Supply Chain Management (SCM)

1. Introduction to Supply Chain Management

Definition:

Supply Chain Management (SCM) is the **management of the flow of goods and services**, including all processes that transform **raw materials into final products**.

Objectives:

- Reduce costs
- Improve efficiency
- Enhance customer satisfaction
- Gain competitive advantage

Key Components:

1. **Suppliers / Vendors**
2. **Manufacturers**
3. **Warehouses**
4. **Distribution Centres**
5. **Retailers**
6. **Customers**

2. Supply Chain Process Flow Diagram

Supplier → Manufacturer → Distributor → Retailer → Customer

Supporting Flows:

- **Information Flow**: Forecasts, orders, returns
- **Product Flow**: Raw materials to finished goods
- **Cash Flow**: Payments, credits

3. Core SCM Processes

Process	Description
Planning	Forecasting demand, inventory planning
Sourcing	Selecting suppliers, procurement
Making	Manufacturing, quality control
Delivering	Logistics, warehousing, transportation
Returning	Handling returns, reverse logistics

4. Industrial Case Studies

Case Study 1: Dell – Build-to-Order Model

- **Strategy**: Direct-to-customer, no intermediaries
- **Impact**: Reduced inventory costs, faster delivery
- **Diagram**:
- Customer Order → Dell Assembly → Direct Delivery

Case Study 2: Amazon – Fulfilment Network

- **Strategy**: Automated warehouses, predictive analytics
- **Impact**: 1-day delivery, high customer satisfaction
- **Key Tech**: Robotics, AI, real-time tracking

Case Study 3: Toyota – Just-In-Time (JIT)

- **Strategy**: Produce only what is needed, when needed
- **Impact**: Reduced waste, improved efficiency
- **Challenge**: Vulnerable to supply disruptions

5. SCM Technologies

Technology	Use Case
ERP Systems	Integrate all business processes

Technology	Use Case
RFID	Real-time inventory tracking
IoT	Monitor goods in transit
Blockchain	Transparent and secure transactions
AI & ML	Demand forecasting, route optimization

6. Key Metrics in SCM

- **Inventory Turnover**
- **Order Fulfillment Cycle Time**
- **Perfect Order Rate**
- **Supply Chain Cost as % of Sales**
- **Customer Order Cycle Time**

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7. Challenges in SCM

- Demand variability
- Supply disruptions
- Globalization complexities
- Sustainability and ethical sourcing
- Technological integration

8. Sustainable Supply Chain

- **Green Logistics**
- **Carbon Footprint Reduction**
- **Circular Economy**
- **Ethical Sourcing**