

ARM – 54

Risk Management

Principles and Practices

Week 5

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Chapter 6

Risk Identification

Risk Identification

Educational Objectives

After learning the content of this assignment, you should be able to:

- ▶ Explain why an organization needs to identify risk and how it can do so.
- ▶ Explain how an organization can use each of the following team-oriented techniques to identify its risks:
 - Facilitated workshops
 - Delphi technique
 - Scenario analysis
 - HAZOP (hazard and operability study)
 - SWOT (strengths, weaknesses, opportunities, and threats)
- ▶ Describe the purpose and the composition of a risk register.
- ▶ Describe the purpose and the composition of a risk map.
- ▶ Explain how an organization can use the following methods to identify loss exposures:
 - Document analysis
 - Compliance review
 - Inspections
 - Consultations
- ▶ Given a description of a business operation, recommend techniques for identifying and mapping risk.

Definition of Risk Identification

- COSO ERM
 - Event Identification – potential events affecting an entity’s ability to successfully implement strategy and achieve objectives
- Traditional definition
 - To employ methods of identifying specific loss exposures that could interfere with achieving an organization’s primary goals
- Goal is to identify all known risks and attempt to identify emerging risks
 - Key risks are those with greatest potential effect on the organization’s ability to meet its objectives and should receive the most focus

Risk Identification Tools

- Traditional tools
 - Loss histories
 - Provide qualitative and quantitative information
 - Contained in database and can be adapted to various types of analysis
 - Can be correlated with their effect on organization's objectives
 - Disadvantage is that they are lagging indicators

Risk Identification Tools

- Checklists
 - Easy to use by non-risk managers
 - Can limit creativity in identifying new risks
- Interviews and workshops
- Escalation and threshold triggers
 - Comparing current events/transactions to set criteria
- Process flow analysis
 - Analyzes process within organization from input to output
- Audits
- Computer software
 - Risk assessment tools
- Team approaches to risk identification
 - SWOT, Delphi, Scenario analysis, HAZOP
- Emerging technologies and smart products

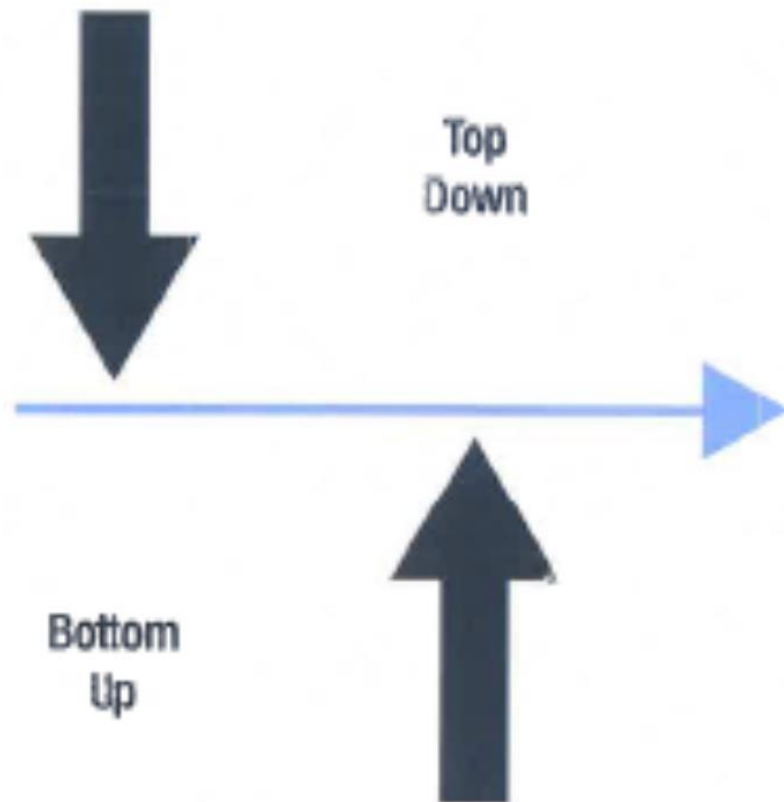
Holistic Approach to Risk Identification

- Goal is to breakdown silos in risk identification process
- Use four quadrants to identify and categorize risk can provide framework for holistic risk identification
 - Strategic
 - Financial
 - Operational
 - Hazard risk
- Methods of Identification
 - Cascading hierarchy
 - Top Down vs Bottom up approaches

Holistic Risk Identification Using Risk Quadrants



Combining Top-Down and Bottom-Up Approaches



Advantages

- Critical risks identified
- Global perspective on risks
- View of top risks to organization
- Improvement of risk culture
- Prioritization of risk

Team Approaches to Risk Identification

- Facilitated workshops
 - Typically used for specific projects or processes
 - Can be used to identify overall risks
- Delphi Technique
 - Two rounds of queries to selected experts
 - Questions asked individually and results combined and question posed again with new information
 - More cost effective than facilitated workshops
 - See article

Team Approaches to Risk Identification

- Scenario Analysis
 - Identifies various risk and projects the potential consequences of those risks
 - What if analysis
 - Involves cross-functional teams to analyze risks from different perspectives
- HAZOP
 - Hazard and Operability Study is a comprehensive review of a process or system
 - Primarily used to design complex systems in which failure is not an option
 - Used for large projects

Team Approaches to Risk Identification

- HAZOP steps
 - Subdivides project or system design into small components
 - Reviews each component to identify risks
 - Identifies cause and potential outcome for each risk
 - Develops a solution for each risk

Team Approaches to Risk Identification

- SWOT
 - Strengths, weaknesses, opportunities, and threats
 - Team approach useful in analyzing new project or product
 - Representation from different organizational functions

SWOT Analysis

		Strengths (S)	Weaknesses (W)
		Environmental Factors	Internal
External	Opportunities (O)		Threats (T)
	New technology New distribution channels Unmet customer needs Change in demographics		Shift in customer tastes Emergence of competitors New regulations Tax increases

Risk Registers

- Risk Register
 - Tool developed at risk owner level that links specific activities, processes, projects, or plans to a list of identified risk and results of risk analysis and evaluation and that is ultimately consolidated at the enterprise level
 - Should include likelihood of scenario and associated risks with probability, consequences and impacts
- UC ERM Bulletins
 - http://www.ucop.edu/enterprise-risk-management/files/bulletin_12.doc
 - http://www.ucop.edu/enterprise-risk-management/files/bulletin_11.pdf

Risk Registers

However an organization chooses to design its risk register, risk management professionals should ensure the risk register has these characteristics:

- Adequately identifies the organization's risks
- Prioritizes risk according to the potential effect on the organization
- Provides interactive use for risk owners
- Forms a matrix to manage risks

Airygen's Windstorm Risk Register—Miami Branch

Scenario	Risk Description	Risk Owner	Likelihood	Consequences	Level of Risk	Improvement Action	Review Date
Windstorm	Storm damage range: minimal to catastrophic	Risk management Regional and branch management	90	\$0 – \$100 M+	10	Develop catastrophe plan Review property insurance	3/1/20X3
Risk Quadrant							
Hazard Risks	Wind damage	Risk management	40	\$0 – \$10 M	5	Safety procedures	1/1/20X3
	Oxygen explosion	Regional and branch management	10	\$0 – \$100 M+	10	Safety plan for employees	
	Fire	Safety and human resources	20	\$0 – \$100 M+	8		
Operational Risks	Emergency disruption of medical supplies to customers	Operations management	50	\$0 – \$50 K	9	Develop backup plan with Ft. Lauderdale	2/1/20X3
	Loss of business records	Regional management	60	\$0 – \$25 K	2	Review system backup	4/1/20X3
	Period of repair/ rebuilding	Information technology	40	\$0 – \$20 M	7	Review business interruption coverage	1/1/20X3
		Risk management				Plan with Ft. Lauderdale and Orlando	2/1/20X3
Financial Risks	Credit risk—customers will be unable or delayed in ability to pay	Finance	5	\$0 – \$100 K	1	Develop emergency payment plans for customers	5/1/20X3
	Price risk—the cost of product will increase after a major storm	Procurement Finance	6	\$0 – \$50K	1	Backup supplies from other branches	3/1/20X3
Strategic Risks	Reputational damage if customers cannot receive critical medical oxygen	Legal Operations Management Marketing	25	Potentially major damage	10	Catastrophe plan	3/1/20X3

Measurement Scales:

Likelihood: 1 – 100, 1 = lowest

Level of Risk: 1 – 10, 1 = lowest

Consequences: Estimated dollar range for quantitative measures

Airygen's Windstorm Risk Register—Organizational Roll-Up

Scenario	Risk Description	Risk Owner	Risk Quadrant	Likelihood	Consequences	Level of Risk	Improvement Action
Windstorm	Cat 3 or > hurricane strikes Miami	Risk management Operations management Regional and branch management Legal Finance Information technology (IT) Human resources	Hazard: Loss of property Injury Liability Operational: Business interruption Financial: Customer credit Input price Strategic: Reputational risk	40	\$0 – \$100 M+	10	Develop catastrophe plan with all stakeholders Review property and liability insurance
Data Breach	Theft of customer information	IT Risk management Legal	Hazard: Liability Operational: Interruptions to business processes Financial: Possible decline in stock value Strategic: Reputational risk	30	\$10K – \$100M	8	Review IT security Review insurance coverage
Rail Strike	Rail strike prevents delivery of oxygen to regional centers.	Operations management Procurement	Operational: Disruption in supply Strategic: Reputational risk if medical supply is interrupted	25	\$10K – \$100K	3	Backup distribution plan

Measurement Scales:

Likelihood: 1 – 100, 1 = lowest

Level of Risk: 1 – 10, 1 = lowest

Consequences: Estimated dollar range for quantitative measures

Risk Maps

- Risk Map
 - Template depicting the likelihood and potential impact/consequence of risks

Basic Risk Map—Airygen Risks

Impact/Consequences	5. Extreme	Volcano eruption Terrorist attack Pandemic	Earthquake	Data breach Wildfire Arson Flood	Midwestern windstorm (tornado)	Florida windstorm (hurricane)
	4. Very High	Sudden, unexpected loss of C-suite-level manager Public incident damaging to reputation (for example, scandal involving senior-level manager)	Financial crisis (interruption in credit facilities) Major workforce disruption (strike)	Interruption in regional product supply (strike, supply chain interruption) New strategic opportunity (acquisition)	Vehicle accident with injury Customer accident with injury	Fire/explosion
	3. Medium	Repairs requiring branch closure for a period of time	Employee dishonesty Robbery/burglary	Minor incidents with products (for example, stuck valve) Loss/gain of key customer	Moderate vehicle accidents (property damage) Competitor pricing Human resources issues	Employee injury
	2. Low	Travel problems cause delay in meeting with key customer	Interruption of communication with a branch office for more than one hour (for example, power outage) Sudden, unexpected loss of branch manager	Customer service problems Branch closure due to inclement weather	Minor vehicle accidents (property damage)	Employee illness/ time off Customer credit issues
	1. Negligible	New computer system requiring staff training	Interruptions in noncritical supply chain (for example, office supplies)	Computer system unavailable for more than one day Traffic delays in major distribution routes	Property and equipment maintenance issues	Billing errors
		1. Rare	2. Unlikely	3. Moderate	4. Likely	5. Almost Certain
Likelihood						

■ = highest impact/likelihood

■ = medium impact/likelihood

■ = low impact/likelihood

Impact and Time Risk Map—Airygen: 4/1/20X2

Impact/Consequences	Significant (>\$10M)	Reputation risk	Miami windstorm	Major acquisition
				Healthcare regulations
	Moderate (\$2-10M)	Labor issue in New York	Workers compensation injuries (review safety program)	Vehicle accidents (review insurance)
			Change in Department of Transportation regulations	
	Low (<\$2M)	Small acquisition	Increase in price of oxygen in Georgia	Increase in vehicle repair costs
				Increase in executive health insurance plan
	Low	Moderate	High	
Likelihood				

■ = most urgent ■ = moderate ■ = least urgent

Inherent, Residual, and Optimum Risk Map—Airygen's Miami Windstorm Risk



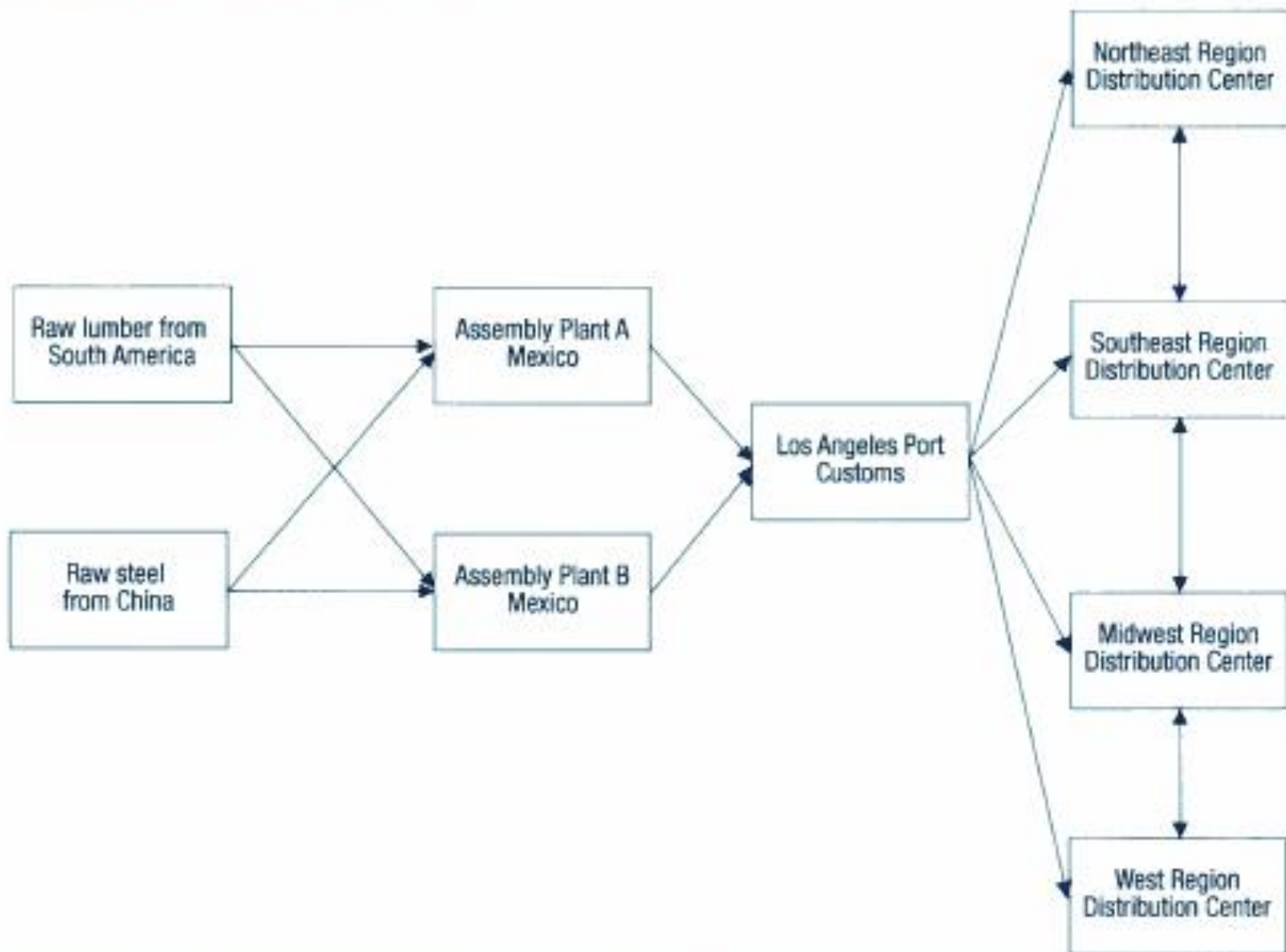
Identifying Loss Exposures

- Methods to identify loss exposures
 - Document analysis
 - Compliance review
 - Inspections
 - Expertise within and beyond the organization

Identifying Loss Exposures

- Document analysis
 - Risk assessment questionnaires and checklists
 - Financial statements
 - Balance sheet and income statement
 - Statement of cashflows
 - Contracts
 - Insurance policies
 - Organization policies and records
 - Flowcharts and Organizational charts
 - Loss histories

Furniture Manufacturer Flowchart



Identifying Loss Exposures

- Compliance Review
 - Determines compliance with local, state and federal statutes and regulations
- Personal Inspections
 - Often reveal loss exposures that would not appear in written descriptions of the organization's operations
- Expertise within and beyond the Organization

Identifying Risk Case Study

- Educational Objective
 - Given a description of a business operation, recommend techniques for identifying and mapping risks

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