

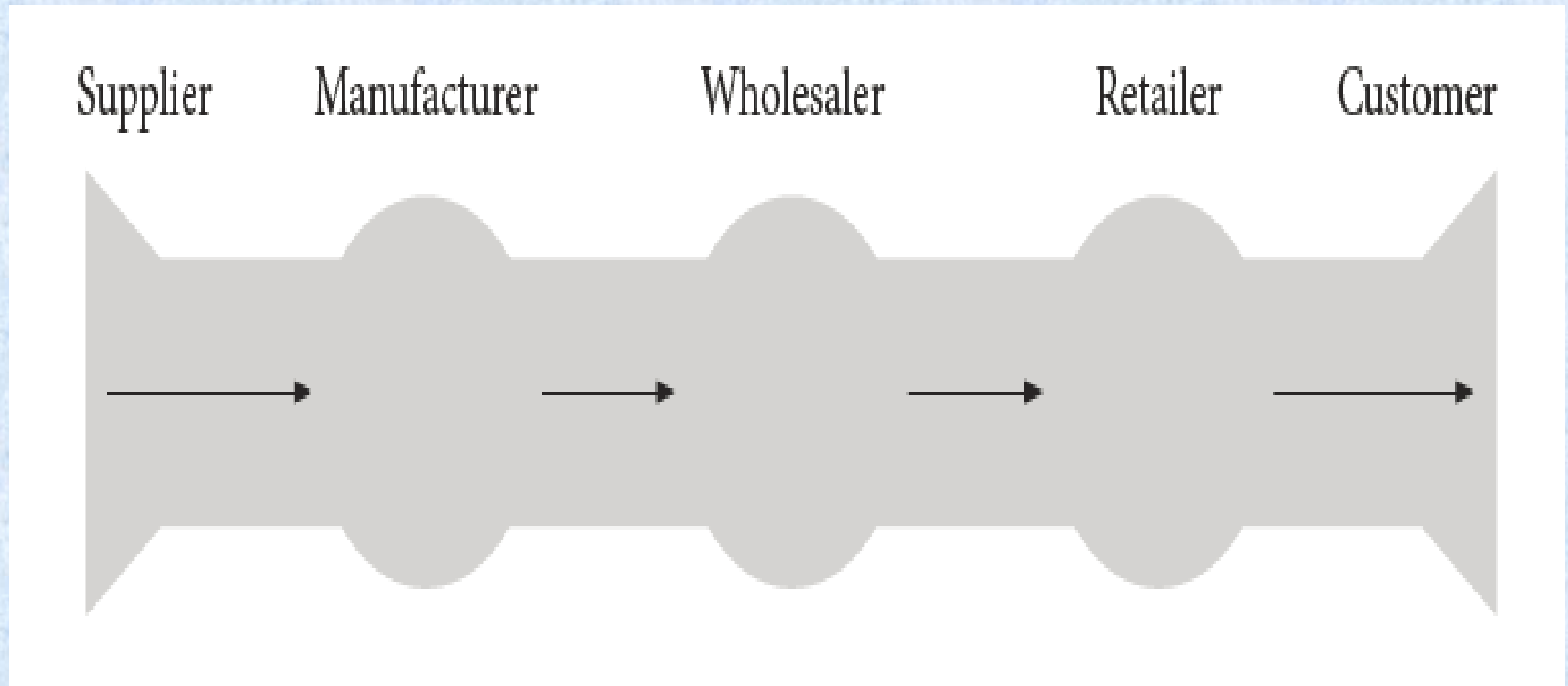
Chapter 3

Role of Logistics In Supply Chains

Zemenawit M. (MSc.)

2012 E.C

Contemporary Supply Chain Profile



Source: Center for Supply Chain Research, Penn State University.

Logistics Management ...

- **Logistics** is the process of strategically managing the procurement, movement and storage of materials, parts and finishing inventory (and the related flows of information) through the organization and its marketing channel in such a way that current & future profitability are maximised through the cost-effective fulfilment of orders.
- ❖ That part of the supply chain involved with the **planning, implementing and controlling** of the efficient, effective **flow** and **storage** of **goods, services**, and related **information** from point of **origin** to point of **consumption** for the purpose of conforming to customer **requirements**. *Council of Logistics Management*

Logistics – Generic Definition

A SCM component that plans, implements, and executes **flow and storage of goods**, service and information from the point of origin to the point of consumption.

Four views 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.**

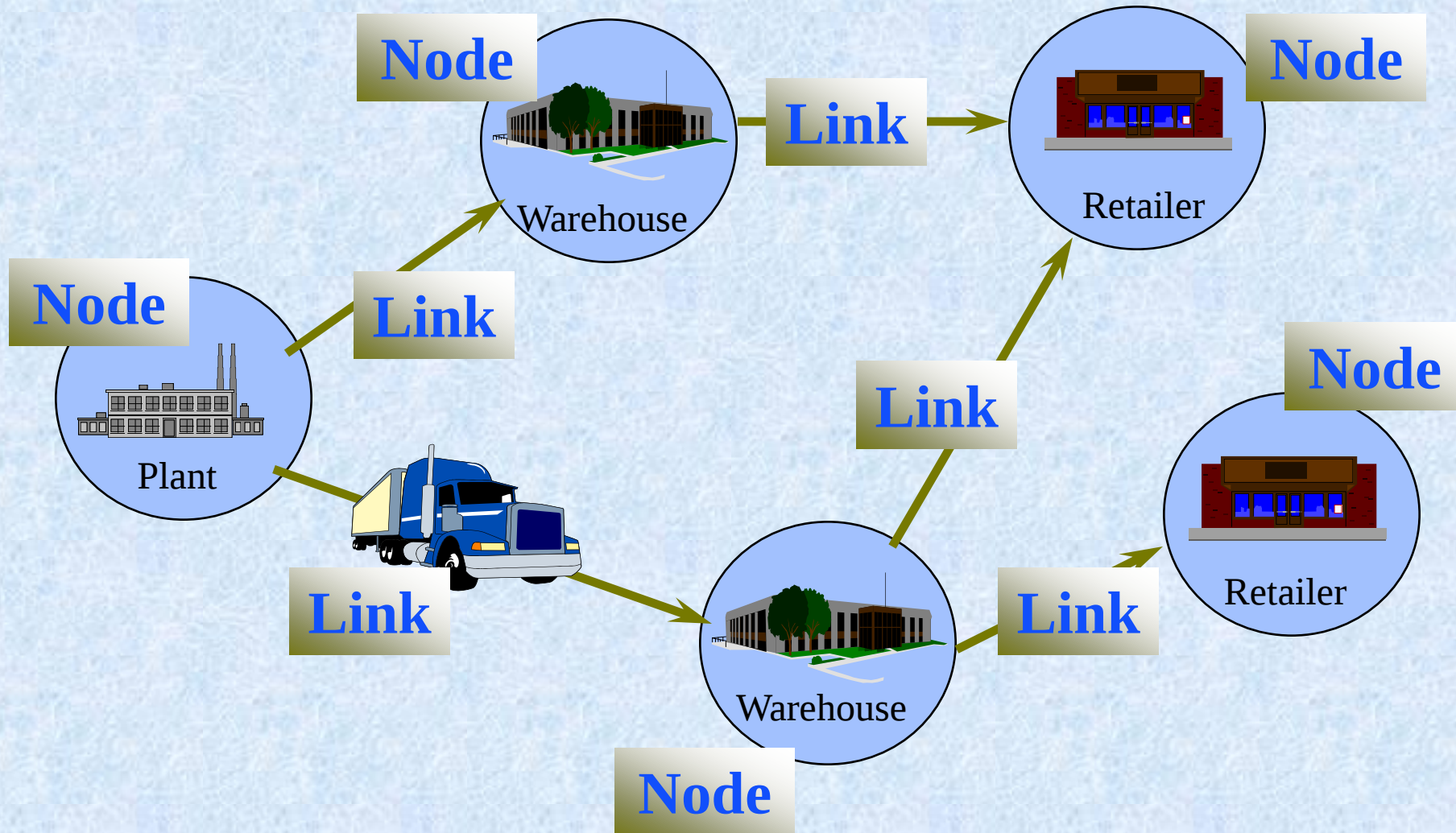
- **Military Logistics:**

- 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.

Four views of Logistics...

- 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.**

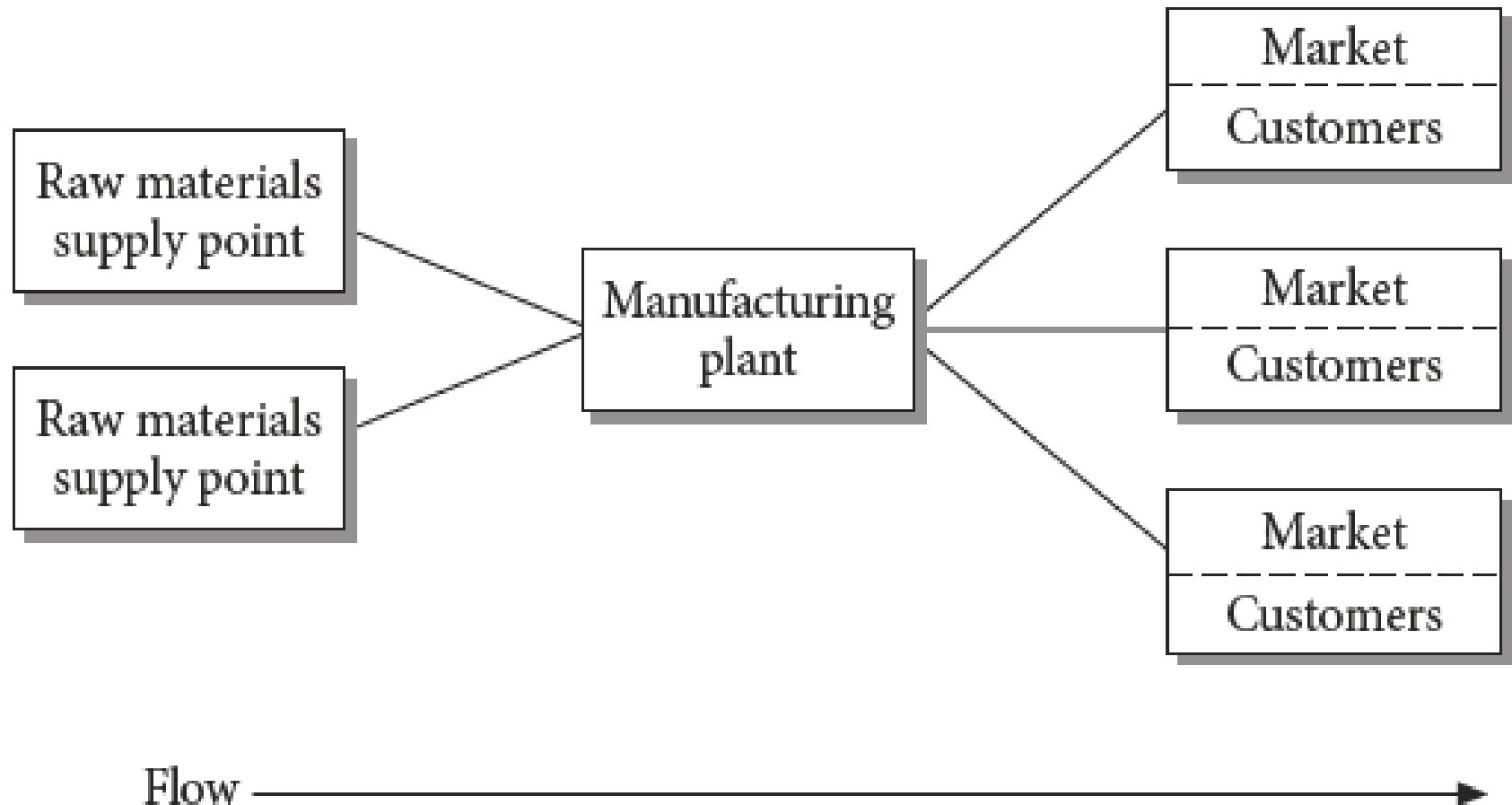
Nodes and Links in a Logistics System



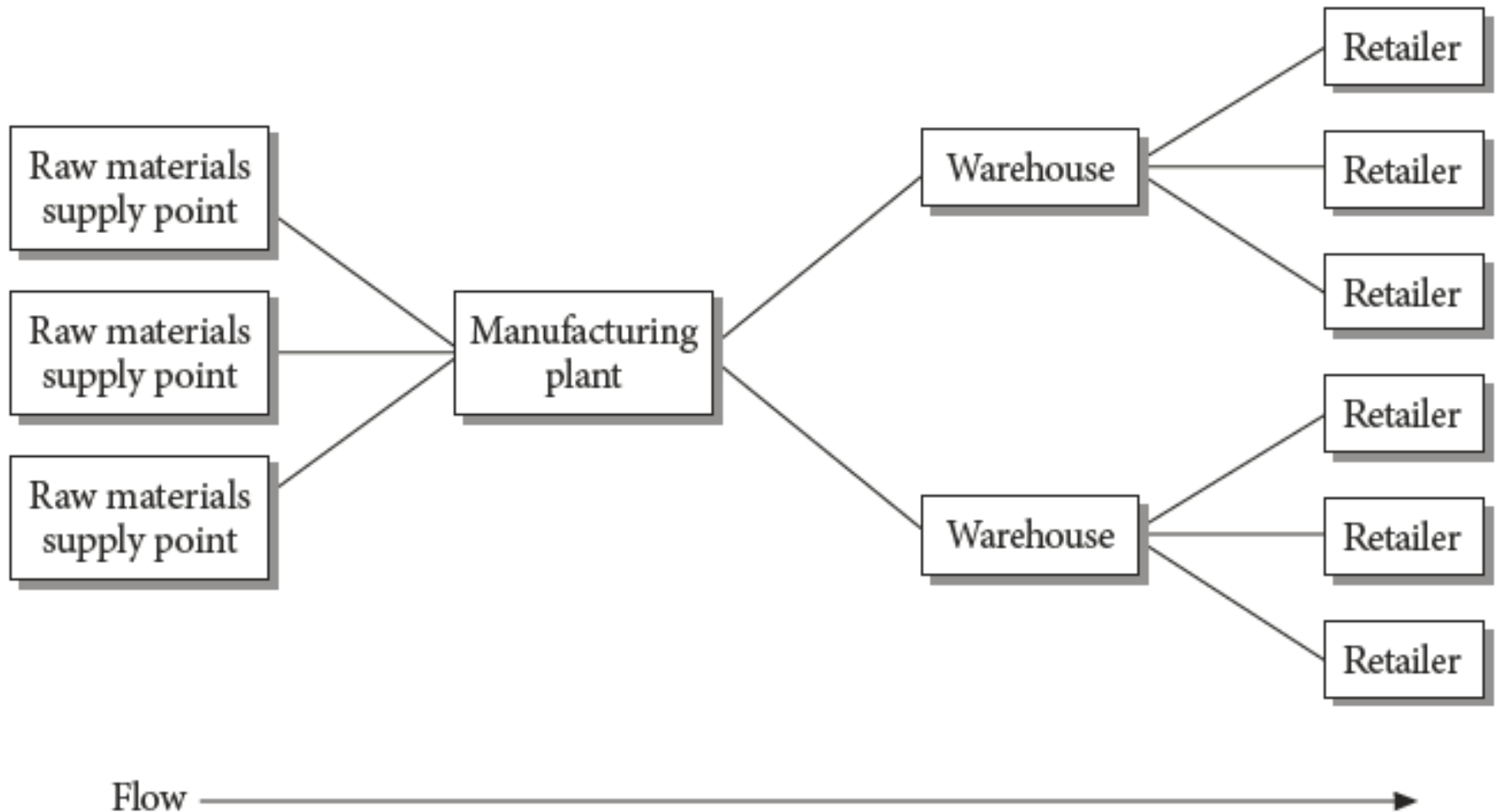
Components of Logistics Management



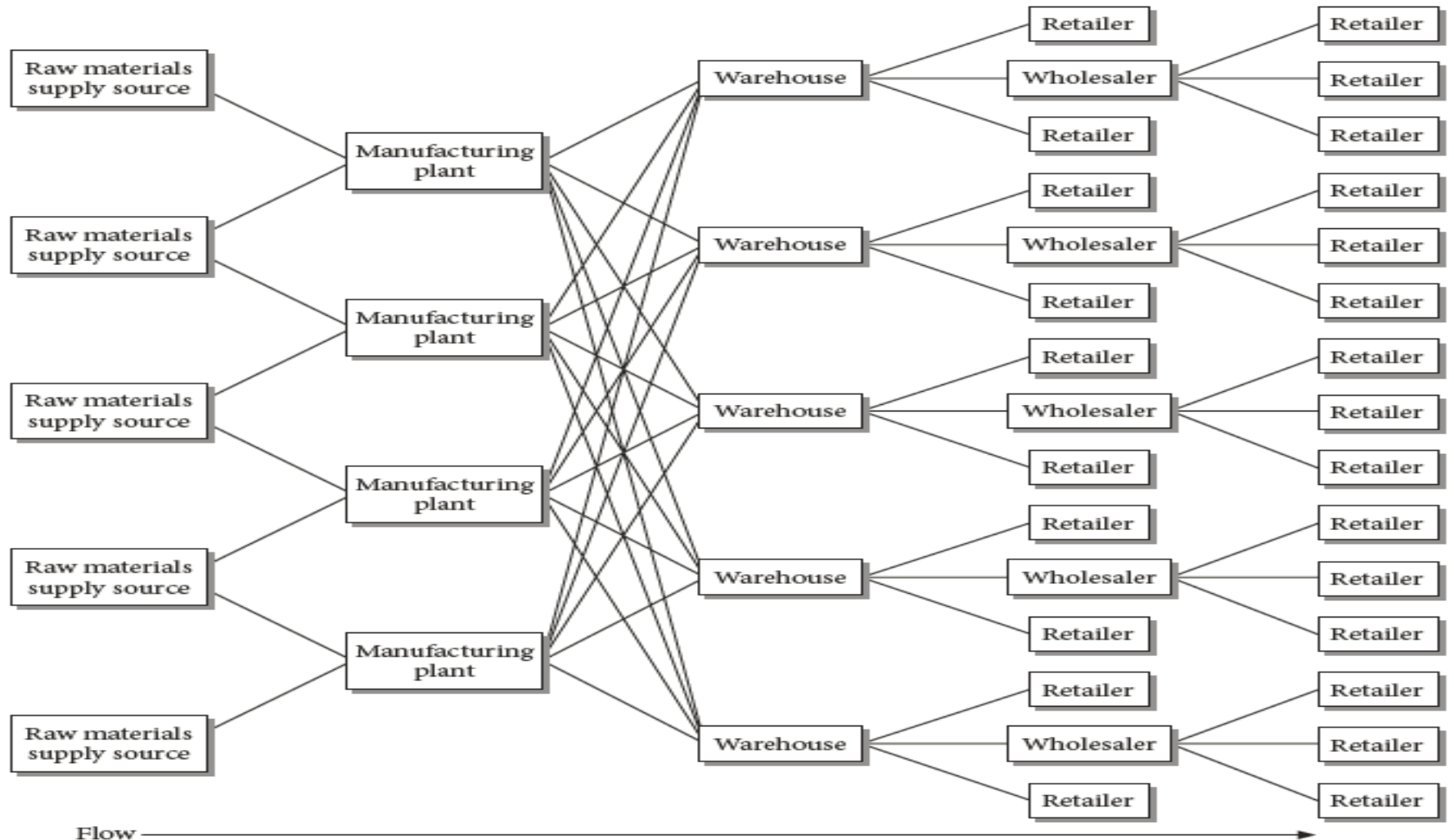
Simple Logistics Channel



Multi-Echelon Logistics Channel



Complex Logistics Channel



Key Logistics Activities

- Customer service
- Demand forecasting & planning
- Inventory management
- Logistics communications
- Material handling
- Order processing
- Packaging
- Parts & service support
- Facility location: Plant & warehouse site selection
- Purchasing/Procurement
- Return goods handling
- Reverse logistics
- Traffic & transportation
- Warehousing & storage
- Production planning

International Logistics

- ✓ International logistics is the design and management of a system that controls the forward and reverse flow of materials, services, and information into, through, and out of the **international corporation**.
- ✓ The implementation of international logistics, the firm can implement cost-saving programs such as just-in-time (JIT), electronic data interchange (EDI), and early supplier involvement (ESI).

International Logistics

✓ **The two phases of the movement of materials include:**

- ✓ Materials management, or the timely movement of materials, parts, and supplies.
- ✓ Physical distribution, or the movement of the firm's physical product to its customers.

Domestic Vs. International Logistics

- **Domestic logistics** is the distribution of goods within a country,
- **While international logistics** is the distribution of goods beyond the country boundaries.
- Managing logistics **domestically** is very different from managing logistics **internationally** because of the much narrower geographic scope in a domestic operation.

Domestic Vs. International Logistics...

Management

- **Domestic logistics** companies have a single logistics manager to supervise and manage all sides of planning and execution related to the movement of goods.
- **International logistics** will have a corporate logistics manager who will coordinate logistics activities with other managers.
- This will require clear plans on execution and distribution processes, and may lead to challenges in decision making.

Transportation

Domestic logistics can utilize a variety of transportation options for moving goods, out of which road transport is the most common preference.

Road transport in itself also provides a variety of *options*.

International logistics, you have limited transportation options – some would require only rail while others would require only flight or sea transport. International logistics may also involve using multiple transportation alternatives for a single transaction.

Cont'd

Supply Chain Relationships

- In order to build relationships between businesses or between a business and the customers, **trust is the most important** factor, which decides on the nature of the relationship.
- It gets easier to build trustworthy relationships domestically
- ***But, in international*** cases, different country regulations, geography and economic roadblocks present more challenges in building reliable relationships.

Costs involved

- ✓ In both domestic and international logistics, you have to consider the costs involved with store facilities, transportation, workers and technology.
- ✓ But, in international logistics, there are some additional costs to be considered too which include tariffs, government taxes, fees and currency exchange fluctuations.

From International to Global I

Trans-national

- Need to Coordinate Responsive National Unit in a Globally Efficient System by Simultaneously Responding to
 - (1) Host Country Pressures &
 - (2) Global Competitive Demand Management Challenge

International

- Domestic Companies with Foreign Appendages
- Opportunistic / Portfolio Approach to Managing Foreign Logistics Operations

From International to Global II

Multi-national

- Increased Realization of Importance of International Markets
- Manage Overseas Operations as Federation of Independent Companies

Global

- Manage Worldwide Operations As Single Entity
- Growing Concern about International Competition & Inefficiencies of Multi-national Response
- Drive For Cost Competitiveness Through Product Standardization & Centralization

Global vs. International Logistics

Global Logistics

- Worldwide basis
- Logistics strategies shaped by corporate design, not government requirements
- Integrated strategic sourcing, financial production and transportation strategies
- Aim to serve global markets

International Logistics

- Country to Country (In different areas of the world)
- Logistics strategies shaped by currency, political and economic fluctuations
- Focus on different modes of international transportation
- Importing/exporting issues

Why Firms enter International Markets

- Market Potential
- Geographic Diversification
- Excess Production Capacity and Low Cost Position
- Near end of Life-Cycle in Domestic Market
- Source of New Products and Ideas



Features of International Logistics

- **Multiple Operating Environments (Diverse Pattern Of:)**
 - Consumer Preferences
 - Distribution Channels
 - Legal Frameworks
 - Financial Infrastructures

- **Political Demands & Risks**
 - Mesh Corporate Strategy With other Countries' Industrial Development Policies → Potential For Conflict

Features of International Logistics

■ Global Competition

- Multiple Market Access & Global Scale Economies → Allows New Strategic & Competitive Options

■ Currency Fluctuation: F_x Risk

- Economic Performance, measured In multiple currencies → Accounting & Economic Exposure

■ Organizational Complexity & Diversity

- Need to Manage Complex and Diverse Demands across Distance, Time, Language & Cultural Barriers

Features of International Logistics

- Cross-border Requirements for Packaging, Recycling, Infrastructure, etc.
 - Many developing countries have good international seaports (to get primary goods out) or airports (for national pride), but have poor internal systems (to get products to consumers)
 - Some variations are on purpose: keep out foreign goods or invaders
- Lower Costs + Increased Reliability and Integration
- Outsourcing → Need for Different Intermediaries

Features of International Logistics

- Complex Distances & Transportation Modes
 - Ocean & Air Transport more common than for domestic flows
 - Shipping: 1998: 30% of U.S. exports by value, down from 40% in 1988
 - **Airfreight**
 - Governments often regulate which carriers can be used, especially for sales to the government
 - Must factor in total carrying costs including delays, port storage time, warehouse inventory and exchange rate changes
 - Global Operations and Product Customization (at order /shipping point or in local environment) → Complicated Logistical Systems

Features of International Logistics

■ Examples

- **Airfreight:**

- *Fast, reliable and available but costly and that feasible or cost efficient for bulky cargo*
- *Total volume is relatively low, but value shipped is high, especially among industrialized nations*
- *Good if speed, timing, reliability, damage or perishability is an issue*

Features of International Logistics

Examples:

- **Shipping**

- *Liners: Regularly scheduled on established routes*
- *Bulk/tramp/charter – contractual services for individual voyages on possibly irregular routes*
- *Conventional ship – good for bulk or irregularly sized cargo. Time consuming to load and unload*
- *Container ship: The most common of major routes. Facilitates easy loading/unloading and intermodal transport. Cannot go to every port*
- *Roll-On-Roll-Off (RORO) – Ocean-going ferries. Typical for short routes to under-developed ports*

Key Logistics Functions In A Supply Chain

- Third-party logistics providers
- Transportation
 - Railroads
 - Intermodal transportation
 - Motor Carriers
 - Air Carriers and Express Companies
 - Freight Forwarders
- Warehousing and Materials Handling
- Order Processing

Key Logistics Functions In A Supply Chain

- Inventory Management
 - Reasons for Inventory
 - Inventory Costs
 - Supply Chain Inventory Strategies
 - Just-in-time (JIT) concept
 - Vendor-managed inventory

Advantages and disadvantages of five modes of transportation

MODE	RELATIVE ADVANTAGES	RELATIVE DISADVANTAGES
 Rail	• Full capability • Extensive routes • Low cost	• Some reliability, damage problems • Not always complete pickup and delivery • Sometimes slow
 Truck	• Complete pickup and delivery • Extensive routes • Fairly fast	• Size and weight restrictions • Higher cost • More weather sensitive
 Air	• Fast • Low damage • Frequent departures	• High cost • Limited capabilities
 Pipeline	• Low cost • Very reliable • Frequent departures	• Limited routes (accessibility) • Slow
 Water	• Low cost • Huge capacities	• Slow • Limited routes and schedules • More weather sensitive

Summary

1. Logistics has developed as an important area or function of business since World War II. It has gone through several phases of development in achieving its present status.
2. **Logistics is a critical part of supply chain management.** The coordination and, perhaps, integration of the logistics systems of all the organizations in a supply chain are necessary requirements for successful management of the supply chain.
3. Logistics has a number of different definitions because of the broad-based interest in its activities and the recognition of its importance. The definition developed by the Council of Supply Chain Management Professionals is the primary definition used in this text.
4. Logistics is an area of management that has four sub-disciplines: business, military, service, and event

Summary, continued

4. On a macro basis, **logistics-related costs have been decreasing on a relative basis**, which has helped the U.S. economy regain its competitive position on a global basis.
5. **Logistics adds place, time, and quantity utilities to products and enhances the form and possession utilities added by manufacturing and marketing.**
6. Logistics has an important relationship to manufacturing, marketing, finance, and other areas of the organization.
7. Logistics managers are responsible for a number of important activities, including transportation, inventory, warehousing, materials handling, industrial packaging, customer service, forecasting, and others.
8. Logistics systems can be viewed or approached in several different ways for analysis purposes, including materials management versus physical distribution, cost centers, nodes versus links, and channels.

Discussion Questions

- Distinguish between logistics defined as materials management and logistics defined as physical distribution. What are the similarities/differences in each situation?
- How has the nature of competitive advantage changed over the past 30 years?

Discussion Questions

- **Time-based competition and the global supply chain:** What are some of the deficiencies in applying the international PLC theory in today's global markets?
- Discuss some of the issues a global firm must address as they design their logistics firm
- What are the implications of increased emphasis on quick customer response and customization for the structuring of global operations and logistics networks?