

LOGISTICS AND SUPPLY CHAIN MANAGEMENT

UNIT – 1 CHAPTER – 1 INTRODUCTION TO LOGISTICS MANAGEMENT

Importance of logistics

1. Logistics is the bedrock of trade and business
2. Leads to customer satisfaction
3. Cost reduction and profit maximization
4. Competitive edge
5. Effective communication system
6. Supports critical functions like operations and marketing

Logistical interface with marketing

1. Product
2. Price
3. Promotion
4. Place
5. Logistics wins or losses

Objectives of logistics

1. Rapid response
2. Minimum variance
3. Minimum inventory
4. Movement consolidation
5. Quality
6. Life cycle support
7. Minimum product damage

Logistics functions logistics mix

1. Order processing
2. Inventory management
3. Warehousing
4. Transportation
5. Material handling
6. Packaging
7. Information management
8. Customer service

Logistical performance cycle

1. Procurement performance cycle/ Inbound logistics
2. Manufacturing support performance / In process logistics
3. Physical distribution cycle / Outbound logistics

Integrated logistics

1. Inventory flow
2. Information flow

Seven pillars / Seven parameters to achieve logistical competency

1. Network design
2. Information management
3. Transportation
4. Inventory management
5. Warehousing, material handling & packaging
6. Material handling
7. Packaging

Scope of reverse logistics

1. Return of unsold goods
2. Refilling / Reusable packaging
3. Repairs and refurbishing
4. Product recall
5. Recycling
6. Scientific disposal of waste products

How to achieve green logistics:

1. Network optimization
2. Alternative mode of transportation
3. Alternative fuel
4. Building bypass roads
5. Paper usage reduction
6. New fleet induction
7. Waste recycling and scientific disposal

Chapter - 2 INTRODUCTION TO SUPPLY CHAIN MANAGEMENT

Three Flows

1. Product flow
2. Information flow
3. Financial flow

Objectives of supply chain management

1. To maximise the overall profitability
2. Enhancing customer service
3. Reduce inventory flow
4. Reduce warehousing cost
5. Reduce transportation cost
6. Reduce lead time
7. Minimizing Variance
8. Ensuring on-time delivery to customers
9. Reducing working capital

Functions of supply chain management

1. Defining business boundaries and relationships
2. Managing demand & supply
3. Logistics
4. Purchasing
5. Selling
6. Manufacturing
7. Product design

Participants of supply chain management

1. Suppliers
2. Manufacturers
3. Distributors
4. Customers

Remedies / Solutions of Bullwhip Effect

1. Know your customer
2. Proper forecast
3. Better flow of information
4. Free return policies
5. Reducing the lead time of the supply

CHAPTER – 3 CUSTOMER SERVICE : KEY ELEMENTS OF LOGISTICS

Objectives of customer service

1. Ensuring product order
2. To improve customer satisfaction
3. To increase sales
4. To retain existing customers
5. Improve market position
6. To retain customer loyalty

Elements of customer service

1. Pre - transaction elements
2. During - transaction elements
3. Post - transaction elements

Levels of customer service

1. Customer service as an activity
2. Customer service as a performance
3. Customer service as a philosophy

Rights of customer service

1. Right Product
2. Right Quantity
3. Right Condition
4. Right Place
5. Right Time
6. Right Price
7. Right Customer

Strategies to improve customer service / Customer service strategy

1. Developing customer service vision
2. Assessment of customer needs
3. Hiring the right employees
4. Customer service goals
5. Training
6. Accountability
7. Rewards and recognition

CHAPTER - 4 DEMAND FORECASTING

Objectives of demand forecasting

1. Sales Planning
2. Production planning
3. Adequate purchasing of materials
4. Framing proper policies
5. Enables to make sound plans
6. Reducing inventory costs
7. Reducing warehousing costs
8. Tracking overall performance
9. Effective labour management

Approaches to forecasting

1. Top – down approach
2. Bottom – up approach

Forecasting methods Forecasting techniques

1. Qualitative forecasting methods
2. Jury of executive methods
3. Consumer survey method
4. Assessment by sales personnel
5. Naïve approach
6. Delphi method

Quantitative methods of forecasting

- **Time series method**
 - 1) Moving Average
 - 2) Extended smoothing
- **Casual technique**

UNIT - 2 CHAPTER - 5 TRANSPORTATION

Transportation functionality

1. Product movement
 - A) Temporal (Time) resources
 - B) Financial resources
 - C) Environmental resources
2. Product storage

Principles of transportation

1. Economies of scale
2. Economies of distance

Participants in transportation

1. Shipper / Originating party/ consigner
2. Receiver / destination party / consignee
3. Carrier
4. Government
5. Public

Railways

Advantages of rail transport

1. High speed
2. Large carrying capacity
3. Suitable for long distance
4. Protection to goods
5. Suitable for heavy & bulky products
6. Economical
7. Less pollution

Disadvantages of rail transport

1. Huge capital expenditure
2. Huge overheads cost
3. No competition
4. No door to door service
5. Lack of flexibility

Roadways

Advantages of roadways

1. Limited capital expenditure
2. Door to door service
1. Flexibility

2. Suitable for short distance
3. Feeder to other modes of transport

Disadvantages of road transport

1. Irregular and unreliable
2. Not suitable for long distance
3. Bad and unsafe road conditions
4. Lack of uniformity in rates
5. Low speed

Airways

Advantages of air transport

1. Brings world closer
2. High speed
3. Quick services
4. Easy access
5. No physical barrier
6. Natural highways

Disadvantages of air transport

1. Costliest mode
2. Huge investments
3. Not suitable for heavy and bulky products
4. Limited carrying cost
5. Affected by weather
6. Restricted products
7. Narrow coverage

Waterways

1. Sea transport
2. Inland water transport

Advantages of water transport

1. Largest carrying capacity
2. Long distance
3. Protection to goods
4. Cheapest mode of transport
5. Flexible mode
6. Natural highways

Disadvantage of water transport

1. Huge capital expenditure
2. Huge overload cost
3. Slow speed
4. Alliance needed
5. Specialized packaging

Ropeways

Pipelines

Advantages of pipelines

1. Continuous
2. Unaffected by weather
3. Cheap
4. Eco friendly
5. No empty wagons
6. Suitability

Disadvantages of pipelines

1. Cannot carry solids
2. Inflexibility

Factors influencing transportation decisions

1. Nature of goods
2. Availability / Accessibility
3. Distance
4. Cost
5. Delivery time
6. Frequency
7. Capabilities of mode
8. Speed
9. Reliability
10. Safety and security

Transportation infrastructure

1. Terminal facilities
2. Vehicles
3. Right of way
4. Prime movers
5. Carrier organization

Intermodal transportation

1. Piggy back
2. Fishy back
3. Birdy back
4. Land bridge
5. Mini land bridge
6. Micro bridge

Factors influencing transportation cost

1. Product related factors
2. Market related factors

Product related factors

1. Density
2. Stowability
3. Handling
4. Liability

Market related factors

1. Location of markets
2. Nature and extent of government regulation
3. Seasonality of product movement
4. Domestic / international transportation
5. Degree of competition

CHAPTER - 6 WAREHOUSING

Warehousing functionality

1. Receiving goods
2. Identifying goods
3. Sorting goods
4. Dispatching goods to storage
5. Holding goods
6. Selecting, retrieved, packing
7. Marshalling goods
8. Dispatching goods
9. Preparing record and advice

Benefits of warehousing

A) Economic benefits

1. Consolidation
2. Break bulk
3. Cross dock
4. Processing postponement
5. Stockpiling

B) Service benefits

1. Spot stock
2. Assortment
3. Mixing
4. Production Support
5. Market presence

Warehouse operating principles

Design criteria

1. Number of storey's
2. Height
3. Product flow

Handling Technology

1. Movement technology
2. Movement scale economies
3. Storage plan

Types of warehouses

1. Private warehouses
2. Public warehouses
3. Contract warehouses

Warehousing strategies

1. Presence synergies
2. Industry synergies
3. Operating flexibility
4. Location flexibility
5. Economies of scale

Number of warehouses

1. Transportation costs
2. Inventory costs
3. Warehousing costs
4. Customer dissatisfaction costs

Factors affecting warehousing costs

1. Size of warehouses
2. Type of product
3. Transportation
4. Inventory
5. Customer service level
6. Degree of automation & type of equipments used in warehousing

CHAPTER – 7 MATERIAL HANDLING

Objectives of material handling

1. Increase the storage capacity of warehouse
2. Reduction of the number of times product is handled
3. Development of effective working conditions
4. Reduction of movement involving manual labour
5. Improves logistics service
6. Reduction of cost

Principles of material handling

1. Planning principle
2. Standardisation principle
3. Work principle
4. Ergonomic principle
5. Unit load principle
6. Space utilization principle
7. Systems principle
8. Automation
9. Environment principle
10. Life cycle cost

Systems of material handling

1. Manual material handling system
2. Mechanised material handling system
3. Semi – Automated material handling system
4. Automated material handling system

Equipments used for material handling

1. Fixed path
2. Variable path
3. Conveyors
4. Cranes
5. Elevators
6. Hoists
7. Industrial Trucks
8. Pipelines
9. Automated guided vehicle
10. Industrial robots
11. Forklift trucks

Factors affecting selection of material handling equipments

1. Frequency of material movement
2. Distance of material movement
3. Quantity of materials
4. Time constraint
5. Cost
6. Engineering factors
7. Compliance with safety standards

8. Low maintenance costs

Elements of customer service

1. Reduced lead time
2. Safe delivery
3. Correct orders
4. Consistency

CHAPTER – 8 PACKAGING

Objectives of packaging

1. Physical protection
2. Barrier protection
3. Containment or agglomeration
4. Information transmission
5. Marketing
6. Security
7. Convenience
8. Portion control

Functions / Benefits of packaging

1. Physical protection
2. Environment protection
3. Helps to improve material handling efficiency
4. Cube minimization
5. Weight minimization
6. Facilities handling and using
7. Facilities storage and reuse
8. Grouping goods into convenient unit for distribution
9. Reduce pilferage opportunities
10. Communication

Design consideration in packaging

1. Material handling
2. Transportation
3. Warehousing
4. Communication

Types of packaging material

1. Corrugated fiberboard (Cardboard)
2. Plastics
3. Steel
4. Wood
5. Glass

Types of packaging

1. Primary packaging
2. Secondary packaging
3. Transit packaging

UNIT – 3 CHAPTER – 9 INVENTORY MANAGEMENT

Objective of inventory management

1. Avoid stock-outs
2. Avoid excess inventory
3. Move goods efficiently
4. Maximise profit margins
5. Other objectives
6. Functions of inventory / inventory functionality
7. Geographical specialization
8. Decoupling
9. Balancing demand & supply
10. Buffer uncertainties
11. Importance of inventory management
12. Avoid stock outs
13. Avoid excess inventory
14. Move goods efficiently
15. Maximise profit margins
16. To enter continuity in production process
17. To keep investment in inventory at optimum level

Selective inventory control techniques

1. ABC Analysis
2. X-Y-Z Analysis
3. HML Analysis
4. VED Analysis
5. FSN Analysis
6. G-NG-L-F Analysis / GOLF Analysis
7. SDE Analysis
8. S- OS Analysis

CHAPTER – 10 LOGISTICS COSTING

1. Total cost approach / traditional costing methods
2. Balance sheet
3. Profit & loss statement

CHAPTER – 11 PERFORMANCE MEASUREMENT IN SUPPLY CHAIN MANAGEMENT

Objectives of performance measurement

1. Monitoring
2. Controlling
3. Directing

Types of performance measurement / dimensions of performance measurement

Internal performance measurement

1. Cost
2. Customer service
3. Productivity measurement
4. Asset measurement
5. Quality measurement

External performance measurement

1. Customer perception measurement
2. Best practice benchmarking

Characteristics of ideal measurement system

1. Cost / service reconciliation
2. Dynamic knowledge based reporting
3. Exception based reporting

CHAPTER – 12 LOGISTICAL NETWORK ANALYSIS

Objectives / importance of logistical network analysis Quick response to market changes

1. Changing customer service requirements
2. Changing customers
3. New market segment

Changes in corporate policy

1. Changes in product line
2. Downsizing
3. Re-engineering

Revitalize customer service

1. Lead time
2. Response time

Cost control

1. RORO (Roll on – Roll off)
2. Lash (lighter aboard ship)

Transportation network options

1. Direct shipment
2. Direct shipment with milk run
3. All shipment via central distribution centre
4. Shipping via distribution centre using milk run