

Supply Chain Management

Chapter 9

Supply-Chain Management

The objective of supply chain management is to coordinate activities within the supply chain to maximize the supply chain's competitive advantage and benefits to the ultimate consumer

The Supply Chain's Strategic Importance

- ▶ The coordination of all supply chain activities, starting with raw materials and ending with a satisfied customer
- ▶ Includes suppliers, manufacturers and/or service providers, distributors, wholesalers, retailers, and final customer

The Supply Chain's Strategic Importance

- ▶ Large portion of sales dollars spent on purchases
- ▶ Supplier relationships increasingly integrated and long term
 - ▶ Improve innovation, speed design, reduce costs
- ▶ Managing supplier relationships has added emphasis

Supply Chain Costs

TABLE 11.1

Supply Chain Costs as a Percentage of Sales

INDUSTRY	% PURCHASED
Automobiles	67
Beverages	52
Chemical	62
Food	60
Lumber	61
Metals	65
Paper	55
Petroleum	79
Restaurants	35
Transportation	62

Supply Chain Management

TABLE 11.2 How Corporate Strategy Impacts Supply Chain Decisions

	LOW COST STRATEGY	RESPONSE STRATEGY	DIFFERENTIATION STRATEGY
Primary supplier selection criteria	• Cost	• Capacity • Speed • Flexibility	• Product development skills • Willing to share information • Jointly and rapidly develop products
Supply chain inventory	• Minimize inventory to hold down costs	• Use buffer stocks to ensure speedy supply	• Minimize inventory to avoid product obsolescence
Distribution network	• Inexpensive transportation • Sell through discount distributors/retailers	• Fast transportation • Provide premium customer service	• Gather and communicate market research data • Knowledgeable sales staff
Product design characteristics	• Maximize performance • Minimize cost	• Low setup time • Rapid production ramp-up	• Modular design to aid product differentiation

Sourcing Issues

- ▶ Make-or-buy vs. outsourcing
 - ▶ Choosing between obtaining products and services externally as opposed to producing them internally
- ▶ Outsourcing
 - ▶ Transfer traditional internal activities and resources to outside vendors
 - ▶ Efficiency in specialization
 - ▶ Focus on core competencies

Six Sourcing Strategies

- ▶ Many suppliers
- ▶ Few suppliers
- ▶ Vertical integration
- ▶ Joint ventures
- ▶ *Keiretsu* networks
- ▶ Virtual companies

Many Suppliers

- ▶ Commonly used for commodity products
- ▶ Purchasing is typically based on price
- ▶ Suppliers compete with one another
- ▶ Supplier is responsible for technology, expertise, forecasting, cost, quality, and delivery

Few Suppliers

- ▶ Buyer forms longer term relationships with fewer suppliers
- ▶ Create value through economies of scale and learning curve improvements
- ▶ Suppliers more willing to participate in JIT programs and contribute design and technological expertise
- ▶ Cost of changing suppliers is huge
- ▶ Trade secrets and other alliances

Vertical Integration

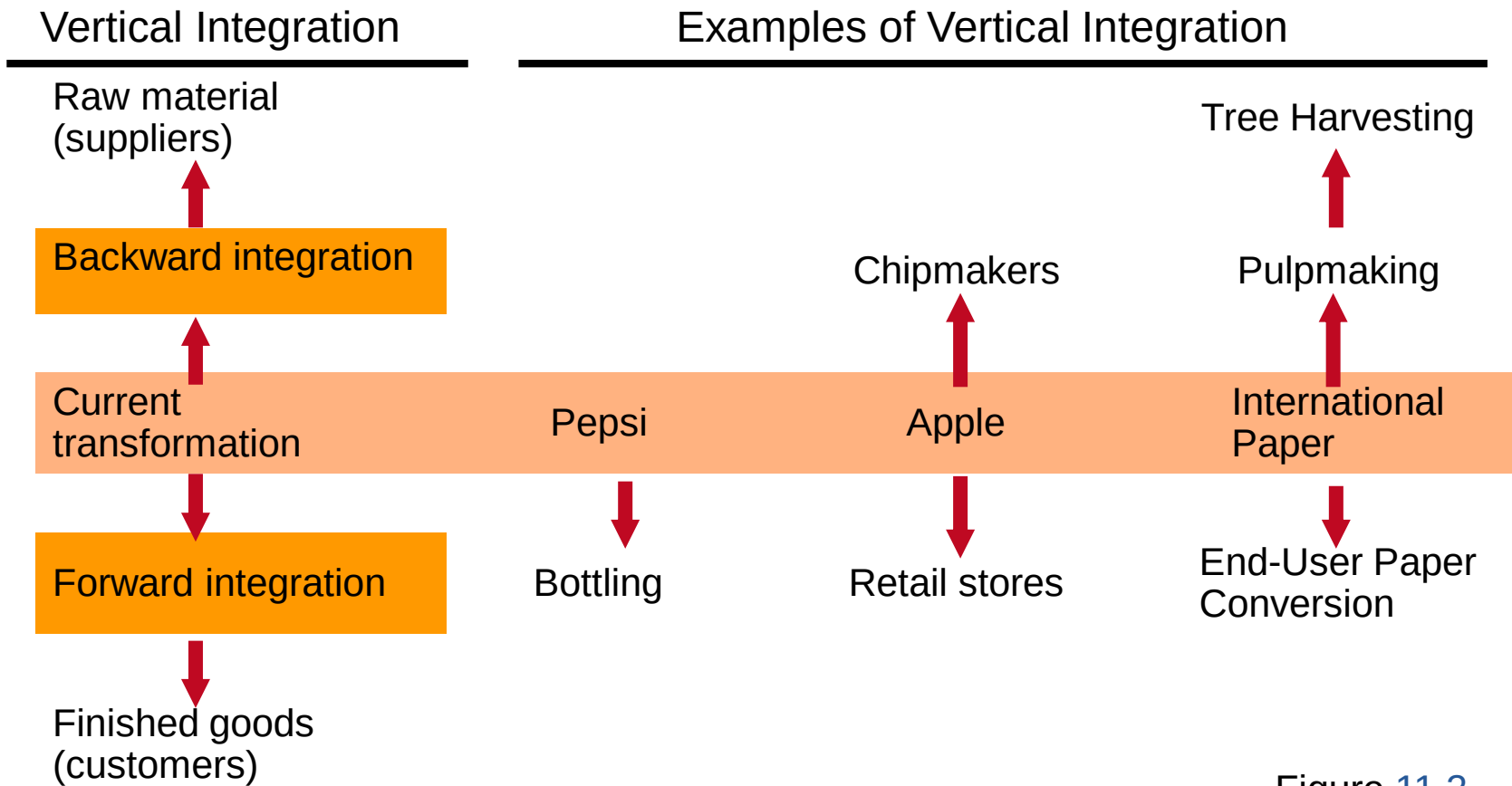


Figure 11.2

Vertical Integration

- ▶ Developing the ability to produce goods or service previously purchased
- ▶ Integration may be forward, towards the customer, or backward, towards suppliers
- ▶ Can improve cost, quality, and inventory but requires capital, managerial skills, and demand
- ▶ Risky in industries with rapid technological change

Joint Ventures

- ▶ Formal collaboration
 - ▶ Enhance skills
 - ▶ Secure supply
 - ▶ Reduce costs
- ▶ Cooperation without diluting brand or conceding competitive advantage

***Keiretsu* Networks**

- ▶ A middle ground between few suppliers and vertical integration
- ▶ Supplier becomes part of the company coalition
- ▶ Often provide financial support for suppliers through ownership or loans
- ▶ Members expect long-term relationships and provide technical expertise and stable deliveries
- ▶ May extend through several levels of the supply chain

Virtual Companies

- ▶ Rely on a variety of supplier relationships to provide services on demand
- ▶ Fluid organizational boundaries that allow the creation of unique enterprises to meet changing market demands
- ▶ Relationships may be short- or long-term
- ▶ Exceptionally lean performance, low capital investment, flexibility, and speed

Supply Chain Risk

- ▶ More reliance on supply chains means more risk
- ▶ Fewer suppliers increase dependence
- ▶ Compounded by globalization and logistical complexity
- ▶ Vendor reliability and quality risks
- ▶ Political and currency risks

Risk and Mitigation Tactics

- ▶ Research and assess possible risks
- ▶ Innovative planning
- ▶ Reduce potential disruptions
- ▶ Prepare responses for negative events
- ▶ Flexible, secure supply chains
- ▶ Diversified supplier base

Risk and Mitigation Tactics

TABLE 11.3 Supply Chain Risks and Tactics

RISK	RISK REDUCTION TACTICS	EXAMPLE
Supplier failure to deliver	Use multiple suppliers; effective contracts with penalties; subcontractors on retainer; pre-planning	McDonald's planned its supply chain 6 years before its opening in Russia. Every plant—bakery, meat, chicken, fish, and lettuce—is closely monitored to ensure strong links.
Supplier quality failure	Careful supplier selection, training, certification, and monitoring	Darden Restaurants has placed extensive controls, including third-party audits, on supplier processes and logistics to ensure constant monitoring and reduction of risk.

Risk and Mitigation Tactics

TABLE 11.3 **Supply Chain Risks and Tactics**

RISK	RISK REDUCTION TACTICS	EXAMPLE
Logistics delays or damage	Multiple/redundant transportation modes and warehouses; secure packaging; effective contracts with penalties	Walmart , with its own trucking fleet and numerous distribution centers located throughout the U.S., finds alternative origins and delivery routes bypassing problem areas.
Distribution	Careful selection, monitoring, and effective contracts with penalties	Toyota trains its dealers around the world, invoking principles of the Toyota Production System to help dealers improve customer service, used-car logistics, and body and paint operations.

Risk and Mitigation Tactics

TABLE 11.3 Supply Chain Risks and Tactics		
RISK	RISK REDUCTION TACTICS	EXAMPLE
Information loss or distortion	Redundant databases; secure IT systems; training of supply chain partners on the proper interpretations and uses of information	Boeing utilizes a state-of-the-art international communication system that transmits engineering, scheduling, and logistics data to Boeing facilities and suppliers worldwide.
Political	Political risk insurance; cross-country diversification; franchising and licensing	Hard Rock Café reduces political risk by franchising and licensing, rather than owning, when the political and cultural barriers seem significant.

Risk and Mitigation Tactics

TABLE 11.3 Supply Chain Risks and Tactics		
RISK	RISK REDUCTION TACTICS	EXAMPLE
Economic	Hedging to combat exchange rate risk; purchasing contracts that address price fluctuations	Honda and Nissan are moving more manufacturing out of Japan as the exchange rate for the yen makes Japanese-made autos more expensive.
Natural catastrophes	Insurance; alternate sourcing; cross-country diversification	Toyota , after its experience with fires, earthquakes, and tsunamis, now attempts to have at least two suppliers, each in a different geographical region, for each component.

Risk and Mitigation Tactics

TABLE 11.3 Supply Chain Risks and Tactics		
RISK	RISK REDUCTION TACTICS	EXAMPLE
Theft, vandalism, and terrorism	Insurance; patent protection; security measures including RFID and GPS; diversification	Domestic Port Radiation Initiative: The U.S. government has set up radiation portal monitors that scan nearly all imported containers for radiation.

Security and JIT

- ▶ Shipments get misrouted, stolen, damaged, or excessively delayed
- ▶ Technological innovations are improving security and inventory management
 - ▶ Location, motion sensors, broken seals, temperature
- ▶ Tracking can help expedite shipments

Building the Supply Base

- ▶ Supplier evaluation
 - ▶ Finding potential suppliers
 - ▶ Determine likelihood of their becoming good suppliers
- ▶ **Supplier certification**
 1. Qualification
 2. Education
 3. Certification

Building the Supply Base

- ▶ Supplier development
 - ▶ Integrate the supplier into the system
 - ▶ Quality requirements
 - ▶ Product specifications
 - ▶ Schedules and delivery
 - ▶ Procurement policies
 - ▶ Training
 - ▶ Engineering and production help
 - ▶ Information transfer procedures

Building the Supply Base

- ▶ Negotiation
 - ▶ A significant element in purchasing
 - ▶ Highly valued skills
 - ▶ **Cost-based price model**
 - ▶ Supplier opens books
 - ▶ **Market-based price model**
 - ▶ Based on published, auction, or indexed prices
 - ▶ **Competitive bidding**
 - ▶ Common policy for many purchases
 - ▶ Does not generally foster long-term relationships

Building the Supply Base

- ▶ Contracting
 - ▶ Share risks, benefits, create incentives
- ▶ Centralized purchasing
 - ▶ Leverage volume
 - ▶ Develop specialized staff
 - ▶ Develop supplier relationships
 - ▶ Maintain professional control
 - ▶ Devote resources to selection and negotiation
 - ▶ Reduce duplication of tasks
 - ▶ Promote standardization

Building the Supply Base

- ▶ E-Procurement
 - ▶ Speeds purchasing, reduces costs, integrates supply chain
- ▶ **Online catalogs and exchanges**
 - ▶ Standard items or industry-specific web sites
- ▶ **Online auctions**
 - ▶ Low barriers to entry
 - ▶ Reverse auctions for buyers
 - ▶ Price not always the most important factor

Logistics Management

- ▶ Objective is to obtain efficient operations through the integration of all material acquisition, movement, and storage activities
- ▶ Is a frequent candidate for outsourcing
- ▶ Allows competitive advantage to be gained through reduced costs and improved customer service

Shipping Systems

▶ **Trucking**

- ▶ Moves the vast majority of manufactured goods
- ▶ Chief advantage is flexibility

▶ **Railroads**

- ▶ Capable of carrying large loads
- ▶ Little flexibility though containers and piggybacking have helped with this

Shipping Systems

▶ **Airfreight**

- ▶ Fast and flexible for light loads
- ▶ May be expensive

▶ **Waterways**

- ▶ Typically used for bulky, low-value cargo
- ▶ Used when shipping cost is more important than speed

Shipping Systems

▶ Pipelines

- ▶ Used for transporting oil, gas, and other chemical products

▶ Multimodal

- ▶ Combines shipping methods
- ▶ Common, especially in international shipments
- ▶ Aided by standardized containers

Cost and Speed of Shipments

- ▶ Faster shipping is generally more expensive than slower shipping
- ▶ Faster methods tend to involve smaller shipment sizes while slower methods involve very large shipment sizes