



# CHAPTER 11: Supply Chain Management



# Introduction

## Supply Chain

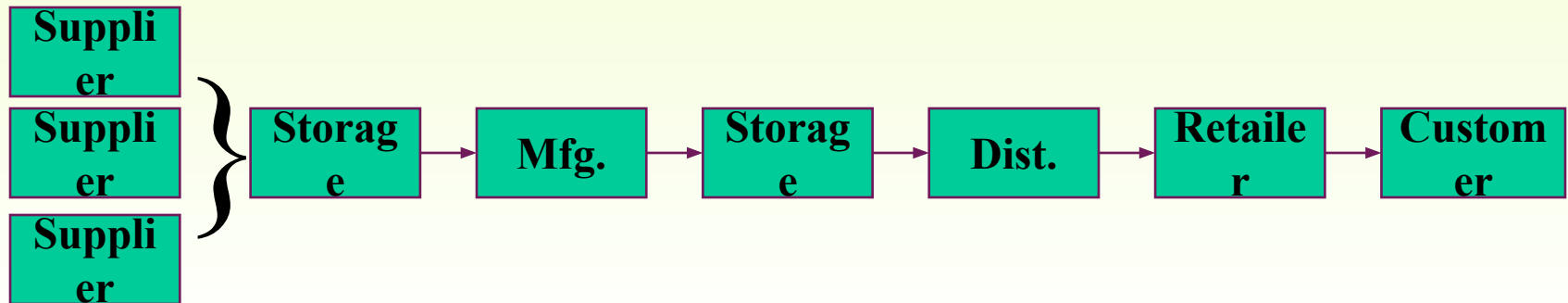
- Sequences of firms, their facilities, functions and activities, that are involved in producing and delivering a product or service to anywhere in the world

## Typical Facilities:

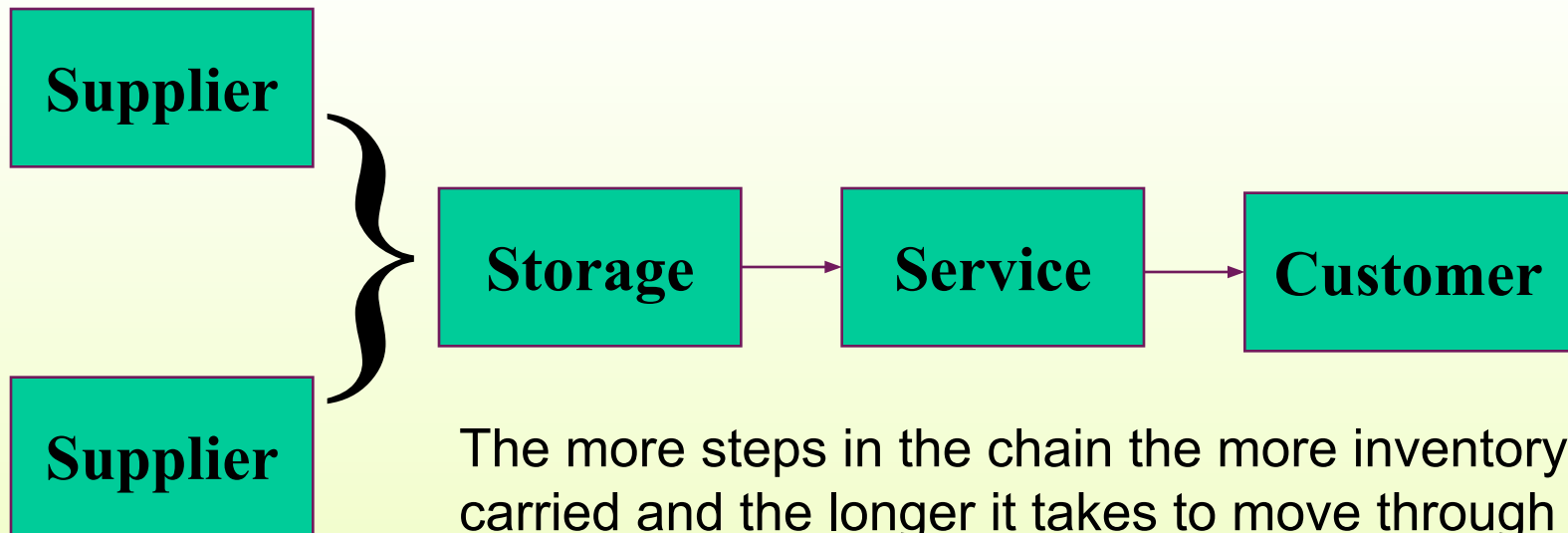
- Warehouses, Factories, Distribution Centers, Wholesalers, Resellers, Retail outlets

# Typical Supply Chains

## Typical Supply Chain for a Manufacturer



## Typical Supply Chain for a Service Provider



The more steps in the chain the more inventory carried and the longer it takes to move through the chain

# Need for Supply Chain Management

**Outsourcing: Buying goods or services instead of producing or providing them in house**

1. Improve operations efficiency
2. Increasing levels of outsourcing
3. Competitive pressures – lower prices and costs
4. Increasing globalization – suppliers & customers
5. Complexity of supply chains (international)
6. Manage inventories (\$\$) – keep on-hand as low as possible

# Logistics

**Logistics: the movement of materials/products and information within a facility and externally**

- Movement within the facility (flow)
- Incoming (raw materials)
- Outgoing (finished goods)
- Evaluating delivery alternatives – transportation modes, times and costs
- Distribution Requirements Planning (DRP)
- The global (international) supply chain

# Distribution Requirements Planning

## Distribution Requirements Planning (DRP)

- Computerized system for inventory management and distribution planning of finished goods through a firm's distribution system, from factory through to customer

## Use **DRP** to plan and coordinate:

- Transportation
- Warehousing stocking and efficiencies
- Inventory Management – how much and where
- Customer Service

# Distribution Requirements Planning

## MRP:

- Determining raw materials requirements to support factory production of finished goods. What materials, how many and when needed

## DRP:

- Determining finished goods to support customer service levels – which products, in which warehouses and when
- As products are sold to customers, the supplying warehouses need to be replenished – they place orders with the factory
- Factory uses MRP to support DRP

# Web-based & Electronic Data Interchange

**EDI: the direct transmission of inter organizational transactions, computer to computer, including purchase orders, shipping notices, and invoices**

- Reduction of paperwork
- 24/7 automated communication
- Lead time and inventory reduction
- Electronic transfer of funds
- Improved control of operations
- Increased accuracy (no manual data entry)
- Linked ERP systems (supplier/factory/customer)



# E-Commerce

## E-Commerce:

- the use of internet to facilitate business transactions

## Applications include

- Internet buying and selling
- E-mail
- Order and shipment tracking
- Payment

Internet enables our business to be 24/7/365

# Advantages of E-Commerce

Companies can:

- Have a global presence
- Improve competitiveness and quality
- Shorten supply chain response times
- Create virtual companies
- Level the playing field for small companies



**But – also means our competitors can be from anywhere in the world – not just locally**

# Creating an Effective Supply Chain

**Strategic partnership: two or more organizations join so that each may realize a strategic benefit**

- Integrate and coordinate activities between the firm, its customers and its raw material suppliers
- Form strategic partnerships with key customers and suppliers –product stocking and ordering
- Seek out efficiencies and cost-savings across the entire chain (reduce Time and Cost)

# Supply Chain Performance Metrics

- **Quality**
- **Cost** – production, logistics
- **Flexibility** – quickly react to changing demand volumes
- **Velocity**
  - Inventory velocity: the rate at which inventory goes through the supply chain
  - Information velocity: the rate at which information is communicated in a supply chain
- **Customer service levels** – On Time Delivery, % stock-outs, customer satisfaction levels

# Supply Chain Benefits & Drawbacks

| <b>Problem</b>               | <b>Potential Improvement</b>                         | <b>Benefits</b>                         | <b>Possible Drawbacks</b>                                |
|------------------------------|--|---|--|
| <b>Large inventories</b>     | <b>Smaller, more frequent deliveries</b>             | <b>Reduced holding costs</b>            | <b>Traffic congestion<br/>Increased costs</b>            |
| <b>Long lead times</b>       | <b>Delayed differentiation<br/>Disintermediation</b> | <b>Quick response</b>                   | <b>May not be feasible<br/>May need absorb functions</b> |
| <b>Large number of parts</b> | <b>Modular</b>                                       | <b>Fewer parts<br/>Simpler ordering</b> | <b>Less variety</b>                                      |
| <b>Cost<br/>Quality</b>      | <b>Outsourcing</b>                                   | <b>Reduced cost,<br/>higher quality</b> | <b>Loss of control</b>                                   |
| <b>Variability</b>           | <b>Shorter lead times,<br/>better forecasts</b>      | <b>Able to match supply and demand</b>  | <b>Less variety</b>                                      |

# Purchasing

## Purchasing:

- Responsible for obtaining all raw materials, parts supplies, machines and equipment, and services needed to produce a product or provide a service
- This is the major department in a firm where cash is going out. Purchasing needs to be vigilant in ensuring best pricing and value for the firm

# Purchasing Cycle

1. Process requisitions – there must be an identified need for an item
2. Supplier selection – who is capable and performs well
3. Place orders with suppliers – Purchase orders
4. Monitoring open orders – Ensure ordered items arrived when needed
5. Receiving orders – Update the MRP system that materials have arrived
6. Paying the supplier – ensuring Finance pays supplier in a timely manner – usually Net 30

# Value Analysis

**Value Analysis: examination of the function of purchased parts/components/products in an effort to reduce their cost**

1. Select an item that has a high annual dollar value. This can be a part, component, or product.
2. Identify the function of the item
3. Obtain answers to these kinds of questions
  1. Can the function be performed in another way?
  2. Could another material or part be used?
  3. Can specifications be less stringent to save cost or time?
  4. Can two or more parts of the item be combined?
  5. Can a different process be used on the item to save cost or time?
  6. Do supplier/providers have suggestions for improvements?
  7. Can packaging be improved or made less costly?
4. Evaluate the answers obtained, and make recommendations



# Make or Buy

## Main reasons for outsourcing (Purchasing)

- Ability of the outside source to provide materials, parts, or services better and cheaper
- Expertise and knowledge
- Outsourcing gives a company added flexibility
- **Do not outsource technological secrets or secret recipes (Coca-Cola)**

# Determining Prices

## Myths concerning negotiated purchasing

- Negotiation is a win-lose confrontation
- The main goal is to obtain the lowest possible price
- Each negotiation is an isolated transaction

## Centralized purchasing

- One department handles all purchasing

## Decentralized purchasing

- Everyone can purchase their items

# Ethics in Purchasing

1. To consider first the interests of one's organization in all transactions and to carry out and believe in its established policies
1. To buy without prejudice, seeking to obtain the maximum value for each dollar of expenditure. To not engage in illegal or unethical activity – bribes, kick-backs, gifts, favours, etc.
1. To strive for increased knowledge of the materials and processes of manufacture, and to establish practical procedures for the performance of one's responsibilities

# Supplier Management

**Vendor Analysis: Evaluating the source of supply in terms of factors such as price, quality, delivery, and service**

Reliable and trustworthy suppliers are a vital link in an effective supply chain

- Choosing suppliers who are capable, reliable and have good performance levels
- Supplier monitoring & relationships – regular updates of performance – quality and delivery times
- Supplier partnerships – close working relationships, share data, work towards common success