

Supply Chain Management (3rd Edition)

Chapter 3 Supply Chain Drivers and Obstacles

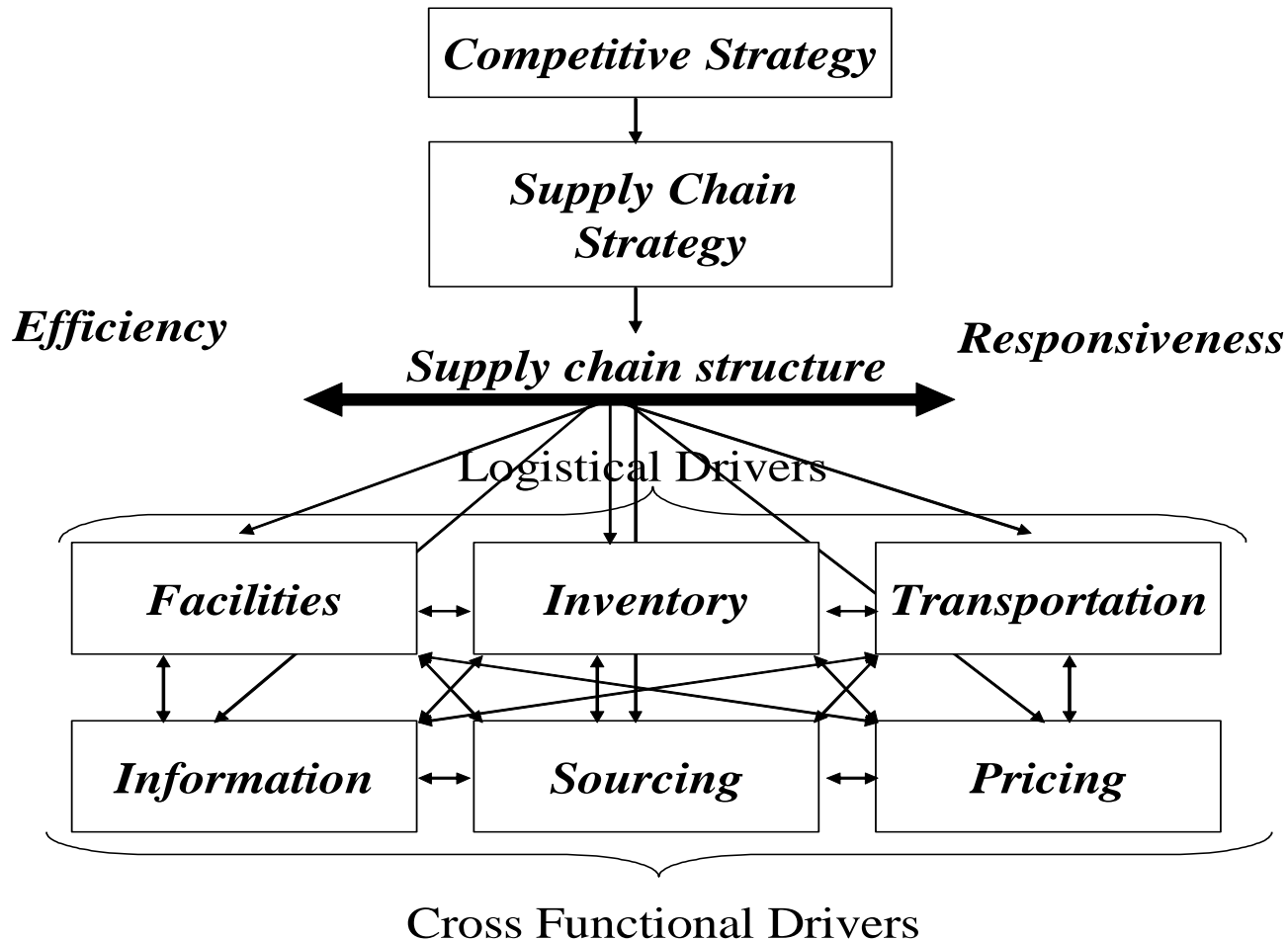
Outline

- ❑ Drivers of supply chain performance
- ❑ A framework for structuring drivers
- ❑ Facilities
- ❑ Inventory
- ❑ Transportation
- ❑ Information
- ❑ Sourcing
- ❑ Pricing
- ❑ Obstacles to achieving fit

Drivers of Supply Chain Performance

- Facilities
 - places where inventory is stored, assembled, or fabricated
 - production sites and storage sites
- Inventory
 - raw materials, WIP, finished goods within a supply chain
 - inventory policies
- Transportation
 - moving inventory from point to point in a supply chain
 - combinations of transportation modes and routes
- Information
 - data and analysis regarding inventory, transportation, facilities throughout the supply chain
 - potentially the biggest driver of supply chain performance
- Sourcing
 - functions a firm performs and functions that are outsourced
- Pricing
 - Price associated with goods and services provided by a firm to the supply chain

A Framework for Structuring Drivers



Facilities

- Role in the supply chain
 - the “where” of the supply chain
 - manufacturing or storage (warehouses)
- Role in the competitive strategy
 - economies of scale (efficiency priority)
 - larger number of smaller facilities (responsiveness priority)
- Example 3.1: Toyota and Honda
- Components of facilities decisions

Components of Facilities Decisions

- Location
 - centralization (efficiency) vs. decentralization (responsiveness)
 - other factors to consider (e.g., proximity to customers)
- Capacity (flexibility versus efficiency)
- Manufacturing methodology (product focused versus process focused)
- Warehousing methodology (SKU storage, job lot storage, cross-docking)
- Overall trade-off: Responsiveness versus efficiency

Inventory

- Role in the supply chain
- Role in the competitive strategy
- Components of inventory decisions

Inventory: Role in the Supply Chain

- Inventory exists because of a mismatch between supply and demand
- Source of cost and influence on responsiveness
- Impact on
 - material flow time: time elapsed between when material enters the supply chain to when it exits the supply chain
 - throughput
 - » rate at which sales to end consumers occur
 - » $I = RT$ (Little's Law)
 - » I = inventory; R = throughput; T = flow time
 - » Example
 - » Inventory and throughput are “synonymous” in a supply chain

Inventory: Role in Competitive Strategy

- If responsiveness is a strategic competitive priority, a firm can **locate larger amounts** of inventory closer to customers
- If cost is more important, inventory can be reduced to make the firm more efficient
- Trade-off
- Example 3.2 – Nordstrom

Components of Inventory Decisions

- ❑ Cycle inventory
 - Average amount of inventory used to satisfy demand between shipments
 - Depends on lot size
- ❑ Safety inventory
 - inventory held in case demand exceeds expectations
 - costs of carrying too much inventory versus cost of losing sales
- ❑ Seasonal inventory
 - inventory built up to counter predictable variability in demand
 - cost of carrying additional inventory versus cost of flexible production
- ❑ Overall trade-off: Responsiveness versus efficiency
 - more inventory: greater responsiveness but greater cost
 - less inventory: lower cost but lower responsiveness

Transportation

- Role in the supply chain
- Role in the competitive strategy
- Components of transportation decisions

Transportation: Role in the Supply Chain

- ❑ Moves the product between stages in the supply chain
- ❑ Impact on responsiveness and efficiency
- ❑ Faster transportation allows greater responsiveness but lower efficiency
- ❑ Also affects inventory and facilities

Transportation:

Role in the Competitive Strategy

- If responsiveness is a strategic competitive priority, then faster transportation modes can provide greater responsiveness to customers who are willing to pay for it
- Can also use slower transportation modes for customers whose priority is price (cost)
- Can also consider both inventory and transportation to find the right balance
- Example 3.3: Laura Ashley

Components of Transportation Decisions

- Mode of transportation:
 - air, truck, rail, ship, pipeline, electronic transportation
 - vary in cost, speed, size of shipment, flexibility
- Route and network selection
 - route: path along which a product is shipped
 - network: collection of locations and routes
- In-house or outsource
- Overall trade-off: Responsiveness versus efficiency

Information

- Role in the supply chain
- Role in the competitive strategy
- Components of information decisions

Information: Role in the Supply Chain

- The connection between the various stages in the supply chain – allows coordination between stages
- Crucial to daily operation of each stage in a supply chain – e.g., production scheduling, inventory levels

Information:

Role in the Competitive Strategy

- ❑ Allows supply chain to become more efficient and **more responsive** at the same time (reduces the need for a trade-off)
- ❑ Information technology
- ❑ What information is most valuable?
- ❑ Example 3.4: Andersen Windows
- ❑ Example 3.5: Dell

Components of Information Decisions

- ❑ Push (MRP) versus pull (demand information transmitted quickly throughout the supply chain)
- ❑ Coordination and information sharing
- ❑ Forecasting and aggregate planning
- ❑ Enabling technologies
 - EDI
 - Internet
 - ERP systems
 - Supply Chain Management software
- ❑ Overall trade-off: Responsiveness versus efficiency

Sourcing

- Role in the supply chain
- Role in the competitive strategy
- Components of sourcing decisions

Sourcing: Role in the Supply Chain

- Set of business processes required to purchase goods and services in a supply chain
- Supplier selection, single vs. multiple suppliers, contract negotiation

Sourcing: Role in the Competitive Strategy

- ❑ Sourcing decisions are crucial because they affect the level of efficiency and responsiveness in a supply chain
- ❑ In-house vs. outsource decisions- improving efficiency and responsiveness
- ❑ Example 3.6: Cisco

Components of Sourcing Decisions

- ❑ In-house versus outsource decisions
- ❑ Supplier evaluation and selection
- ❑ Procurement process
- ❑ Overall trade-off: Increase the supply chain profits

Pricing

- Role in the supply chain
- Role in the competitive strategy
- Components of pricing decisions

Pricing: Role in the Supply Chain

- Pricing determines the amount to charge customers in a supply chain
- Pricing strategies can be used to match demand and supply

Sourcing: Role in the Competitive Strategy

- ❑ Firms can utilize optimal pricing strategies to improve efficiency and responsiveness
- ❑ Low price and low product availability; vary prices by response times
- ❑ Example 3.7: Amazon

Components of Pricing Decisions

- ❑ Pricing and economies of scale
- ❑ Everyday low pricing versus high-low pricing
- ❑ Fixed price versus menu pricing
- ❑ Overall trade-off: Increase the firm profits

Obstacles to Achieving Strategic Fit

- ❑ Increasing variety of products
- ❑ Decreasing product life cycles
- ❑ Increasingly demanding customers
- ❑ Fragmentation of supply chain ownership
- ❑ Globalization
- ❑ Difficulty executing new strategies

Summary

- ❑ What are the major drivers of supply chain performance?
- ❑ What is the role of each driver in creating strategic fit between supply chain strategy and competitive strategy (or between implied demand uncertainty and supply chain responsiveness)?
- ❑ What are the major obstacles to achieving strategic fit?
- ❑ In the remainder of the course, we will learn how to make decisions with respect to these drivers in order to achieve strategic fit and surmount these obstacles