# Chapter 2: Role of Logistics in Supply Chains

## Logistics Definitions

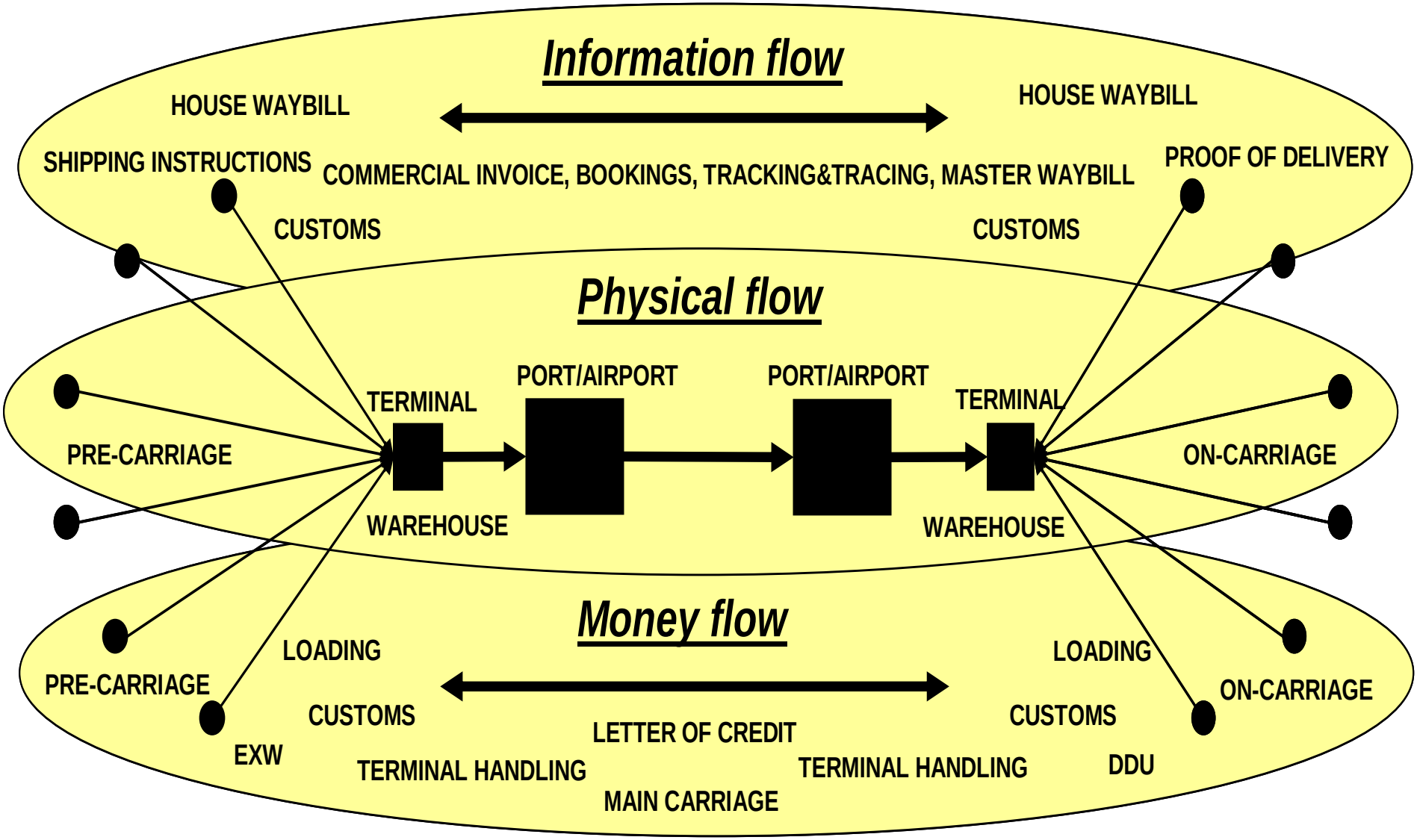
- By Customer:
  - Getting the right product, to the right customer, in the right quantity, right condition, at the right place, right time, and the right cost
- Council of Supply Chain Management
  - The art and science of management, engineering, and technical activities concerned with requirements, design, and supplying and maintaining resources to support objectives, plans, and operations

# Four Subdivisions of Logistics

- Business logistics:
  - That part of the supply chain process that plans, implements, and controls the efficient, effective flow and storage of goods, service, and related information from point of use or consumption in order to meet customer requirements.
- Military logistics:
  - The design and integration of all aspects of support for the operational capability of the military forces (deployed or in garrison) and their equipment to ensure readiness, reliability, and efficiency.
- Event logistics:
  - The network of activities, facilities, and personnel required to organize, schedule, and deploy the resources for an event to take place and to efficiently withdraw after the event.
- Service logistics:
  - The acquisition, scheduling, and management of the facilities/assets, personnel, and materials to support and sustain a service operation or business.

# Business Logistics Flows

(Source Naula 2007)



# List of Logistics Activities

- Transportation
- Warehousing and storage
- Industrial packaging
- Materials handling
- Inventory control
- Order fulfillment
- Demand forecasting
- Production planning/scheduling
- Procurement
- Customer service
- Facility location
- Return goods handling
- Parts and service support
- Salvage and scrap disposal

# The impact of logistics upon Return on Assets (ROA) is large

- ROA is defined as follows:
  - ROA = (Revenue – Expenses)/Assets
  - ROA = Gross Profit/Assets

Good logistics practice increases Gross Profit and reduces Assets required to sustain the business.

It leads to dramatic improvement in ROA

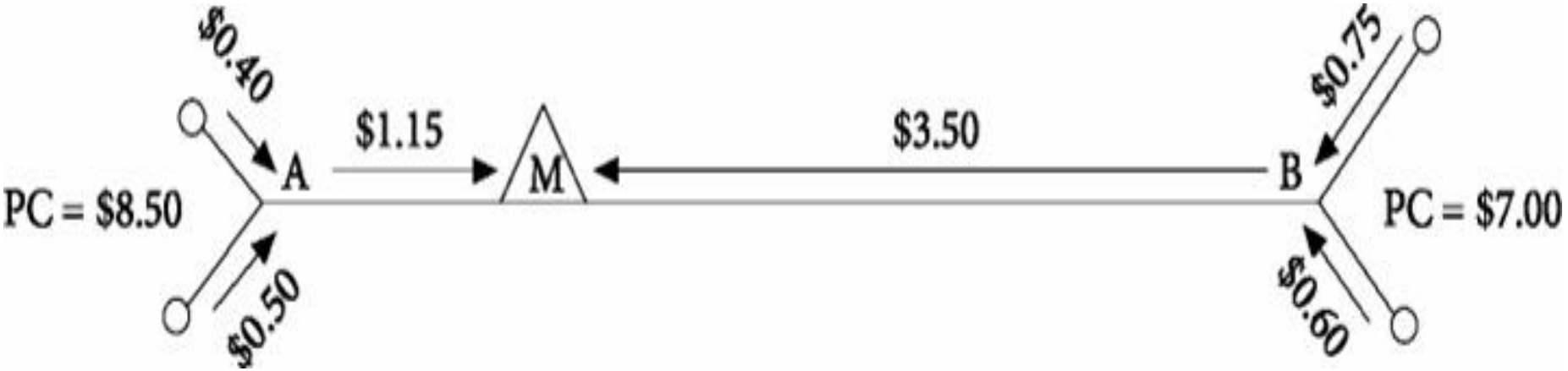
# Importance of Spatial Relationships in Logistics:

Spatial Relationships are extremely important in logistics.

The location of manufacturing, service and warehousing facilities in the supply chain with respect to demand and supply points strongly impacts the total supply chain cost.

# Logistics and Spatial Relations

**PC=Production Cost, M=Market**




Total Cost $10.55

Total Cost $11.85

**Important to adopt total cost perspective. Lower $7.00 production cost at B is offset by higher inbound and outbound transportation cost**

## Table 2-3 Analysis of Total Logistics Cost with a Change to a Higher Cost Mode of Transport

| Cost Centers | Rail | Motor |
|---|---|---|
| Transportation | $3.00 | $4.20 |
| Inventory | 5.00 | 3.75 |
| Packaging | 4.50 | 3.20 |
| Warehousing | 1.50 | 0.75 |
| Cost of lost sales | 2.00 | 1.00 |
| Total cost | $15.00 | $13.00* |

*Costs per unit.

**Table 2-4** Analysis of Total Logistics Cost with a Change to More Warehouses

| Cost Centers | System 1 Three Warehouses | System 2 Five Warehouses |
|---|---|---|
| Transportation | $850,000 | $500,000 |
| Inventory | 1,500,000 | 2,000,000 |
| Warehousing | 600,000 | 1,000,000 |
| Cost of lost sales* | 350,000 | 100,000 |
| Total cost | $3,300,000 | $3,600,000 |

*Expected cost based upon probabilities of not having stock/inventory available when customers want it.