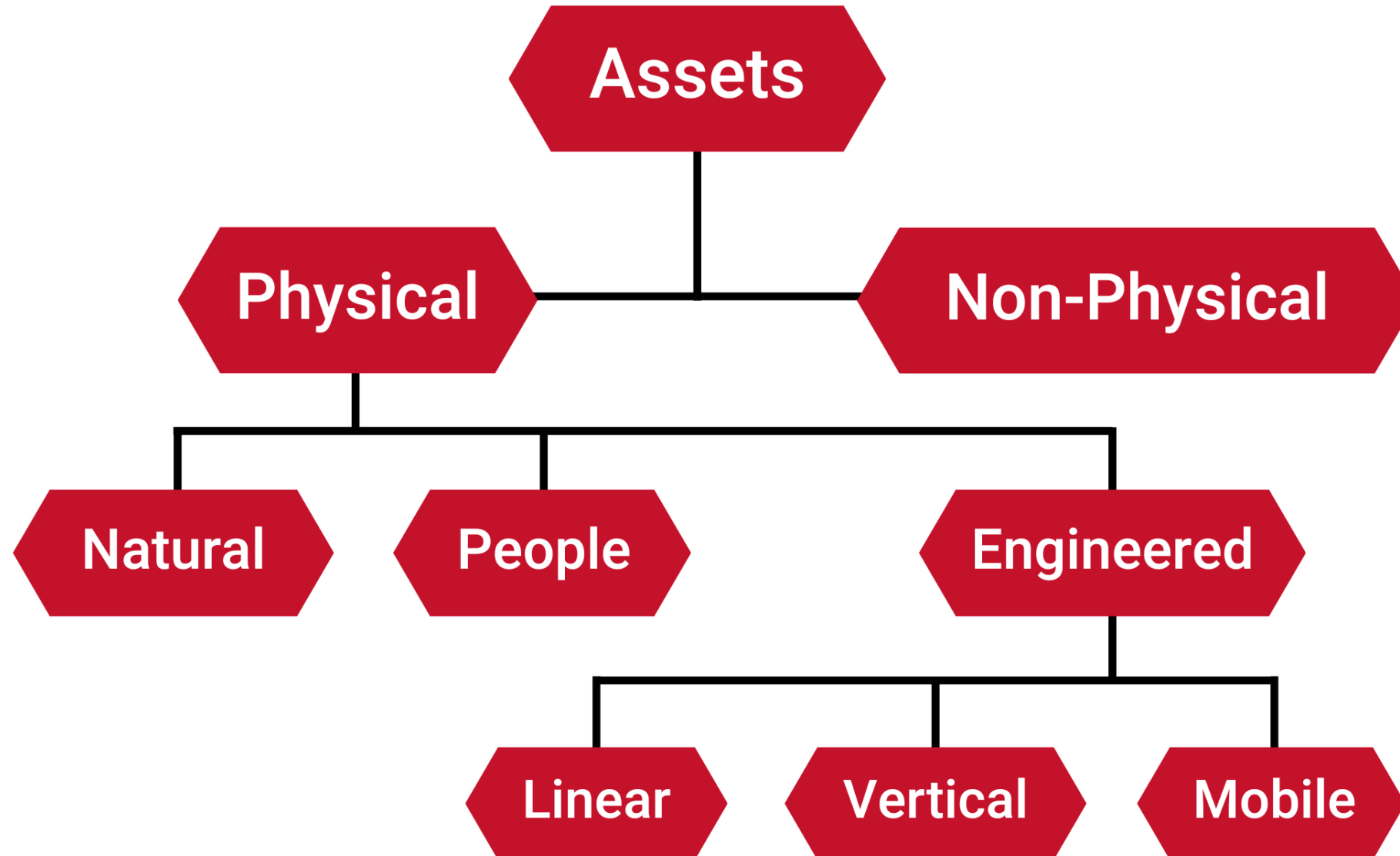


Quality of Life

# Sustainable Service Delivery



# What are Assets?



**“The coordinated activity of an organization to realize value from assets”**



# Perfect Storm



◆ Aging Infrastructure



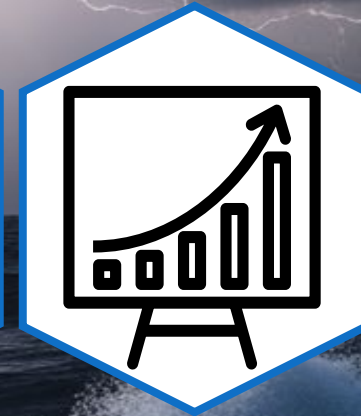
◆ Funding



◆ Staffing



◆ Community Expectations



◆ Population Change



◆ Climate Change



# UNDERSTANDING RISK

# Risk

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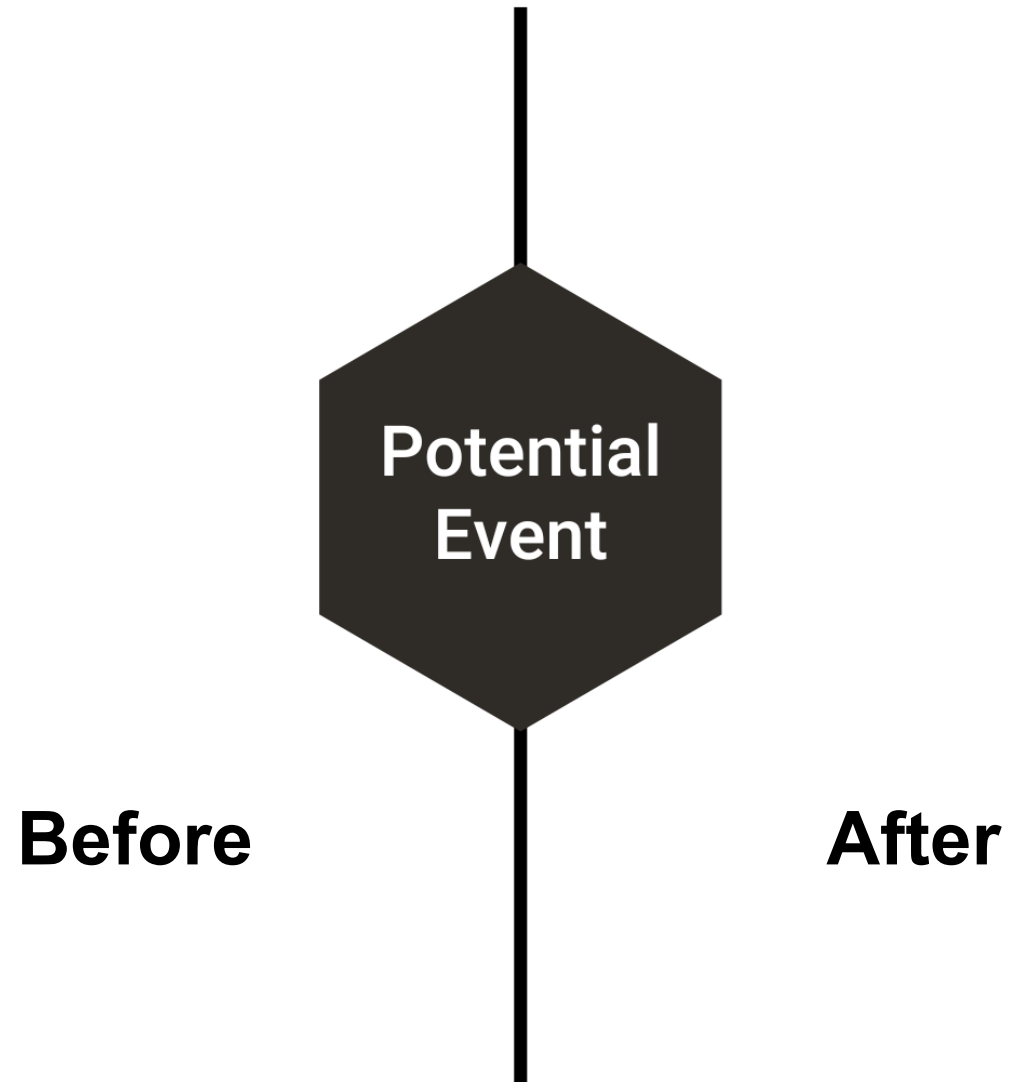
**“The effect of uncertainty on goals and objectives,  
whether positive or negative”**

**Purpose = “The creation and protection of value”**

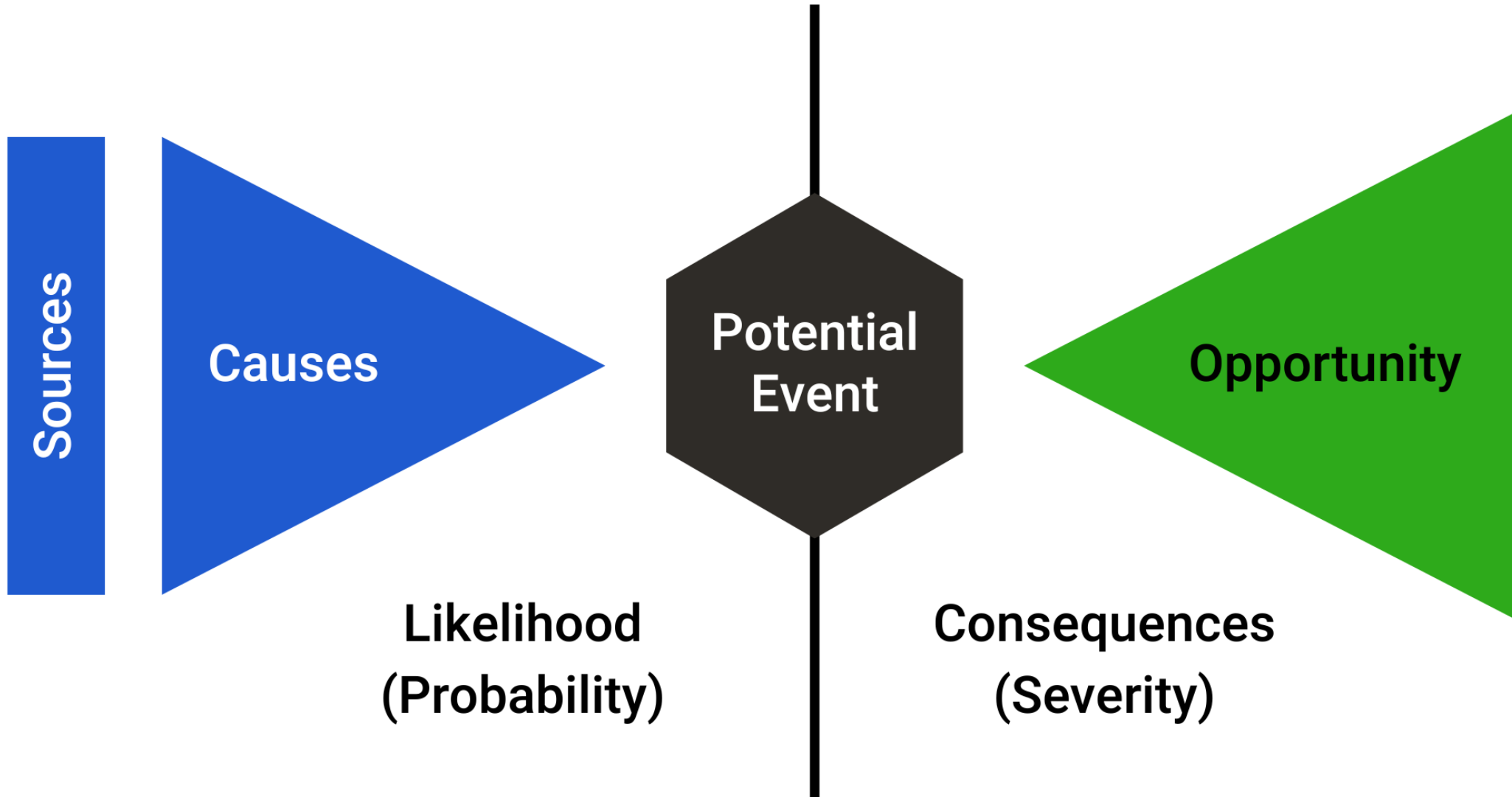


# Risk Terms

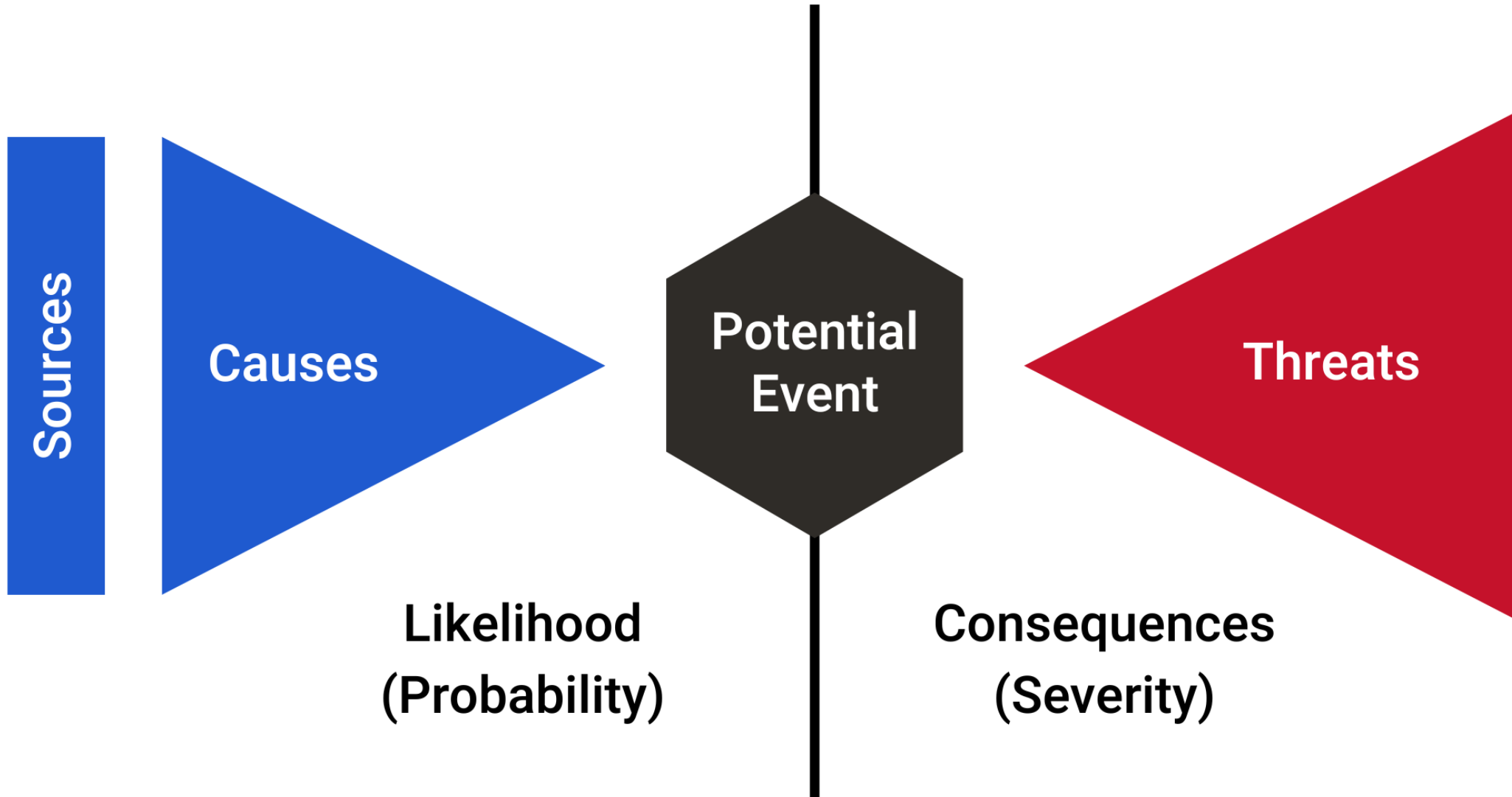
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# Risk Terms



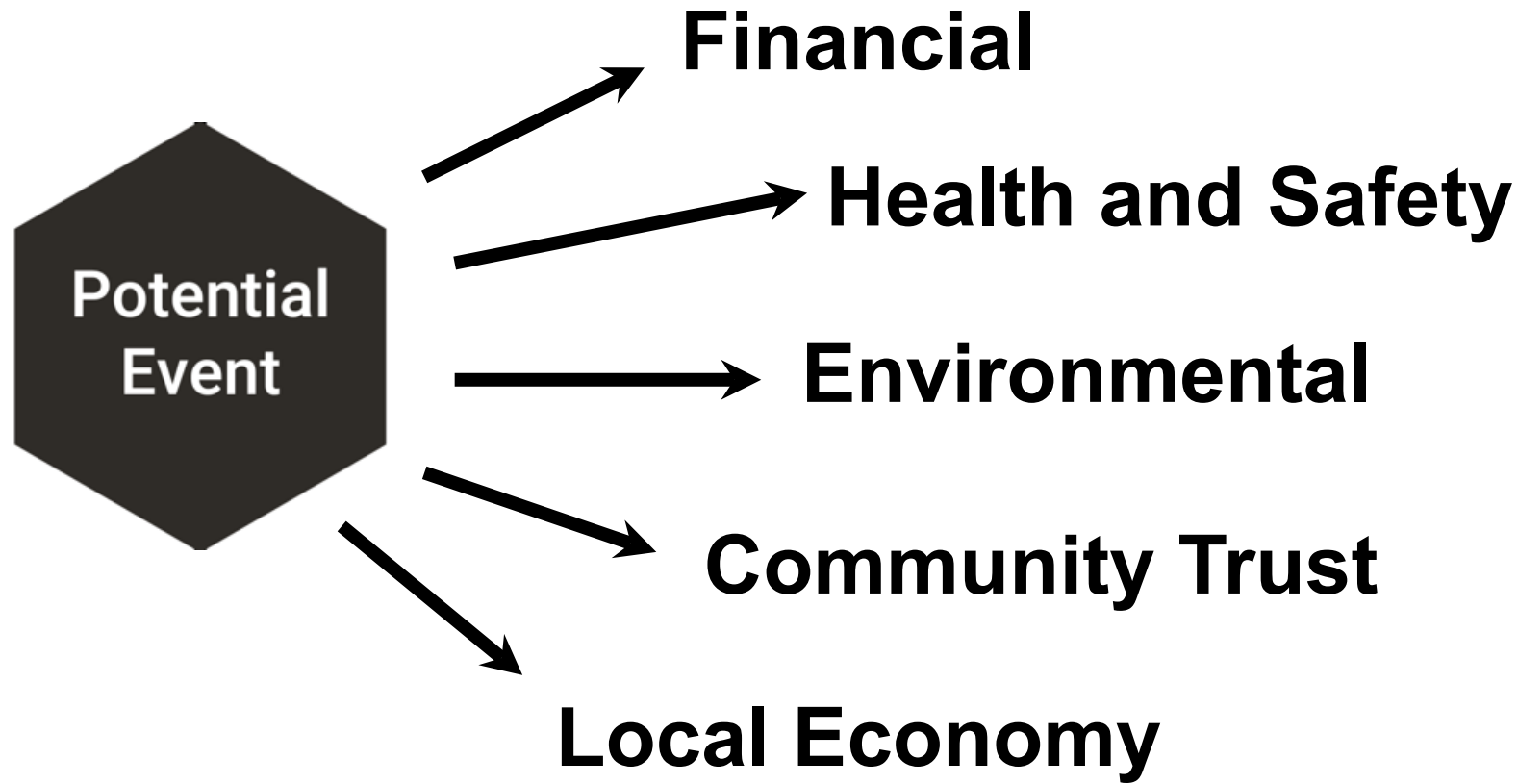
# Risk Terms



**“The effect of uncertainty on goals and objectives, whether positive or negative”**

**Risk = Likelihood & Consequences**

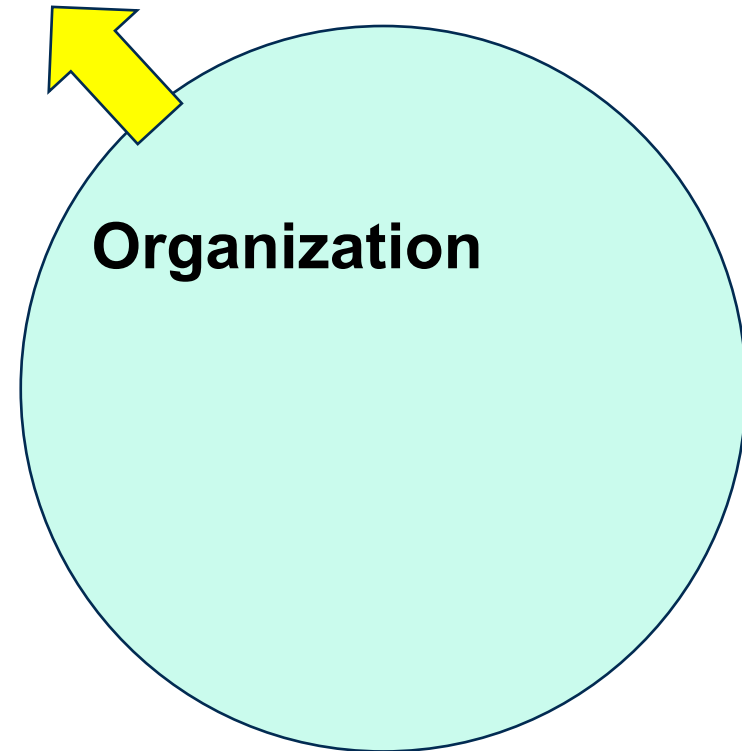
# Consequence Types



# Risk Categories



## Goals and Objectives

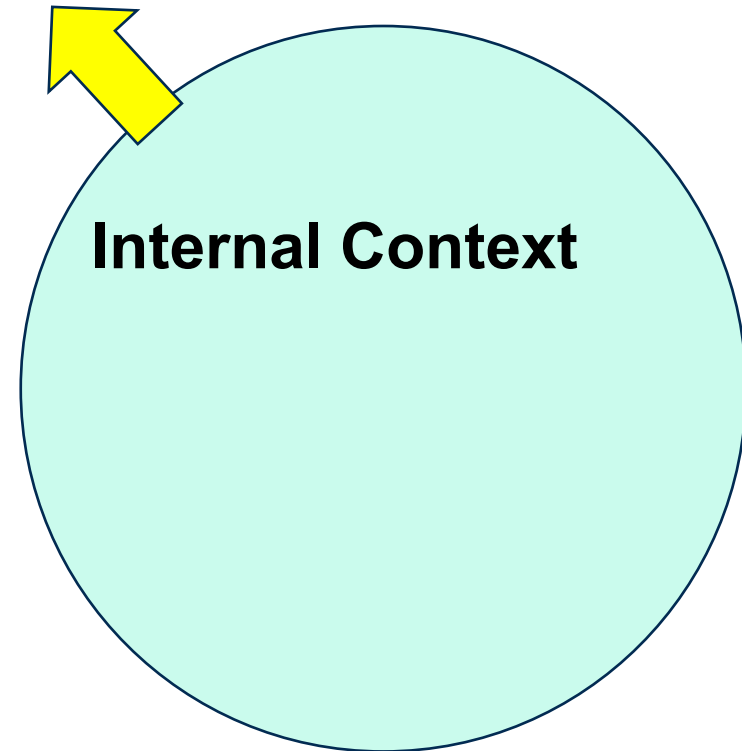


# Risk Categories



**Goals and Objectives**

**External Context**



# Risk Categories



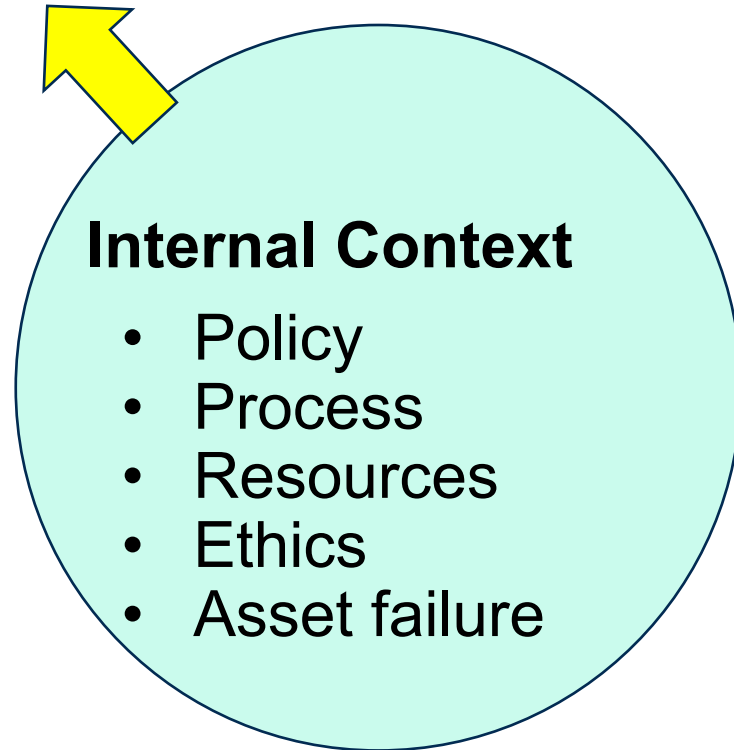
## Goals and Objectives

### External Context

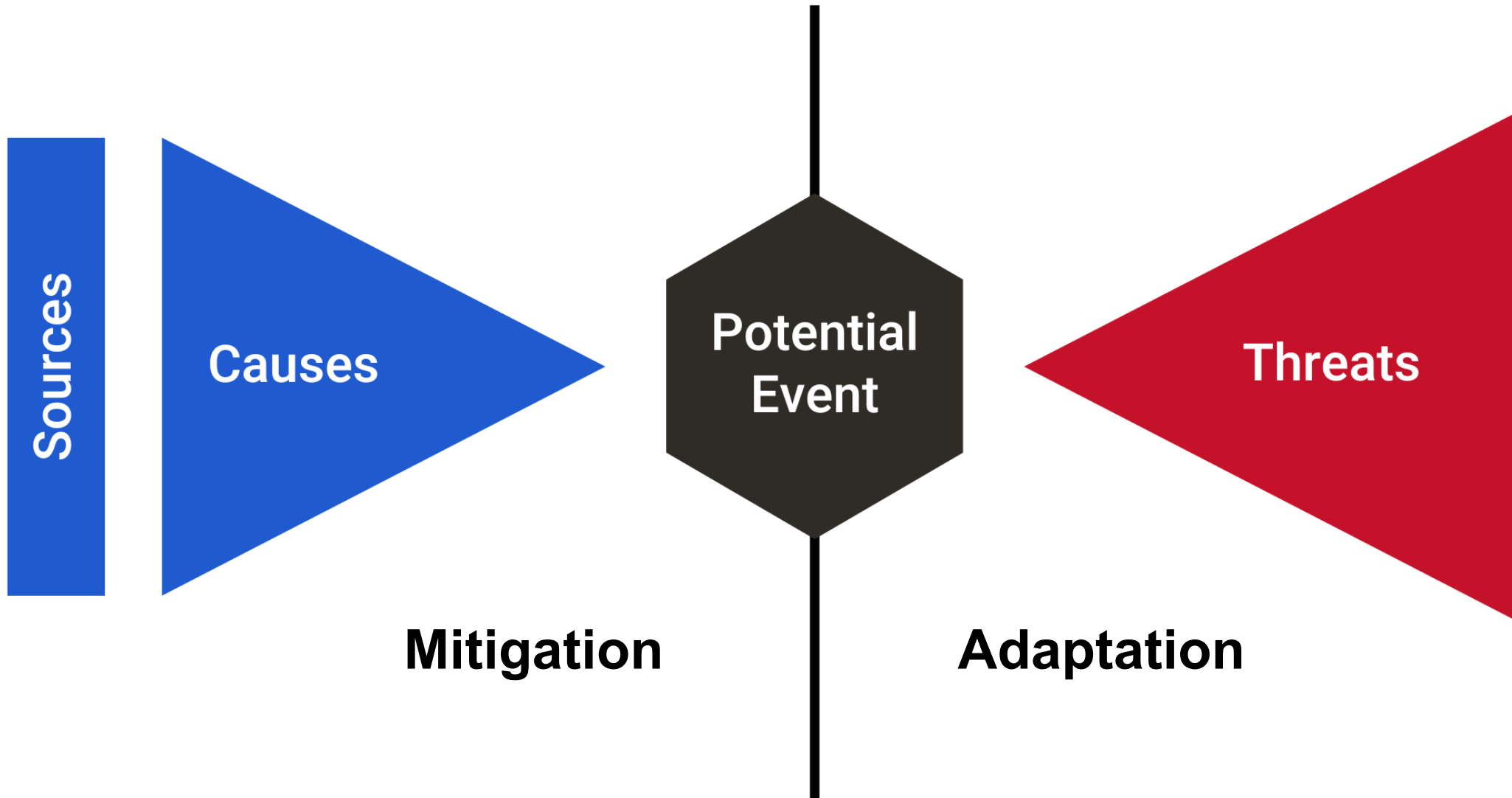
- Political
- Regulatory
- Economic
- Aggression
- Climate

### Internal Context

- Policy
- Process
- Resources
- Ethics
- Asset failure



# Climate Action is Risk Management



# Climate Action is Risk Management

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- ◆ Vulnerability – How susceptible something is to a particular source of risk
  
- ◆ Resilience – The ability to adapt and recover in a complex and changing environment

# Climate Action is Risk Management



Likelihood

**1-in-20-year rainfall**

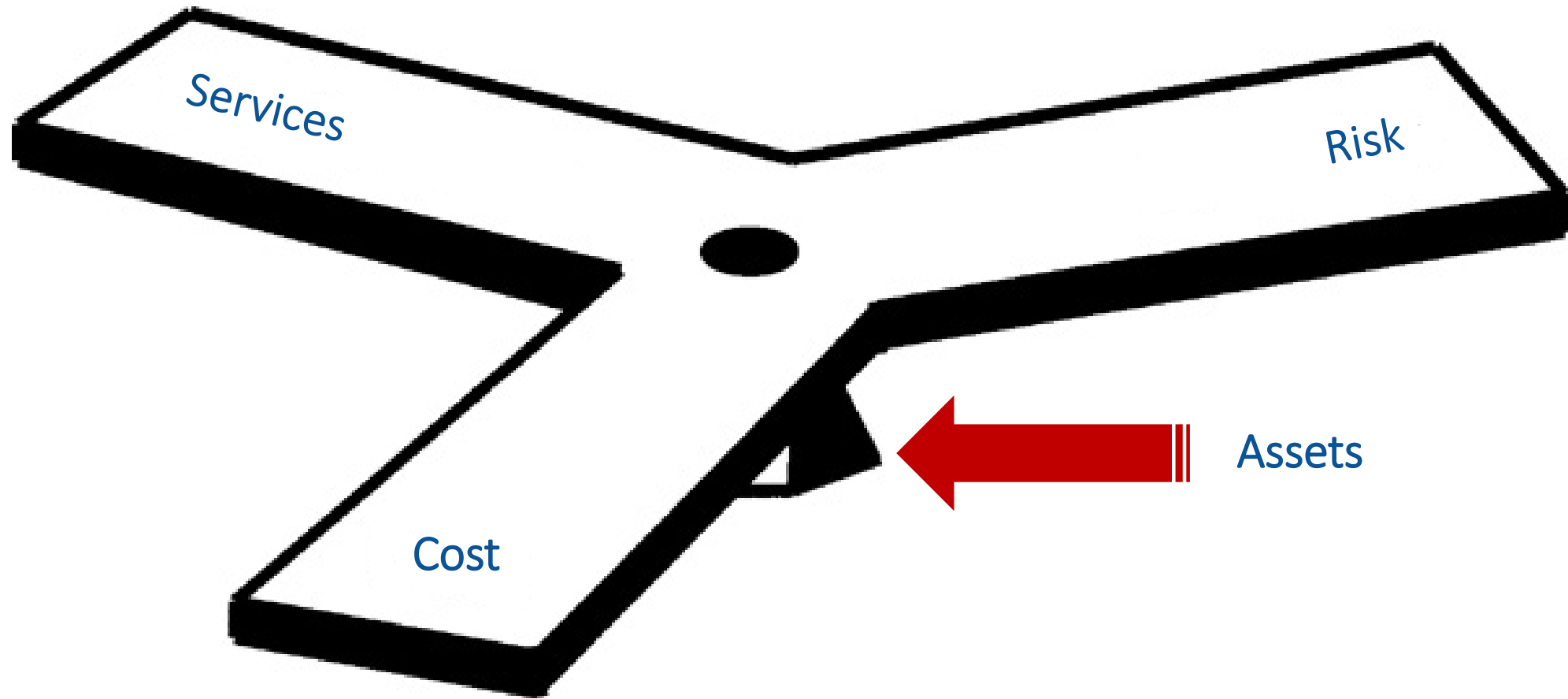
Potential Event

**30cm of rain in 24hrs**



Consequences depend on asset **capacity** and **criticality** of failure points

# Sustainable Service Delivery



# Exercise #1 – Menti Poll

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# **What risks are landing Municipalities in Court?**

## **Design, inspection and maintenance of infrastructure**

- **Roads**
- **Pedestrian Areas**
- **Public Building and Spaces**

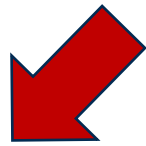
## **Drainage and stormwater management**

- **Nuisance**
- **Negligence**

# Challenges with Risk



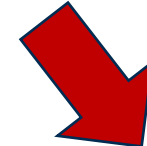
# Consensus!



**Likelihood**



**Consequence**



**Tolerance**

# Risk Matrix as Alignment Tool



iCINFRAStructure

		Financial	Health and Safety	Environmental	Reputation					
Severity	5	Defined outcomes				High Risk	High Risk	Critical Risk	Critical Risk	Critical Risk
	4					Medium Risk	Medium Risk	High Risk	High Risk	Critical Risk
	3					Low Risk	Low Risk	Medium Risk	Medium Risk	High Risk
	2					Low Risk	Low Risk	Low Risk	Medium Risk	Medium Risk
	1					Low Risk	Low Risk	Low Risk	Low Risk	Medium Risk
						1	2	3	4	5
						Likelihood				

Look at your handout to see the standard risk matrix offered as part of the RME training

- Low Risk
- Medium Risk
- High Risk
- Critical Risk

# Intersection with Asset Management



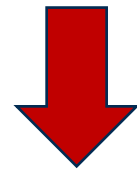
- ◆ Critical Asset - “an asset having potential to significantly impact the achievement of the organization’s objectives” (ISO 55000)
  
- ◆ Criticality depends on severity of the consequences only
  
- ◆ Asset Criticality = the consequences should an Asset fail
  
- ◆ Service Criticality = the consequences should a Service fail

# Physical Failure



iCINFRAStructure

		Financial	Health and Safety	Environmental	Reputation					
Severity	5	Defined outcomes				Yellow	Orange	Red	Red	Red
	4					Yellow	Yellow	Orange	Orange	Red
	3					Green	Green	Yellow	Yellow	Orange
	2					Green	Green	Green	Yellow	Yellow
	1					Green	Green	Green	Green	Yellow
						1	2	3	4	5
						Likelihood				



**Criticality**



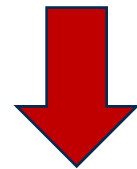
**Condition**

# Functional Failure



iCINFRAStructure

		Financial	Health and Safety	Environmental	Reputation					
Severity	5	Defined outcomes				Yellow	Orange	Red	Red	Red
	4					Yellow	Yellow	Orange	Orange	Red
	3					Green	Green	Yellow	Yellow	Orange
	2					Green	Green	Green	Yellow	Yellow
	1					Green	Green	Green	Green	Yellow
						1	2	3	4	5
						Likelihood				



**Criticality**



**Capacity Utilization**

# Risk Management and Asset Management



- **Criticality**
- **Business Continuity**

# Exercise #2a – Risk Mapping



1. **Successful Ransomware Attack**
2. **Water main failure at community center**
3. **20 cm of rain in a 24-hour period**
4. **One of the risks that keeps you up at night**

Likelihood	Consequence
Possible	Major
Very Good Condition	Moderate
1-20 Years	Minor
??	??

# Exercise #2a – Risk Mapping



iCINFRAStructure

1. Successful Ransomware Attack
2. Water main failure at community center
3. 20 cm of rain in a 24-hour period
4. One of the risks that keeps you up at night (?)

Consequences		Heat Map				
5	Catastrophic	Medium	High	Extreme	Extreme	Extreme
4	Major	Medium	High	High	Extreme	Extreme
3	Moderate	Low	Medium	High	High	Extreme
2	Minor	Low	Medium	Medium	High	High
1	Insignificant	Low	Low	Low	Medium	Medium
		Almost never occur	Could occur at some time	Will probably occur at some time	Will probably occur in most circumstances	Expected to occur in most circumstances
		Every 25+ years	Every 15-25 years	Every 10-15 years	Every 3-10 years	Every <3 years
		Rare	Unlikely	Possible	Likely	Almost Certain
		1	2	3	4	5
		<b>Likelihood</b>				
		Very Good	Good	Fair	Poor	Very poor

# Risk Matrix as Prioritization Tool



		Financial	Health and Safety	Environmental	Reputation					
Severity	5	Defined outcomes				1	2	3	4	5
	4					1	2	3	4	5
	3					1	2	3	4	5
	2					1	2	3	4	5
	1					1	2	3	4	5
						1	2	3	4	5
						Likelihood				

Look at your handout to see the standard risk matrix offered as part of the RME training

- Low Risk
- Medium Risk
- High Risk
- Critical Risk

# **Exercise #2b – Impact of Climate Change**



## **1-in-20-year storm**

- **Used to be 20 cm of rain in a 24-hour period**
- **Expected to be 30 cm of rain in a 24-hour period by 2050**
- **What assets make up your drainage system?**
- **What is their condition and capacity?**
- **What is their criticality?**
- **The consequences will be “Major”, map the result**

# Exercise #2b – Impact of Climate Change



iCINFRAStructure

1. Successful Ransomware Attack
2. Water main failure at community center
3. 20 cm of rain in a 24-hour period

Consequences		Heat Map				
5	Catastrophic	Medium	High	Extreme	Extreme	Extreme
4	Major	Medium	High	High	Extreme	Extreme
3	Moderate	Low	Medium	High	High	Extreme
2	Minor	Low	Medium	Medium	High	High
1	Insignificant	Low	Low	Low	Medium	Medium
		Almost never occur	Could occur at some time	Will probably occur at some time	Will probably occur in most circumstances	Expected to occur in most circumstances
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		Rare	Unlikely	Possible	Likely	Almost Certain
		1	2	3	4	5
		<b>Likelihood</b>				
		Very Good	Good	Fair	Poor	Very poor

# Risk Treatment

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## 1 in 20-year storm

- Avoid?
- Share?
- Control?
- Transfer?
- Accept?

## **Insurance**

- **Liability insurance**
- **Property insurance**
- **Specialty coverage – environmental, cyber etc.**

## **Contractual Transfer**

- **Insurance and indemnity provisions**
- **Construction services**
- **Building permits**
- **Facility use**

# **Risk Transfer – Jeremy Poole**

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## **Land Use – Restrictive Covenants**

## **Policy Decisions**

# Challenges with Risk



**If you've done it right,  
you've invested resources  
and nothing happens**

# **Exercise #3 – Showing what you’re paying for**



## **1-in-20-year storm**

- **Used to be 20 cm of rain in a 24-hour period**
- **Expected to be 30 cm of rain in a 24-hour period by 2050**
- **Without action consequences would be “Major”**

# Exercise #2b – Impact of Climate Change



iCINFRAStructure

## 3. 20 cm of rain in a 24-hour period

Transfer – purchase targeted flooding insurance to handle financial consequences

Control – targeted drainage capacity upgrades

Consequence => “Minor”

Consequences		Heat Map				
5	Catastrophic	Medium	High	Extreme	Extreme	Extreme
4	Major	Medium	3	High	Extreme	Extreme
3	Moderate	Low	Medium	High	High	Extreme
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		Rare	Unlikely	Possible	Likely	Almost Certain
		1	2	3	4	5
		<b>Likelihood</b>				
		Very Good	Good	Fair	Poor	Very poor

# **Risk Registry – Knowledge Capture Tool**

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- **Record risks that have been identified**
- **Record risk assessment, methods, confidence**
- **Record existing controls**



**BENEFITS**

# Benefits of RM to *Your Organization*



VALUE  
PROTECTION



RESOURCE  
OPTIMIZATION



RELIABLE  
SERVICE  
DELIVERY



ENHANCED  
PUBLIC TRUST



INCREASE  
GRANT FUNDING  
SUCCESS

# Benefits of RM to *Your Organization*



**Asset Risk  
(condition & Criticality)**

**Climate Mitigation  
(Reduced Emissions)  
(Efficiency and Alternatives)**

**Arena Roof**

**Climate Adaptation  
(e.g. snowload)**

**Cost Reduction**





# GETTING STARTED

# Do we really need Asset Management?



Find out for yourself by asking your staff...



Do we have a complete list of assets?



Do we know what they would cost to replace?



Do we know their average lifespan?



Do we know when we'll have to replace them?

# Do we really need Risk Management?



Find out for yourself by asking your staff...



Do we know how our climate will change?



Do we know what this means for weather events?



Do we know how this will affect our assets?



Do we know which critical assets are vulnerable?

# AMBC Training Hub

- ◆ 2-hr “Community Infrastructure, Climate, and Equity” eLearning course for Elected officials and for CAOs
- ◆ 2hr “Leveraging your Asset Data” eLearning course to help you know what you own so you can plan for what you need.
- ◆ 2hr “Risk Management Essentials” eLearning course to learn and share the core concepts you need to know, and how Risk Management connects directly to Asset Management
- ◆ Other training on Levels of Service and Long-Term Financial Plans

“We’re being asked to solve a problem that’s a hundred years in the making — it’s big, it’s complex, and it’s tough. But that’s our job: to pick up those really tough tasks and try to move the needle so we’re making it a little better for the next generation.”

Chris Barlow – CAO – City of Castlegar



CASTLEGAR

# AMBC Training Hub

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<https://www.assetmanagementbc.ca/training/>

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Thanks for your time! Any Questions?

