

# Managing risk in the supply chain



Estd. 1990

# Main Title Goes Here....

## Chapter Topics

Why are supply chains more vulnerable?

Understanding the supply chain risk profile

Managing supply chain risk

Achieving supply chain resilience

## CLO Alignment (C4)

Analyze sources and drivers of supply chain risk

Examine and assess risk exposure across supply chain stages

Analyze mitigation strategies and trade-offs

Evaluate resilience strategies with sustainability focus

# Supply Chain Risk

- **Market Turbulence and Uncertainty**
  - Demand volatility higher than in the past
  - Difficulty in forecasting life-cycle demand
  - Frequent competitive product launches
  - Rapid technological changes
- **Sources of Supply Chain Chaos**
  - Sales promotions and discount campaigns
  - Quarterly sales incentives
  - Reorder quantity rules and batch ordering
  - Information distortion across the chain
- **Rising Supply Chain Vulnerability**

Supply chains are increasingly exposed due to:

- Natural disasters
- Strikes and labor disputes
- Terrorist attacks
- Epidemics and pandemics
- Sudden changes in business strategy

- **Impact of Business Model Changes**

Changes that increase supply chain risk:

- Adoption of **lean** and **JIT** practices
- Increased **outsourcing**
- Reduction in the **supplier base**
- Global sourcing strategies
- **Financial Impact of Supply Chain Disruptions**
  - Research evidence (North America):
    - Operating income  $\downarrow 107\%$
    - Return on sales  $\downarrow 114\%$
    - Return on assets  $\downarrow 93\%$

- **Impact on Shareholder Value (Figure 10.1)**
    - Significant decline in shareholder returns following disruption events
    - Market reacts quickly once disruption becomes public
  - **Managerial Gaps in Risk Management**
    - McKinsey survey (3,000+ executives):
    - Majority perceive **growing supply chain risk**
    - Many firms lack **formal risk mitigation processes**
    - Risk assessments focus on:
    - Financial risk
    - Regulatory risk
    - Supply chain risk often **ignored**
  - **Types of Supply Chain Risks**
    - **External Risks**
    - Natural disasters
    - Wars and terrorism
    - Epidemics
    - Government regulations
    - **Internal Risks (Manageable)**
    - Supply chain design
    - Sourcing strategy
    - Inventory policies
    - Relationship management
- Figure 10.1 The impact of supply chain disruptions on shareholder value**
- 
- | Trading day relative to announcement day | Average shareholder returns (%) |
|--|---------------------------------|
| -60                                      | 0                               |
| -48                                      | 0                               |
| -36                                      | 0                               |
| -24                                      | 0                               |
| -12                                      | 0                               |
| 0  | -12                             |
| 12                                       | -12                             |
| 24                                       | -15                             |
| 36                                       | -18                             |
| 48                                       | -18                             |
| 60                                       | -20                             |
- Source: Singhal, V.R. and Hendricks, K., *Supply Chain Management Review*, January/February 2002

# Why are supply chains more vulnerable?

**Definition of Supply Chain Vulnerability** (*Cranfield University definition*):

“An exposure to serious disturbance, arising from risks within the supply chain as well as risks external to the supply chain.”

- **Why Are Supply Chains More Vulnerable?**
  - Key contributing factors:
    1. Focus on efficiency over effectiveness
    2. Globalisation of supply chains
    3. Focused factories and centralised distribution
    4. Outsourcing trends
    5. Reduction of supplier base
- **Focus on Efficiency vs Effectiveness**
  - Strong emphasis on:
    - Cost reduction
    - Inventory minimization
- Widespread adoption of **JIT and lean systems**
- High dependence on suppliers

- **Globalisation of Supply Chains**
  - Shift from “local for local” to global sourcing
  - Components and assembly spread across continents
  - Driven mainly by **cost reduction**
- **Risk Implications:**
  - Longer lead times
  - Higher buffer inventory
  - Greater obsolescence risk
- **Hidden Costs of Global Supply Chains** (Total supply chain cost ≠ purchase cost)
  - Often ignored costs:
    - Extended transportation risk
    - Supply disruption exposure
    - Demand mismatch
    - Environmental impact

- **Focused Factories and Centralisation**
  - Fewer manufacturing sites
  - Large-scale production
  - Centralised distribution centres
  - **Benefits:**
    - Economies of scale
    - Lower unit costs
  - **Risks:**
    - Loss of flexibility
    - Increased disruption impact
- **Reduction of Supplier Base**
  - Shift to fewer suppliers
  - Single sourcing strategies (Failure of one supplier can halt operations, Like chip disruption)
  - Benefits:
    - Stronger relationships
    - Lower transaction costs