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MASTER OF BUSINESS ADMINISTRATION

LOGISTICS & SUPPLY CHAIN MANAGEMENT

Subject Code – MBA301

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Module 1 - Introduction to Logistics management



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Syllabus-

Meaning of Logistics, Definition of Logistics, Objectives of Logistics, Types of Logistics, Need for Logistics Management, Evolution of logistics toward Supply chain Management, Logistics Industry in India. Logistical Activities, Logistics Costs, Expected cost of stock outs. Logistical Informational Requirements.



Meaning and Definition of Logistics

- Ensuring the right product reaches the right place at the right time
- Covers planning, implementing, and controlling goods flow
- Part of the broader Supply Chain Management (SCM)

“Logistics is the process of planning, implementing, and controlling efficient, effective forward and reverse flow and storage of goods, services, and information between the point of origin and point of consumption in order to meet customer requirements.”

“The word “logistics” comes from French ‘logistique’, originally used in the military for moving troops and supplies”



Objectives and Importance of Logistics

- 1. Customer Satisfaction:** Logistics aims to ensure that products are available in the right quantity, at the right time, and in the right condition to meet customer needs.
- 2. Efficient Transportation:** Logistics aims to optimize transportation networks to minimize costs and delivery times.
- 3. Inventory Management:** Balancing inventory levels is crucial to prevent stock outs and excess inventory.
- 4. Cost Optimization:** This involves streamlining processes, negotiating favorable transportation rates, optimizing inventory levels, and minimizing order cycle times.



5. Information Flow: The objective is to establish effective communication and information systems to enhance coordination and decision-making across the supply chain.

6. Flexibility and Responsiveness: Logistics systems should be flexible enough to adapt to changes in demand, supply, and market conditions. This includes the ability to quickly adjust transportation routes, change inventory levels, and adapt to unexpected disruptions.

7. Risk Management: This involves assessing potential risks in the supply chain and developing strategies to minimize the impact of disruptions, such as natural disasters, geopolitical events, or supply chain disruptions.



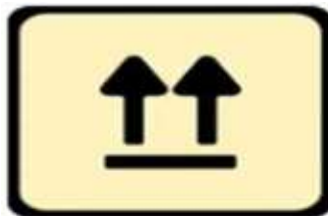
8. Sustainability: This includes optimizing transportation routes to reduce emissions, implementing green packaging practices, and adopting sustainable supply chain practices.

9. Collaboration and Integration: Logistics aims to enhance collaboration and integration among various stakeholders in the supply chain, including suppliers, manufacturers, distributors, and retailers.

10. Quality Management: Logistics contributes to maintaining product quality throughout the supply chain. This involves ensuring that products are handled and transported in a manner that preserves their integrity and meets quality standards.



- *Efficient logistics can reduce a company's costs by up to 30%! ”*



1.This Side Up



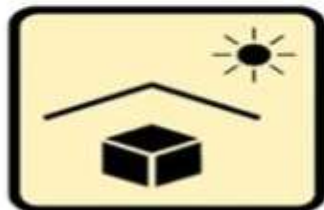
2.Fragile



3.Handle with Care



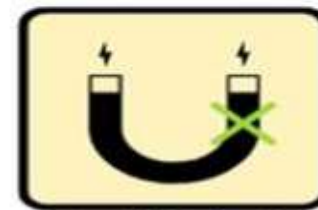
4.Don't Open with Knife



5.Avoid Direct Sunlight



6.Temperature Sensitive



7.Avoid Placing Near
Magnets



Types of Logistics

- **Inbound Logistics:** Inbound logistics comprises the transportation, storage, and receiving of goods into a business. It is the movement of resources from suppliers to manufacturers.
- **Outbound Logistics:** Outbound logistics involves transporting semi-finished/finished products to customers from a warehouse or distribution center.
- **Reverse Logistics:** Reverse logistics is transporting products from the end-users back to the warehouse or distribution center.
- **Green Logistics:** Green logistics describes measuring and minimizing the environmental impact of supply chain activities on the planet.



- **Third-party Logistics (3PL):** Third-party logistics (3PL) refers to the outsourcing of logistics and supply chain management functions to a third-party provider.
- **Fourth-party Logistics (4PL):** Fourth-party logistics (4PL) is an extension of the concept of third-party logistics (3PL) with a broader scope and more strategic involvement in supply chain management
- **Digital Logistics:** Digital logistics refers to the application of digital technologies and data-driven solutions to enhance and optimize various aspects of logistics and supply chain management.



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1PL

A manufacturer delivers mobiles to an electronic shop for sale



2PL

A courier delivers mobiles from the manufacturer to the electronic store



3PL

A fulfillment company with a fleet of trucks transports cartons of mobiles from the manufacturer to the electronics shop



4PL

A logistics company strategically manages a 3PL on behalf of the manufacturer to package and deliver mobiles to the electronics shop

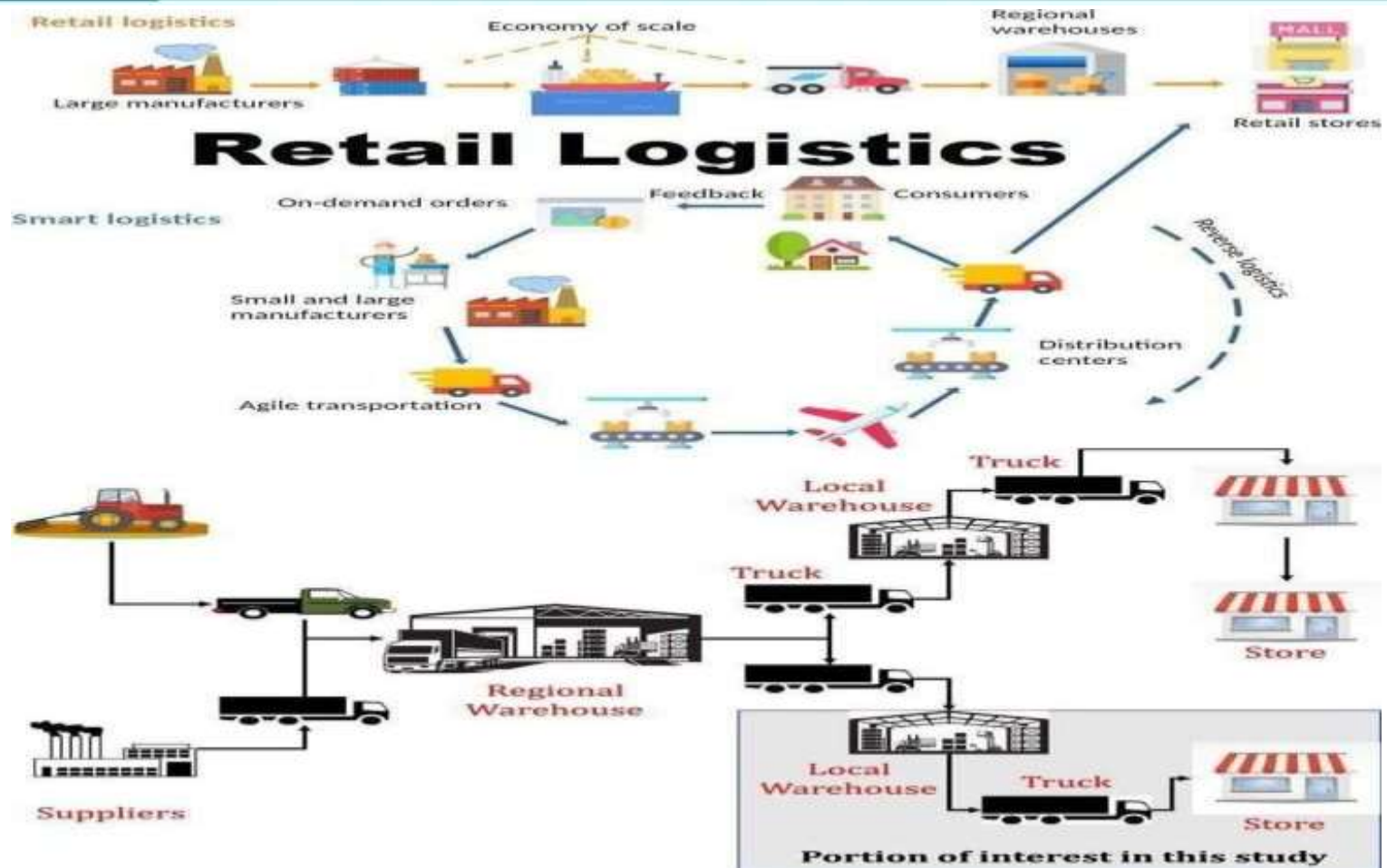


5PL

A logistics company manages a manufacturer's complete supply chain network from production to delivery



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Suez canal crisis

- On March 23, 2021, the Ever Given, a 400-meter, 200,000-ton container ship operated by Evergreen Marine, ran aground in the Suez Canal due to high winds and poor visibility from a sandstorm. The ship completely blocked the canal for six days, halting traffic through one of the world's most critical maritime chokepoints, where roughly 12% of global trade and 30% of container traffic pass daily.
- 400+ vessels were stranded, forcing some to reroute around the Cape of Good Hope, adding around 15 days and millions in extra fuel costs.
- The blockage delayed an estimated \$9–10 billion worth of goods per day, including oil, electronics, and food.
- Major companies like Maersk Line lost approximately \$89 million, mainly due to inventory holding costs and rerouting.
- The disruption led to container shortages, port congestion, and cascading delays across Europe and Asia's ports



Need for Logistics Management

- **Cost Efficiency:** reducing transportation costs, minimizing inventory holding costs, and improving overall cost efficiency.
- **Customer Satisfaction:** Effective logistics management ensures that products are delivered to customers on time and in the right condition, enhancing customer satisfaction and loyalty.
- **Market Expansion:** This is essential for reaching new customers, entering new markets, and increasing market share
- **Inventory Optimization:** This involves minimizing excess inventory, reducing carrying costs, and preventing stock outs, thereby ensuring a healthy balance between supply and demand.



- **Supply Chain Visibility:** This visibility allows businesses to track the movement of goods, monitor inventory levels, and identify potential bottlenecks or disruptions, enabling proactive decision-making.
- **Risk Management:** This includes risks related to transportation, natural disasters, geopolitical events, and other factors that can impact the flow of goods.
- **Competitive Advantage:** Companies that can deliver products faster, more reliably, and at lower costs are better positioned in the market.
- **Environmental Sustainability:** Sustainable logistics practices, such as optimizing transportation routes and reducing emissions, contribute to environmental responsibility.



Evolution of logistics

- Pre-Industrial Revolution: mainly involving manual labour and basic transportation methods
- Industrial Revolution (18-19th): The introduction of steam powered transportation, like trains and steamships, revolutionized the movement of goods over long distances.
- Early 20th Century: the emergence of motorized transportation, particularly trucks, which provided more flexibility for the movement of goods. Standardized shipping containers began to gain traction, simplifying loading and unloading processes.



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- **Mid-20th Century:** The mid-20th century witnessed the widespread adoption of containerization. The standardization of container sizes and the development of container ships transformed global trade, making it more efficient and cost-effective.
- **Late 20th Century:** The late 20th century saw the integration of information technology into logistics. Computers and software applications facilitated better inventory management, order processing, and overall supply chain coordination. This period also witnessed the rise of third-party logistics (3PL)



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- Late 20th to Early 21st Century: The late 20th and early 21st centuries were characterized by further advancements in technology, including the use of barcoding, RFID (Radio-Frequency Identification), and GPS for improved tracking and visibility in logistics. E-commerce began to reshape retail and logistics with the rise of online shopping.
- 21st Century: The 21st century has seen a continued focus on technology integration in logistics. Automation, robotics, artificial intelligence, and machine learning have been applied to various logistics functions, such as warehouse operations, route optimization, and demand forecasting.



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- **E-commerce and Last-Mile Delivery:** Logistics providers are adapting to meet the demands of quick and reliable delivery to end consumers, leading to innovations like autonomous vehicles and drones.
- **Sustainability and Green Logistics:** Companies are adopting eco-friendly practices, such as optimizing transportation routes to reduce carbon emissions and implementing green packaging solutions.
- **Block chain and Digital Supply Chains:** Digital supply chain platforms are being developed to enhance collaboration, reduce paperwork, and provide real-time information sharing.



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Evolution towards SCM



Origins of Supply Chain Management *(continued)*

Increased supply chain capabilities

Supply chain relationship formation, sustainability, social responsibility

JIT, TQM, BPR, supplier and customer alliances

Inventory management, MRP, MRP II and cost containment

Traditional mass manufacturing

1950s

1960s

1970s

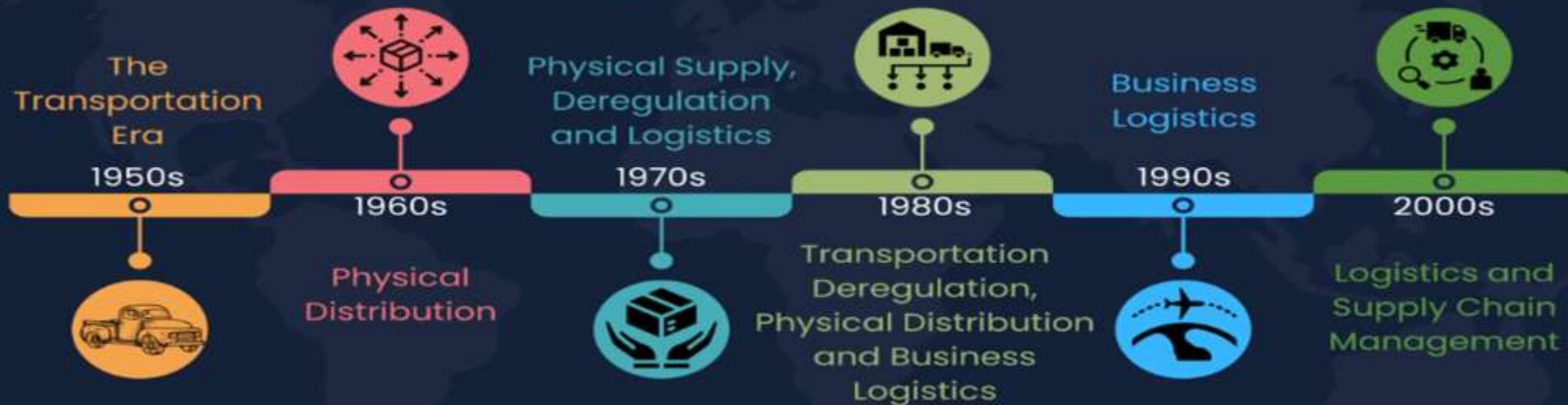
1980s

1990s

2000s

Future

“We can summarise evolution of logistics towards SCM as a journey from mass production to catering to customer needs and preferences in an efficient and effective way”



The Chronological Evolution of Logistics & Supply Chain Concepts

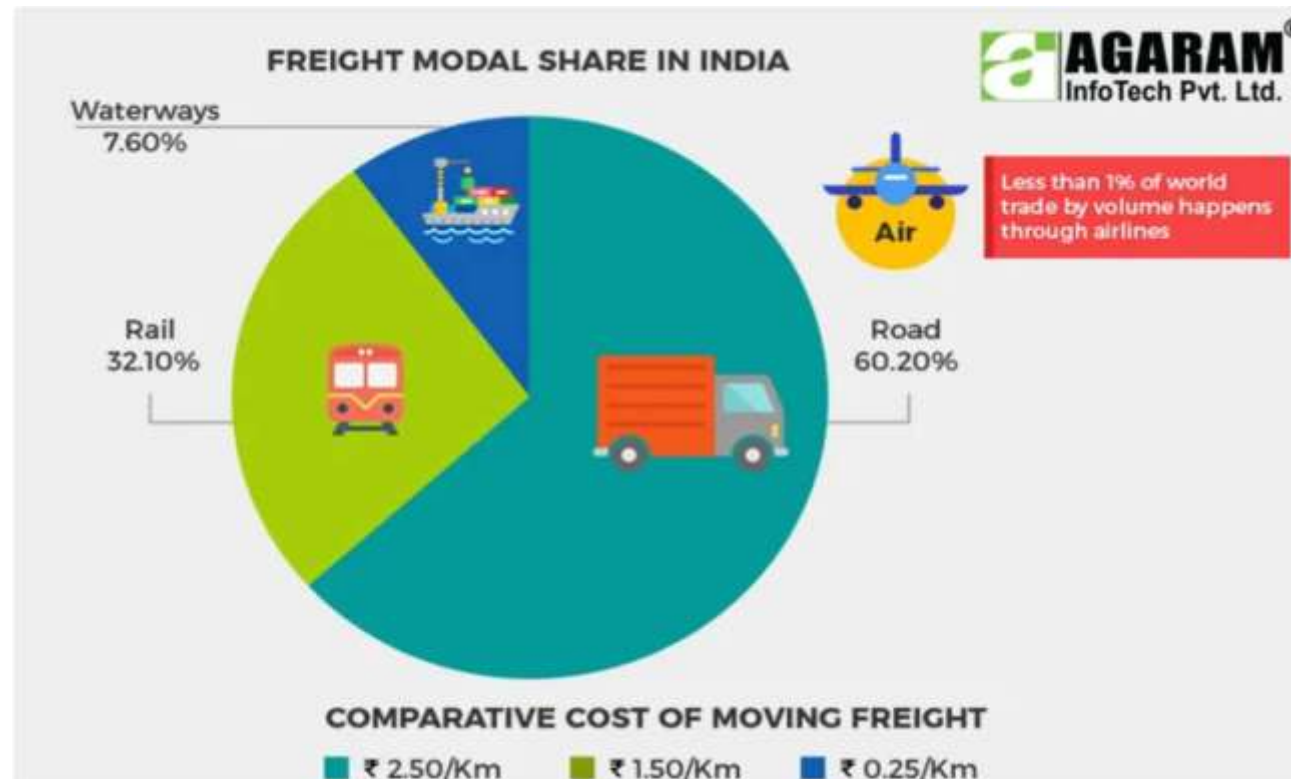


Logistics Industry in India

- The industry is fragmented.
- Challenges- Roads, infrastructure etc.
- In the year 2022, the size of the Indian logistics market was around 274 billion U.S. dollar, now it is close to 350 billion USD
- It is estimated that this market would grow to 563 billion dollars in 2030, at a CAGR 9.4 percent.
- employs more than 22 million people and has been ranked 38th in the World Bank's logistics performance index

Modes of logistics in India

- Road
- Rail
- Water
- Air





Recent trends in Indian logistical industry

In recent years, Tier-II and III cities have witnessed a growth in consumption patterns, resulting in a focus-shift towards logistics.

Artificial Intelligence has been imperative in saving time, reducing costs, increasing productivity, and accuracy with cognitive automation.

Exports in India are on a rising tide with reaching record high US\$ 863 billion in 2025-26.

ICC National Expert Committee closely works with policy makers at National and State Level with the active support from Industry Players.



Logistical Activities

1. Processing Orders: A critical part of logistics functions is order processing. There are various ways to submit an order, such as through mail, telephone, salespeople, or computers
2. Transportation: Various transportation modes are used to physically move items, such as rail, truck, water, and air.
3. Managing Inventory: Inventory management is all about having enough inventory on hand to meet customer requirements while keeping carrying costs low.



4. Warehousing: The storage of finished items until they are delivered is known as warehousing, which is significant to a company's logistics functions. T
5. Packaging: logistical packing is necessary for breakage prevention, handling of materials, and storage space efficiency
6. Handling Materials and Storage: it affects how inventory moves along the distribution chain. Product breakage, delivery delays, and incidental overhead expenses will increase because of incorrect material handling.
7. Monitoring: Businesses must keep inventory control, transport, and warehousing all up to date.

Logistics Costs

Logistics costs refer to the expenses associated with the planning, implementation, and management of the flow of goods, services, and information throughout the supply chain.

The Growing Weight of Amazon's Logistics Costs

Amazon's fulfillment and shipping costs as a percentage of net sales





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- Transportation Costs
- Warehousing Costs
- Inventory Holding Costs
- Order Processing Costs
- Packaging Costs



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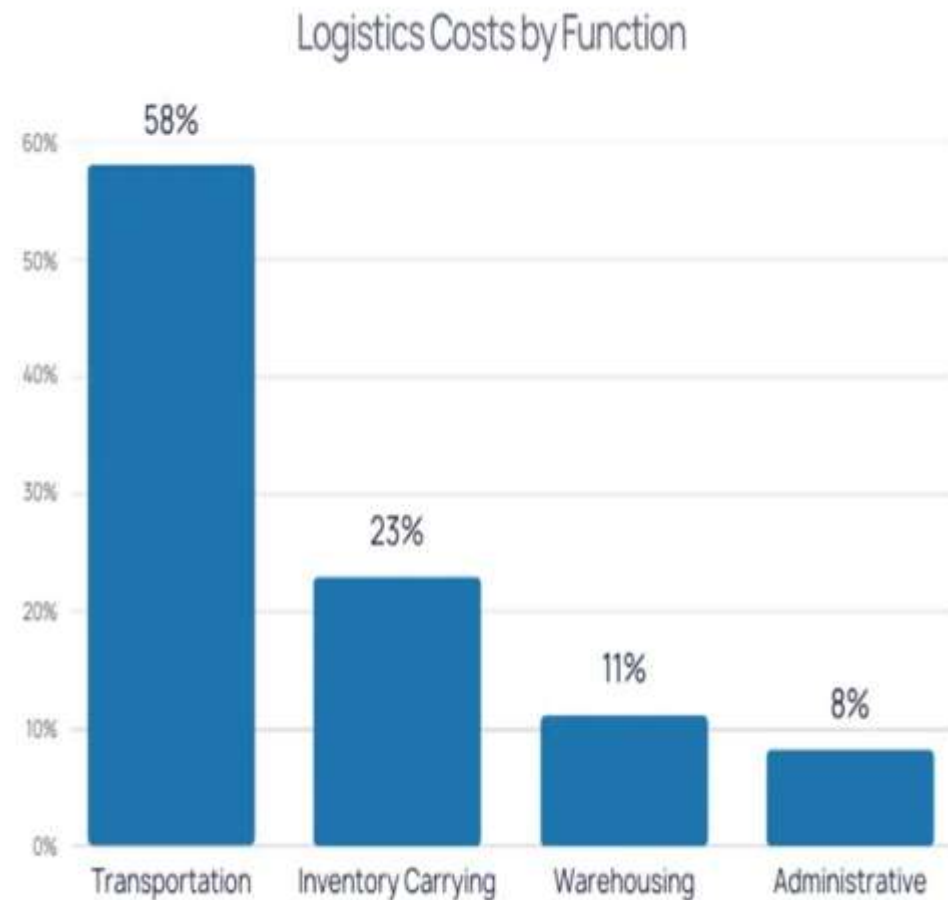


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- Information Technology Costs
- Reverse Logistics Costs
- Handling Costs
- Customs and Duties
- Risk Management Costs

- Sourcing and Procurement Costs
- Labor Costs
- Facility Costs

“Globally, logistics costs are about 8-10% of GDP!”





Expected cost of stock-outs

Expected cost of stock outs Stock out costs is the capital lost from inventory that has become unavailable for the customer to purchase. When a customer cannot buy something because it is not in stock, the business loses money.

- Lost Sales and Revenue
- Customer Dissatisfaction
- Expediting Costs
- Emergency Production Costs



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- Substitute Product Costs
- Customer Service Costs
- Stock Replenishment Costs
- Impact on Future Sales

***34% of businesses say
stockouts cost them
customer loyalty!”***

Walmart lost nearly :3 billion in potential sales in a single year due to stockouts”





Importance of understanding cost of stockouts (why)

- Financial Impact
- Profitability Analysis
- Optimizing Inventory Levels
- Customer Satisfaction and Loyalty

SC

=

D x AS x P

• SC = the stockout cost
D = the number of days when the product is out of stock
AS = the average number of units sold per day
P = the profit per unit (you can also calculate the price per unit)



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- Risk Management
- Competitive Advantage
- Resource Allocation
- Continuous Improvement
- Strategic Decision-Making

“Around 70% of customers will turn to a competitor after experiencing a stockout, and 0% will never return.”



Logistical Informational Requirements

- Supplier Information
- Transportation Data
- Regulatory Compliance
- Demand Forecasting.
- Inventory Levels
- Order Status and Tracking

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- Product Information
- Technology and IT Systems
- Lead Times
- Risk Management Data
- Cost Data
- Quality Assurance Data
- Collaborative Planning Information
- Warehousing Information





Activity- Product Journey

- Group of 4 students in one team
- Choose any one product – (Dairy Milk chocolate, iPhone, Nandini Milk, Maruti Swift car, Coca-Cola)
- Trace and present:
 1. The **flow of materials** (raw materials → manufacturing → warehousing → retail).
 2. The **logistics functions** involved (transportation, inventory, warehousing).
 3. **Stakeholders** (suppliers, manufacturers, distributors, retailers, customers).
- Each group presents their “product journey” in 3–5 minutes and also provide a write up.