

# CSCP

CERTIFIED SUPPLY CHAIN  
PROFESSIONAL

## MODULE 7: SUPPLY CHAIN RISK

### SECTION A: RISK MANAGEMENT AND SUPPLY CHAIN RISKS

## Section A Introduction

### Section A Key Processes:

- Manage supply chain risk.
  - Identify risks.

### Section A Topics:

- Risk Management
- Risk Identification and Supply Chain Risks

## Qualitative Risk Management Steps

Assess the probability that the risk will occur and its impact if it does occur.

Use the combination of probability and impact to rank each risk, assigning low priority risks to a watch list.

Determine whether the data used to assess risk are sufficient and reliable enough.

Place risks in categories to help organize risks for completeness and group them to find common solutions.

Decide if some risks need higher priority due to urgency.

## Quantitative Risk Management Steps

Quantify each risk's probability and monetary impact using estimation techniques and probability distributions (i.e., statistical curves showing the range of possible results).

Multiply each risk's probability times its monetary impact to find its expected monetary value (EMV). This is the potential monetary loss (or gain) weighted by its probability.

Sum the EMVs of all significant threats and opportunities to assess whether the business process or project is worth doing in the proposed manner.

Perform simulation or scenario analysis or other modeling to better understand the forces affecting the system.

## Supply Chain Risk Management

The systematic identification, assessment, and quantification of potential supply chain disruptions with the objective to control exposure to risk or reduce its negative impact on supply chain performance.

– APICS Supply Chain Council

- Known versus unknown risks
- Risk management attitude
  - Risk appetite
  - Risk tolerance
  - Risk threshold
- Risk management plan

## Risk Management Frameworks

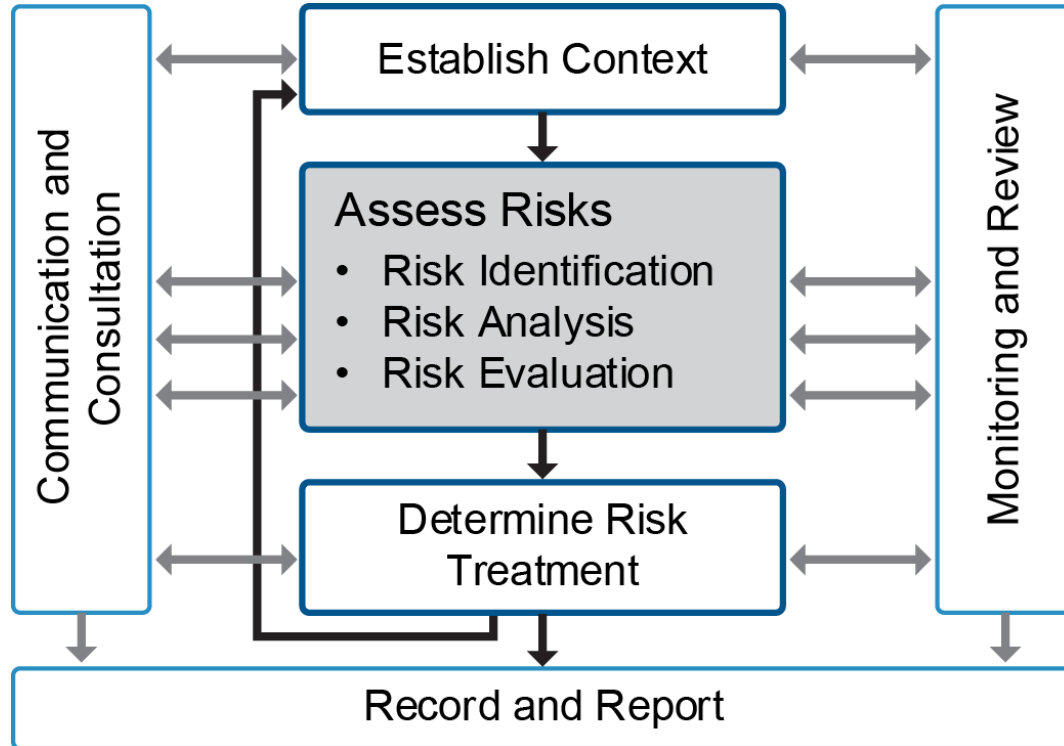
### **COSO ERM Integrating with Strategy**

- Internal environment
- Objective setting
- Event identification
- Risk assessment
- Risk response
- Control activities
- Information and communication
- Monitoring

### **Governance, Risk, and Compliance (GRC)**



## ISO 31000 Process Framework



## Additional ISO Supporting Standards

### ISO 31010

- More emphasis on risk analysis
- How to monitor, review, and apply risk assessments
- Technique selection

### ISO Guide 73:2009

- Glossary of risk management vocabulary
- Provides a way to discuss risks using common terms and definitions

## Recognition and Identification

### Identification

- Brainstorming possible risks
- Cause, event, impact, effect

### Definition

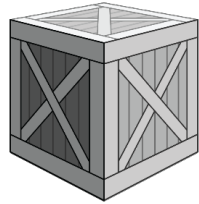
- Time horizon and scope

### Risk register

- Risk, causes, triggers, responses, and ownership

# Risk Identification and Supply Chain Risks

## Risk of Loss



Loss of goods, reputation, or money (fraud, corruption, bribery, abduction)

Loss of intellectual property (IP risk differs by country)



Losses from lawsuits

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**SECTION B:  
RISK ANALYSIS AND RESPONSE**

## Section B Introduction

### Section B Key Processes:

- Assess impact, timing, or probability of risks.
- Determine response to mitigate risks.
  - Eliminate avoidable risks.
  - Accept unavoidable risks.
  - Perform contingency planning to minimize impact.
- Execute and evaluate risk response.

### Section B Topics:

- Risk Analysis
- Risk Responses, Action Plans, and Business Continuity

## Internal and External Supply Chain Risks

Internal Risks	External Risks
<ul style="list-style-type: none"><li>▪ Poor quality</li><li>▪ Unreliable suppliers or shortages</li><li>▪ Equipment issues or needs</li><li>▪ Technology incompatibility, disruptions</li><li>▪ Poor forecasting</li><li>▪ SKU proliferation</li><li>▪ System “nervousness”</li><li>▪ Cross-cultural communication</li><li>▪ Service failures</li><li>▪ Compliance</li><li>▪ Labor relations, slowdowns, or strikes</li><li>▪ Training, turnover, or morale</li></ul>	<ul style="list-style-type: none"><li>▪ Labor shortages</li><li>▪ Political instability</li><li>▪ Transportation delays</li><li>▪ Financial, currency</li><li>▪ Natural disasters, wars, or terrorism</li><li>▪ Poor infrastructure</li><li>▪ Demand variability (economy, competitor actions, etc.)</li><li>▪ Legal/regulatory</li><li>▪ Taxation</li><li>▪ Customs</li><li>▪ Customer or consumer pressures</li></ul>

# Risk Analysis

## Categories of Risk Levels

		Impact				
		Insignificant	Minor	Moderate	Major	Extreme
Probability		<b>5%</b>	<b>10%</b>	<b>20%</b>	<b>40%</b>	<b>80%</b>
Almost certain	<b>90%</b>	5%	9%	<b>18%</b>	<b>36%</b>	<b>72%</b>
Likely	<b>70%</b>	4%	7%	14%	<b>28%</b>	<b>56%</b>
Possible	<b>50%</b>	3%	5%	10%	<b>20%</b>	<b>40%</b>
Unlikely	<b>30%</b>	2%	3%	6%	12%	<b>24%</b>
Rare	<b>10%</b>	1%	1%	2%	4%	8%

## Expected Monetary Value (EMV)

- Net impact: If there is a response cost, the net monetary impact is found before multiplying by the probability.
- $EMV = Probability \times Monetary\ Impact$



## Basic Risk Responses

**Accept**

- Take no action or unable to form cost-effective plan

**Avoid**

- Changing a plan to eliminate risk or its impact

**Transfer**

- Insurance or contractual transfer to SC partner

**Mitigate**

- Preventive measures to reduce probability or impact of risks

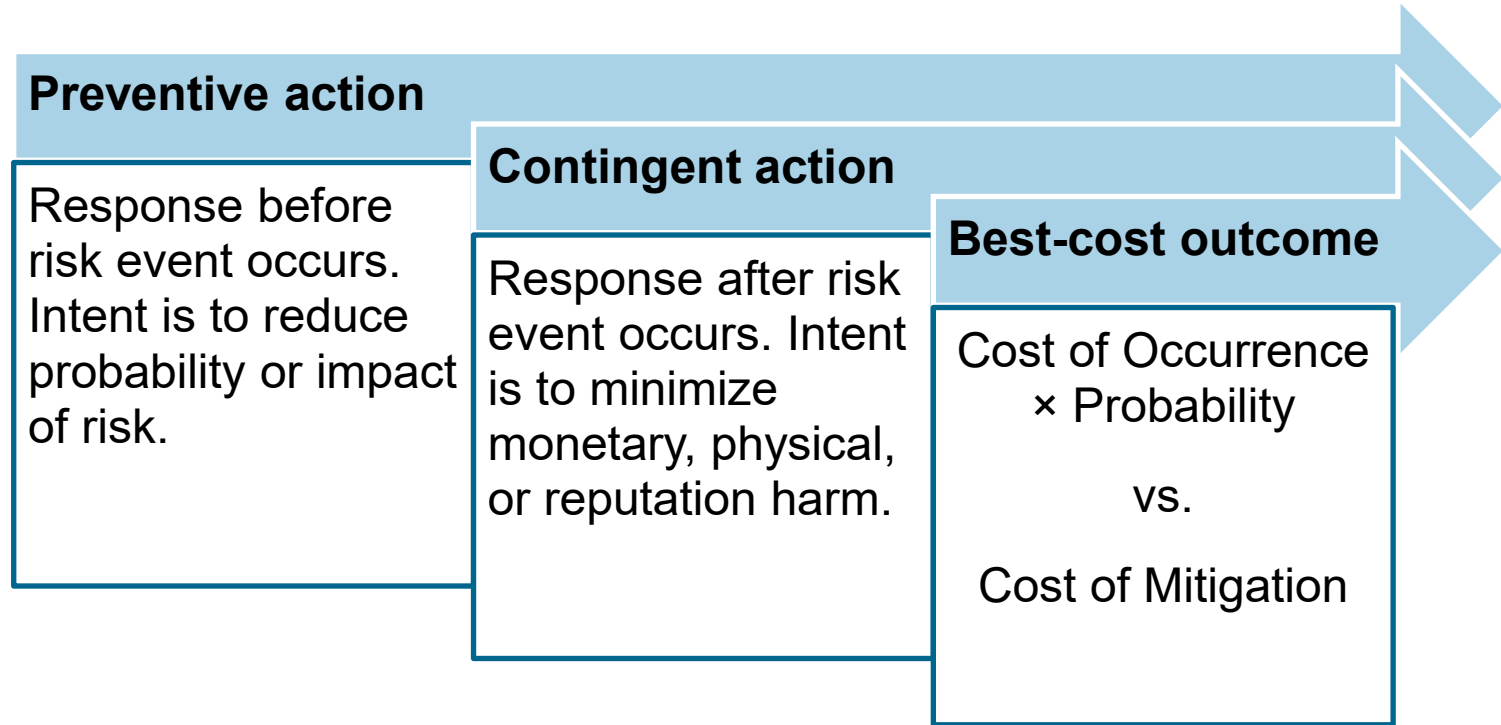
# Risk Responses, Action Plans, Business Continuity

## Risk Response Plan

Risk ID	Valid until	Name	Description	Prob. (1 = low, 5 = high)	Magnitude (1 = low, 5 = high)	Priority (max = 25)
6.1.8	12/Y1	Loss of sole-source supplier	Part 5-323 sole-sourced	2 x	5 =	10

Risk ID	Root Cause	Preventive Action Plan	Contingency Plan	Responsible/ Status	Red Flags
6.1.8	Specialized patent.	Increase safety stock to 3-month supply.	Send supplier plans and personnel to firms with compatible equipment.	Assigned to: H. Hernandez. Safety stock ordered.	Weak supplier financials

## Risk Responses



## Preventive and Contingent Action Plans

- Strategic supply chain risks
- Supply risks
- Demand risks
- Process risks
- Environmental risks
- Hazard risks
- Financial risks
- Malfeasance risks
- Litigation risks

Supply Risk	Preventive	Contingent
Availability	Capacity audit	RFP finalists
Pricing	Due diligence	Negotiate
Quality	Penalty clause	Probation
Supplier lead time	Safety stock	Safety lead time
Transportation lead time	3PLs	Benchmark
Customs	Freight forwarder	Government contacts
Labor	Diversify plants	Prepare alternatives

## Risk Management Best Practices

### Best Practices: Coordinated Risk Management

Program coordination with partners	Ensure functional areas and SC partners cooperate to manage risks holistically; make a risk management coordination committee
Sourcing risk	Multiple sources, strategic supplier agreements, partnerships
Crisis communications	Creating joint contingency plans

### Best Practices: Supply Chain Designed to Manage Risk

SC business rules	Business rules (e.g., customer or supplier priority, production routing, transportation routing, etc.) to minimize SC risk
SC information	Information sharing internally and with partners; robust IT
SC network	Designing node locations, transportation routes, etc.