

# Procurement and Supply Chain Management

**Prepared by Dr. Tarek Mohamed**

**MGM 431**

**Lecture 2**



# Understanding logistics and supply chain

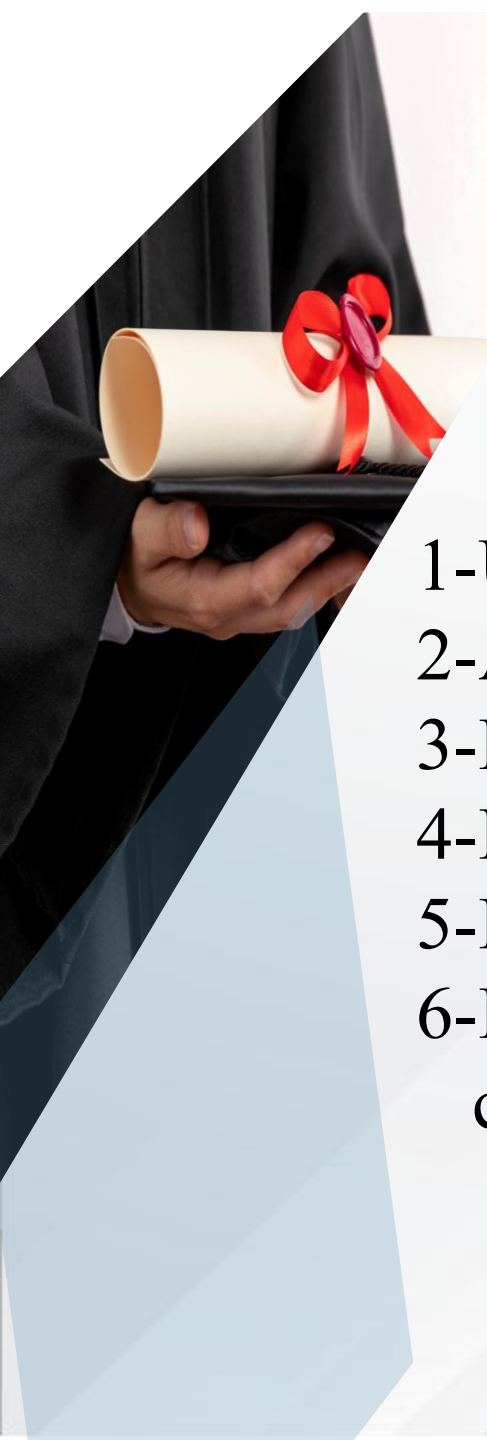
## Lecture 2

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# Course Agenda

Chapter

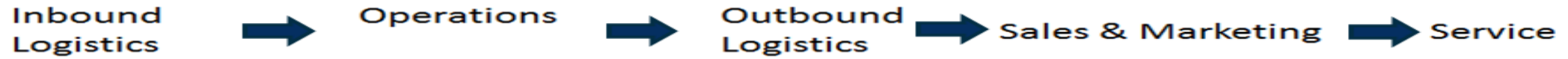
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- 1-Understanding both supply chain and logistics management.
  - 2-Analyze the increased importance of logistics.
  - 3-Provide a brief overview of activities in the logistics channel.
  - 4-Discuss the role of warehousing in a logistics system.
  - 5-Describe several types of transportation specialists.
  - 6-Describe reverse logistics and sustainability dimensions for a supply chain.

# Supply Chain Defined

- ❑ **The supply chain** itself is a system of organizations, people, activities, information, and resources involved in the planning, moving or storage of a product or service from supplier to customer (actually more like a “web” than a “chain”).
- ❑ **Supply chain** activities transform natural resources, raw materials, and components into a finished product that is delivered to the end customer.

- ❑ Depending on one's view, some of the functions below may be included within the supply chain & logistics organization:
- ❑ **Procurement** - The acquisition of goods or services from an outside external source.
- ❑ **Demand forecasting** - Estimating the quantity of a product or service that customers will purchase.
- ❑ **Customer service and order management** - Tasks associated with fulfilling an order for goods or services placed by a customer.
- ❑ **Inventory** – Planning and management.
- ❑ **Transportation** – For hire and private.
- ❑ **Warehousing** – Public and private.
- ❑ **Materials handling and packaging** - Movement, protection, storage and control of materials and products using manual, semi-automated and automated equipment.
- ❑ **Facility network** – Location decision in an organization's supply chain network.

# VALUE CHAIN



- ☐ **Inbound logistics**—Receiving, warehousing, and inventory control of input materials.
- ☐ **Operations**—Transforming inputs into the final product or service to create value.
- ☐ **Outbound logistics**—Actions that get the final product to the customer, including warehousing and order fulfillment.
- ☐ **Marketing and sales**—Activities related to buyers purchasing the product, including advertising, pricing, distribution channel selection, and the like.
- ☐ **Service**—Activities that maintain and improve a product's value, including customer support, repair, warranty service, and the like.

- ❑ **There are also support activities identified by Porter that can add value to an organization:**
- ❑ **Procurement**—Purchasing raw materials and other inputs that are used in value-creating activities.
- ❑ **Technology development**—Research and development, process automation, and similar activities that support value chain activities.
- ❑ **Human resource management**—Recruiting, training, development, and compensation of employees.
- ❑ **Firm infrastructure**—Finance, legal, quality control, etc.

# Supply Chain Strategy for a Competitive Advantage

- ❑ **Cost Strategy** – Focuses on delivering a product or service to the customer at the lowest possible cost without sacrificing quality. **Walmart** has been the low-cost leader in retail by operating an efficient supply chain.
- ❑ **Time Strategy** – This strategy can be in terms of speed of delivery, response time or even product development time. **Dell** has been a prime example of a manufacturer that has excelled at response time by assembling, testing and shipping computers in as little as a few days. **FedEx** is known for fast, on-time deliveries of small packages.
- ❑ **Quality Strategy** – Consistent, high-quality goods or services require a reliable, safe supply chain to deliver on this promise. If **Sony** had an inferior supply chain with high damage levels, it wouldn't matter to the customer that their electronics are of the highest quality.
- ❑ **Flexibility Strategy** – Can come in various forms such as volume, variety and customization. Many of today's e-commerce businesses such as **Amazon** offer a great deal of flexibility in many of these categories.

## Segmenting the supply chain

- ☐ Product complexity based
- ☐ Supply chain risk based
- ☐ Manufacturing process and technology based
- ☐ Customer service needs based
- ☐ Market driven

# Integrated supply chain organization



- ❑ **Form Utility** – Performed by the manufacturers (as well as third party logistics companies or “3PL’s” that perform value added activities such as kitting and display assembly) making the products useful.
- ❑ **Time Utility** – Having products available when needed.
- ❑ **Place Utility** – Having items available where people want them.
- ❑ **Possession Utility** – Transfer ownership to the customer as easily as possible, including the extension of credit.
- ❑ **Information Utility** – Opening two-way flows between parties (i.e. customer and manufacturer).
- ❑ **Service Utility** - Providing fast, friendly service during and after the sale and teaching customers how to best use products. This is becoming one of the most important utilities offered by retailers, which in many ways are part of the supply chain.

- **Council of Logistics Management definition:**

“Logistics is that part of the supply chain process that plans, implements, and controls the efficient, effective forward and reverse flow and storage of goods, services, and related information between the point of origin and the point of consumption in order to meet customers’ requirements.”

- A Reduction in Economic Regulation
- Changes in Consumer Behavior
- Technological Advances
- The Growing Power of Retailers
- Globalization of Trade

- **Marketing**
  - **Place Decisions**
  - **Price Decisions**
    - Landed costs
  - **Product Decisions**
    - Stockouts
    - Sustainable products
  - **Promotion Decisions**

- ❑ “Set of institutions necessary to transfer the title to goods and to move goods from the point of production to the point of consumption and, as such, which consists of all the institutions and all the marketing activities in the marketing process.”
  
- ❑ **Channel members**
  - Manufacturers
  - Wholesalers
  - Retailers

- **Ownership channel**
  - Covers movement of the title to the goods
- **Negotiations channel**
  - Buy and sell agreements are reached
- **Financing channel**
  - Payments for goods
- **Promotions channel**
  - Promoting a new or existing product
- **Logistics channel**
  - Moving and storing product throughout the channel

- **Ownership channel**
  - Banks, finance companies
- **Negotiations channel**
  - Brokers
- **Financing channel**
  - Banks, insurance companies, finance companies
- **Promotions channel**
  - Advertising agencies, public relations agencies
- **Logistics channel**
  - Freight forwarders

## Activities in the Logistical Channel

- Customer service
- Facility location decisions
- Inventory management
- Order management
- Procurement
- Transportation management
- Demand forecasting
- International logistics
- Materials handling
- Packaging
- Reverse logistics
- Warehousing management

- ❑ **General warehouse** – This type of facility is primarily for the storage and protection of goods, with the need to minimize handling and movement.
- ❑ **Distribution warehouse** (or distribution center) – In these facilities goods are received in large volumes. The goods are then sorted, stored and then consolidated into customer orders for fulfillment. This type of facility is more concerned with throughput.

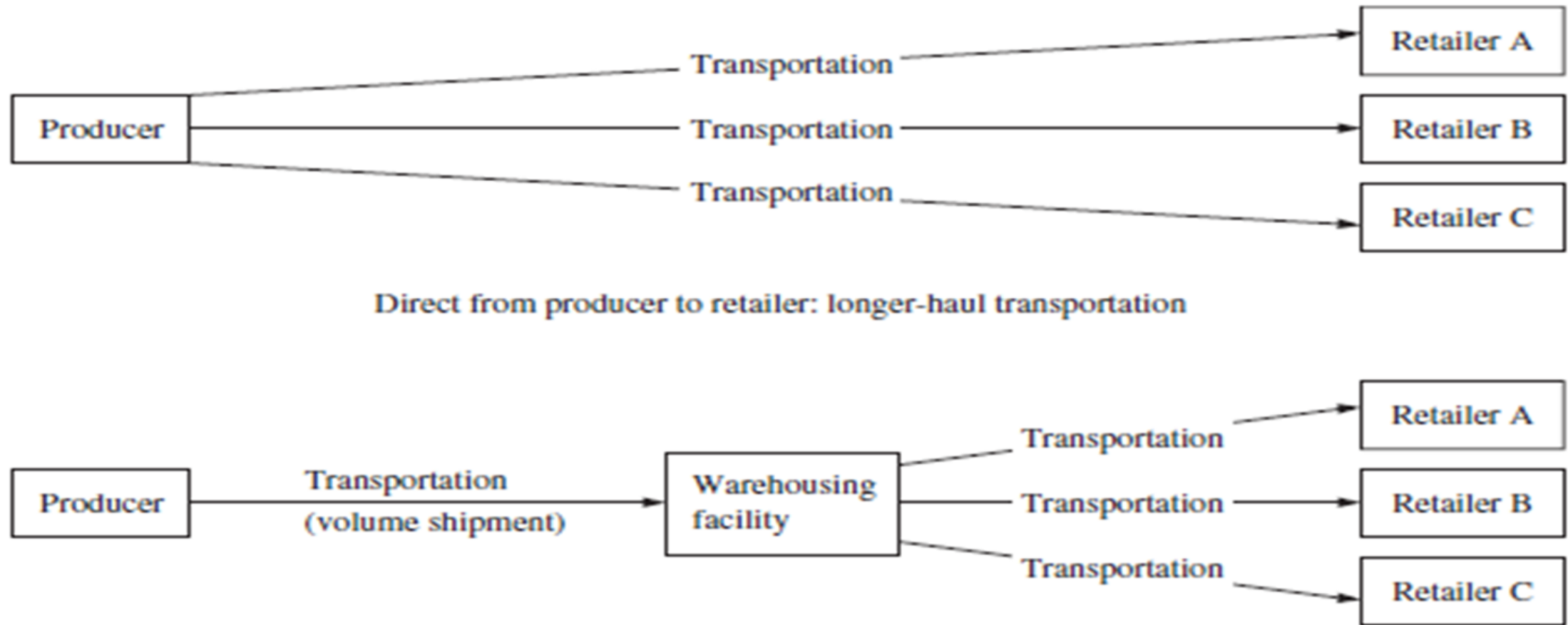
## ❑ Warehousing

Refers to “that part of the firm’s logistics system that stores products (raw materials, part, good-in-process, finished goods) between points of origin and point of consumption.”

## ❑ Warehousing Management

Warehousing and transportation are substitutes for each other, with warehousing having been referred to as “transportation at zero miles per hour.”

## The Role of Warehousing in a Logistics System



**FIGURE 10.1 Adding a Warehousing Facility: Shorter-Haul Transportation**

- ❑ **Key reason for warehousing**

Because patterns of production and consumption do not coincide

- ❑ **Warehousing**

Serves to match different rates or volumes of flow when patterns of production and consumption do not coincide

- ❑ **Warehousing facilitates the regrouping function in a supply chain**

Involves rearranging the quantities and assortment of products as they move through the supply chain

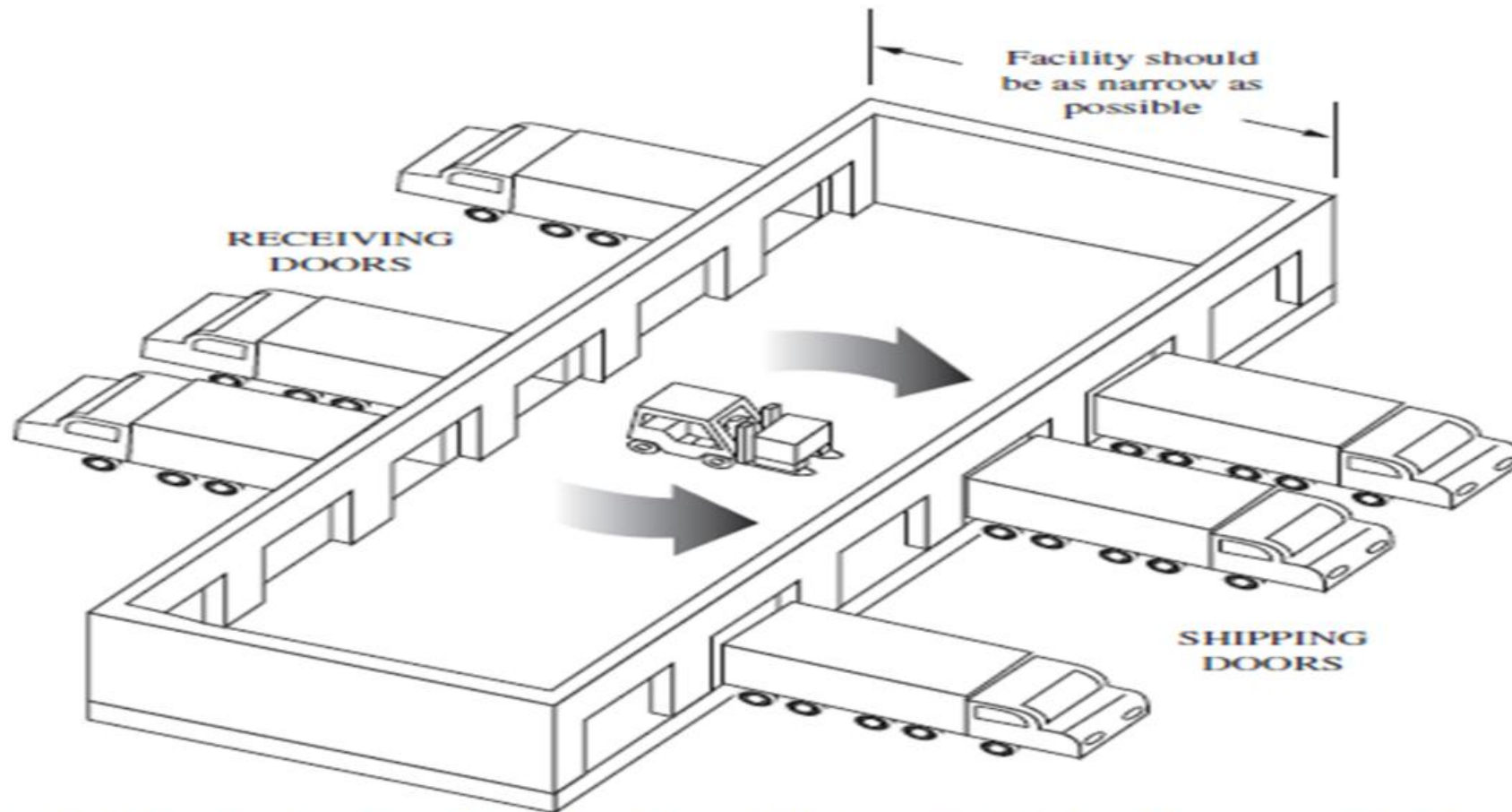
- **Warehousing facilitates the regrouping function in a supply chain – can take place in four forms**
  - **Accumulating (bulk making)**
    - Involves bringing together similar stocks from different sources
  - **Allocating (bulk breaking)**
    - Involves breaking larger quantities into smaller quantities
  - **Assorting**
    - Refers to building up a variety of different products for resale to particular customers
  - **Sorting out**
    - “Separating products into grades and qualities desired by different target markets”

- **Warehousing can be provided by**
  - **Warehouses**
    - Emphasize the storage of products
    - Primary purpose is to maximize the usage of available storage space
  - **Distribution centers**
    - Emphasize rapid movement of products through the facility
    - Attempt to maximize throughput
      - Throughput is defined as the amount of product entering and leaving a facility in a given time period

- **Warehousing can be provided by**
  - **Cross-docking facilities**
    - Has grown due to the increased emphasis on time reduction in supply chains
    - Defined as “the process of receiving product and shipping it out the same day or overnight without putting it into storage”
    - Key benefits include improved service by allowing products to reach their destinations more quickly as well as reduced inventory carrying costs from less stock because of faster product delivery

- **Warehousing can be provided by**
  - **Cross-docking facilities**
    - Is differentiated from distribution centers by the length of time a product is in a facility (24 hours or less for cross-docking facility)
    - Design of the facility is an important consideration to facilitate quick movement of product
      - Should be designed with a minimal amount of storage space and truck doors on two or more sides
      - Some designs include “H”, “I”, “T”, “U” and “E” configurations

## The Role of Warehousing in a Logistics System



**FIGURE 10.2** Ideal Facility for Pure Supplier Consolidation (Full Pallet Movement) *Source:* Reprinted by permission of the Warehousing Education and Research Council.

- **Transportation**
  - The actual, physical movement of goods and people between two points
  - Transportation is a significant component of the costs incurred by most supply chains.
- **Transportation influences or is influenced by the following logistics activities:**
  - Transportation costs are affected by node location
  - Inventory requirements are influenced by mode
  - Packaging requirements are dictated by mode
  - Carrier classification rules dictate package choice

- **Transportation influences or is influenced by the following logistics activities:**
  - Materials handling equipment and design of the docks are dictated by mode
  - Maximum consolidation of loads achieved with order-management technology reduces costs
  - Customer service goals influence the type and quality of carrier
  - Customer service goals influence carrier choice

**The attractiveness of a particular mode depends on the following attributes:**

- ☐ Cost
- ☐ Speed
- ☐ Reliability
- ☐ Capability
- ☐ Capacity
- ☐ Flexibility

- **Freight forwarders**

- Two types of domestic freight forwarders
  - Surface
  - Air
- Exists by offering a service to shippers that must use LTL rates because they do not generate enough volume to use TL rates
- Typically offers pickup and delivery service but does not perform the line-haul service (done by motor carriers or railroads)

- **Freight forwarders**

- Give volume discounts to customers shipping large quantities of freight at one time
- TL rates < LTL rates because
  - Shipper loads the goods and the consignee unloads trailer
  - The load goes directly from shipper to consignee without passing through terminals
  - Paperwork, billing, and other administrative costs are little more for a 25,000 lb shipment than for 250 lb shipment

- **Air forwarders**

- Consolidate shipments
- Tender to airlines in containers ready for loading
- Forwarders provide retailing function
- Airline provides wholesaling function

- **Shipper's associations**

- Similar to air and freight forwarders but are not-for-profit organizations
- Primarily focused on achieving the lowest rates for members

- **Brokers**

- Companies that look to match a shipper's freight with a carrier to transport it
- May consolidate LTL shipments and then give to motor carriers, freight forwarders, or shippers' associations

- **Third party logistics companies (3PLs)**

- Find clients with complimentary transportation needs to maximize equipment utilization

- **Fourth party logistics companies (4PLs)**

- Logistics manager arranges transportation separately with third-party logistics providers.

- **Parcel carriers**
  - Parcels are packages weighing up to 150 pounds
  - Parcel carriers are companies that specialize in transporting parcels
  - **Parcel carriers include:**
    - USPS
    - UPS
    - FedEx Express
    - Greyhound Package Express

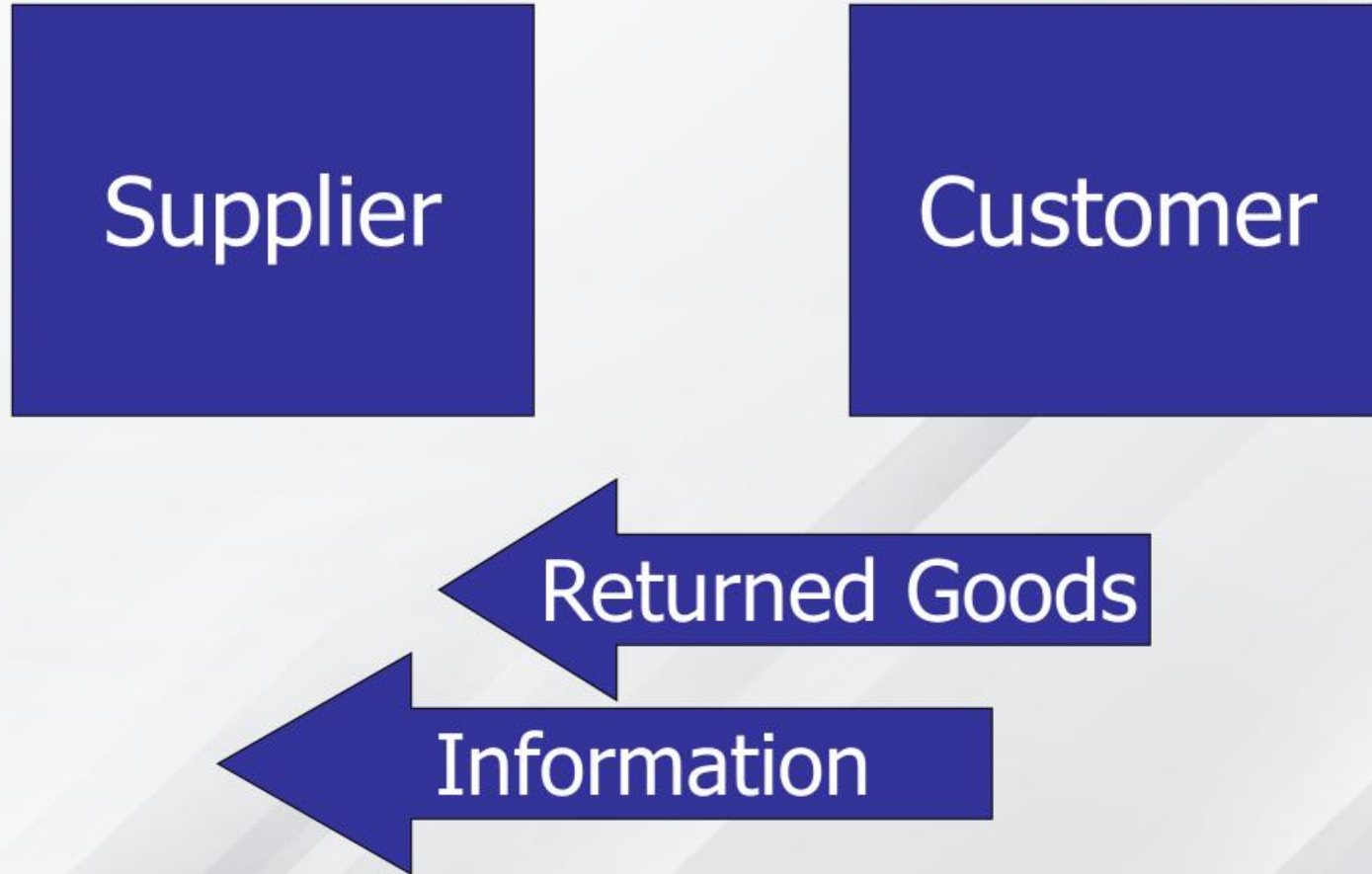
“A complete supply chain dedicated to the reverse flow of products and materials for the purpose of returns, repair, remanufacture, and/or recycling.”

- Can represent major costs to a company
- Amount of goods returned
  - up to 50% in the publishing industry
  - 90% of automotive starter motors or alternators
- Companies are taking responsibility of the return of packaging materials

## Reverse Logistics - Information

- Goods are returned to supplier
- Information is also needed
  - reason / approval for the return
  - credit information

# Reverse Logistics



- Return and disposal of packaging materials
- Return and disposal of environmentally sensitive materials
  - heavy metals
  - solvents
- Use of reusable (returnable) packaging

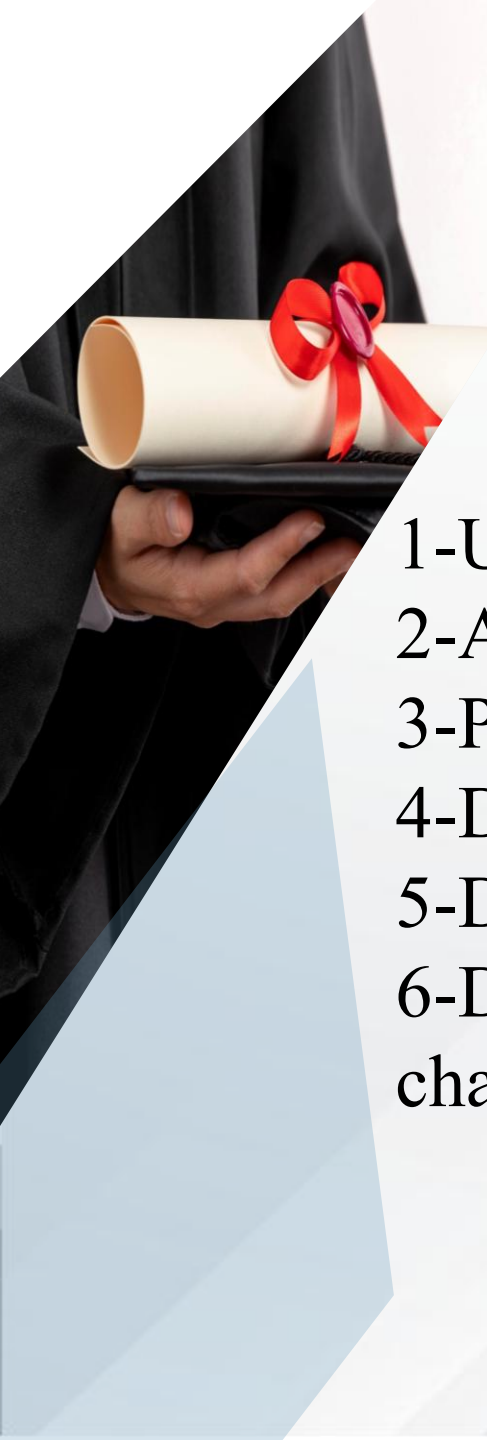
## Returned Goods

- Quality demands by customers
- Damage or defects
- Excessive inventories
- Seasonal inventories
- Out-of-date inventories
- Remanufacturing or refurbishment

## Returned Goods - Disposition

- Returned to inventory
- Refurbished for resale
- Sold into alternate markets
- Disassembled to retrieve components
- Sorted for material recovery

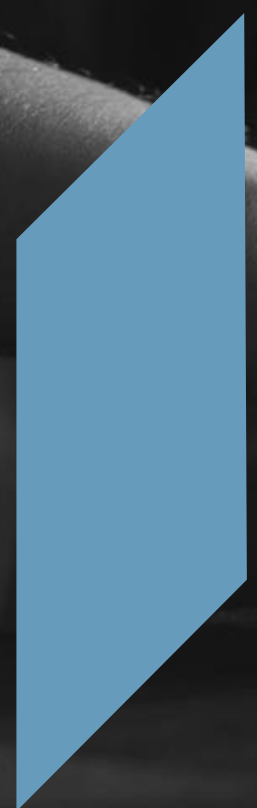




## Summary of Learning Objectives

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- Supply Chain Council



Thank You