

MIMOS – Masters in Industrial Management, Operations and Sustainability

Supply Chain Management and Logistics

2026/2027

Chapter 1 - Introduction to Logistics

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SCML S15 (Ter. 18:30-20:30 - F1 008)

SCML S45 (Ter. 21:00-23:00 - F1 008)



Lisbon School
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Business Logistics/Supply Chain — A Vital Subject

The supply chain is simply another way of saying “the whole process of business.”

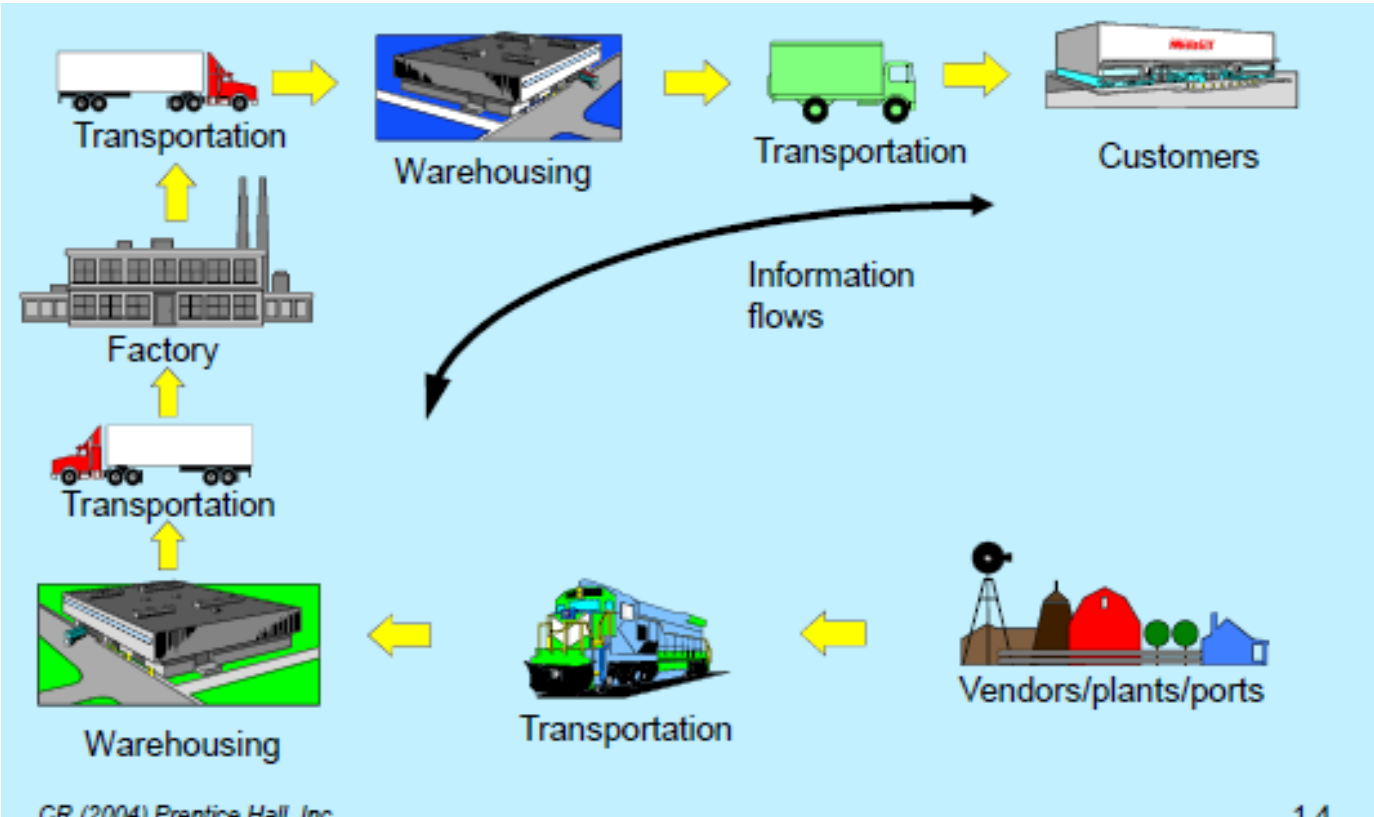
Chapter 1

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- Logistics/SC is a collection of functional activities, which are repeated many times throughout the channel through which raw materials are converted into finished products and consumer value is added.
- Usually, the maximal managerial control that can be expected is over the immediate physical supply channels (refers to the time and space gap between a firm's immediate material sources and its processing points) and physical distribution channels (refers to the time and space gap between the firm's processing points and its customers) , as shown in the next figure.

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The Immediate Supply Chain for an Individual Firm



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What is a Supply Chain? C&M

- All stages involved, directly or indirectly, in fulfilling a customer request
- Includes manufacturers, suppliers, transporters, warehouses, retailers, customers
- Within each company, the supply chain includes all functions involved in fulfilling a customer request (product development, marketing, operations, distribution, finance, customer service).

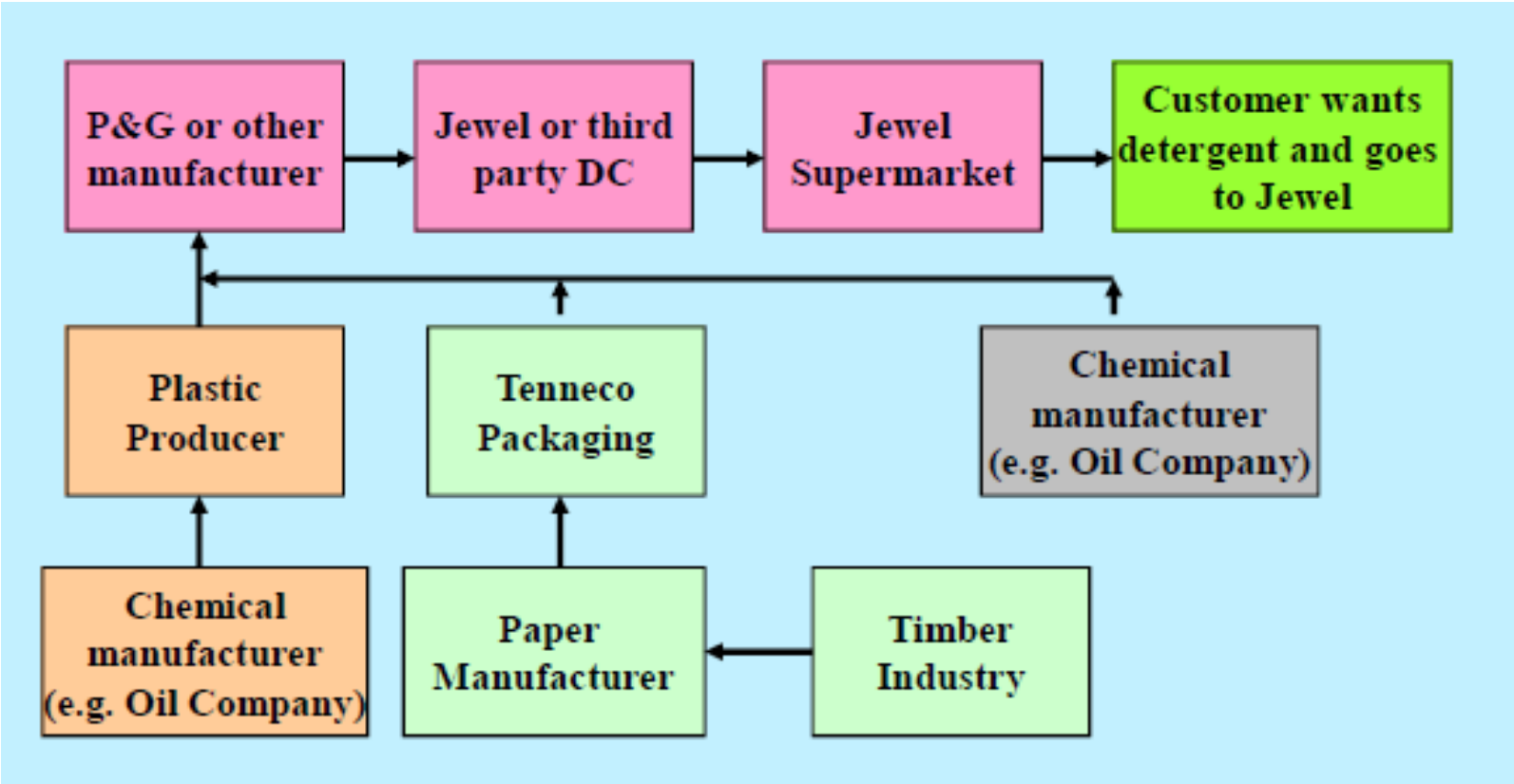
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What is a Supply Chain? C&M

- Customer is an integral part of the supply chain
- Includes movement of products from suppliers to manufacturers to distributors, but also includes movement of information, funds, and products in both directions
- Probably more accurate to use the term “supply network” or “supply web”
- Typical supply chain stages: customers, retailers, distributors, manufacturers, suppliers
- All stages may not be present in all supply chains (e.g., no retailer or distributor for Dell)

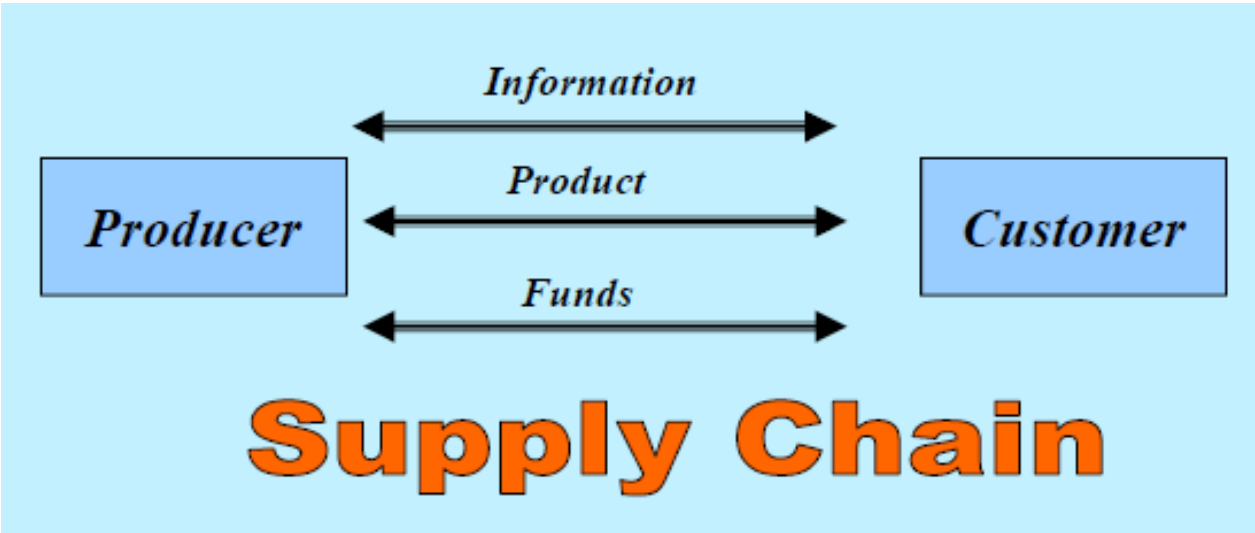
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What is a Supply Chain? C&M



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Flows in a Supply Chain C&M



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The Objective of a Supply Chain C&M

- Maximize overall value created
- Supply chain value: difference between what the final product is worth to the customer and the effort the supply chain expends in filling the customer’s request
- Value is correlated to supply chain profitability (difference between revenue generated from the customer and the overall cost across the supply chain)

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The Objective of a Supply Chain C&M

- Sources of supply chain revenue: the customer
- Sources of supply chain cost: flows of information, products, or funds between stages of the supply chain
- Supply chain management is the management of flows between and among supply chain stages to maximize total supply chain profitability

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- Logistics Defined

Logistics is the process of planning, implementing and controlling the efficient, cost-effective flow and storage of raw materials, in-process inventory, finished goods and related information from the point of origin to point of consumption for the purpose of conforming to customer requirements.

Council of Logistics Management

- Supply Chain Management Defined

SCM is the **integration** of all activities associated with the flow and transformation of goods from raw materials through to end user, as well as information flows, through improved supply chain **relationships**, to achieve a sustainable competitive advantage.

Handfield and Nichols

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- The first is an excellent definition, conveying the idea that product flows are to be managed from the point where they exist as raw materials to the point where they are finally discarded.
- It also suggests that logistics is a **process**, meaning that it includes all the activities that have an impact on making goods and services available to customers.
- This definition implies that logistics is part of the SC process, not the entire process. **So what is Supply Chain Management?**

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- SCM is a term that emerged in recent years that captures the essence of integrated logistics and even goes beyond it.
- SCM emphasizes the logistics interactions that takes place among the functions of marketing, logistics, and production within a firm and those interactions that take place between the legally separated firms within the product-flow channel.
- The second definition presented, reflects this broader scope.

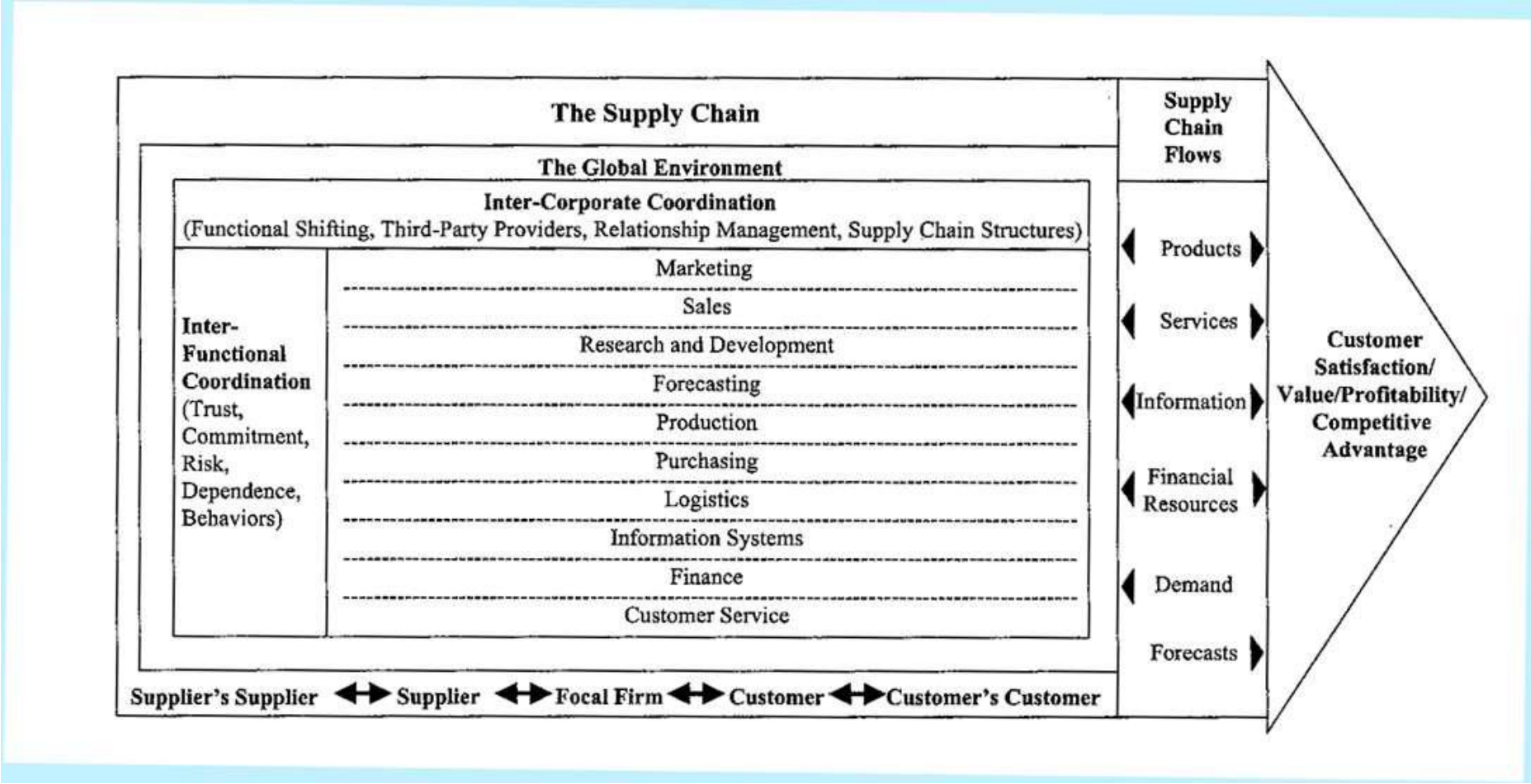
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- Mentzer et al., propose this broad and general definition (the Supply Chain Management model in the next figure shows the scope of this definition. It is important to note that SCM is about coordination of products flows across functions and across companies):

Supply Chain Management is defined as the systematic, strategic coordination of the traditional business functions and the tactics across these business functions within a particular company and across businesses within the supply chain, for the purposes of improving the long-term performance of the individuals companies and the supply chain as a whole.

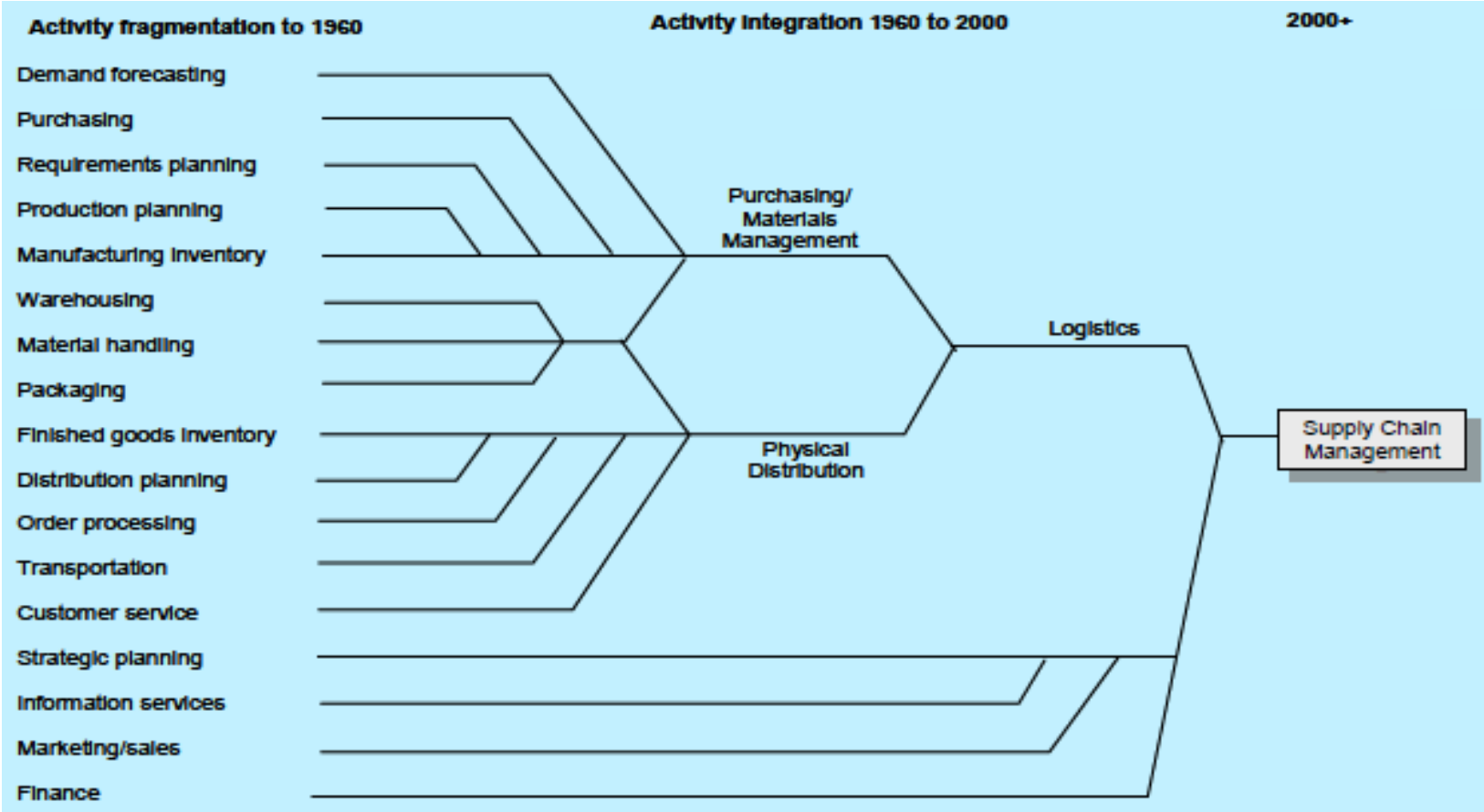
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Supply Chain Schematic



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Evolution of the management of product flows towards SCM



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The Logistics/SC Mission

Getting the right goods or services
to the right place, at the right time,
and in the desired condition at the
lowest cost and highest return on
investment.

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A Revised Strategy is Generating Great Top Management Interest

Historical perspective of distribution:
“The **last** frontier of **cost economies**”

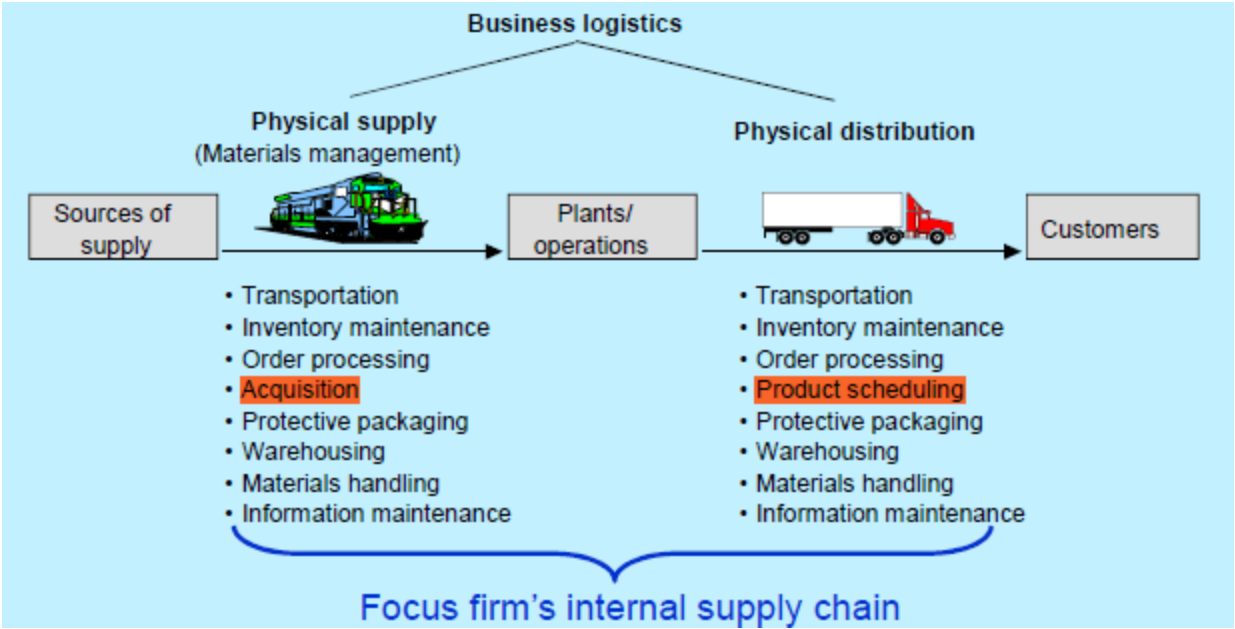
Peter Drucker, 1962

The contemporary view:
Distribution is a **new** frontier for **demand generation**—a competitive weapon.

Both views are now important!

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Scope of the Supply Chain for Most Firms



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Key Activities/Processes

- Primary
 - Setting customer service goals
 - Transportation
 - Inventory management
 - Location
- Secondary, or supporting
 - Warehousing
 - Materials handling
 - Acquisition (purchasing)
 - Protective packaging
 - Product scheduling
 - Order processing

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- Logistics costs are significant:
 - According to the IMF, logistics costs average about 12% of the world’s GDP (PIB).
 - Logistics costs for the USA are 9.9% of the USA GDP (PIB).
 - Average logistics costs for the firm at about 11% of sales.
 - Logistics costs, substantial for most firms, rank second only to purchase costs.

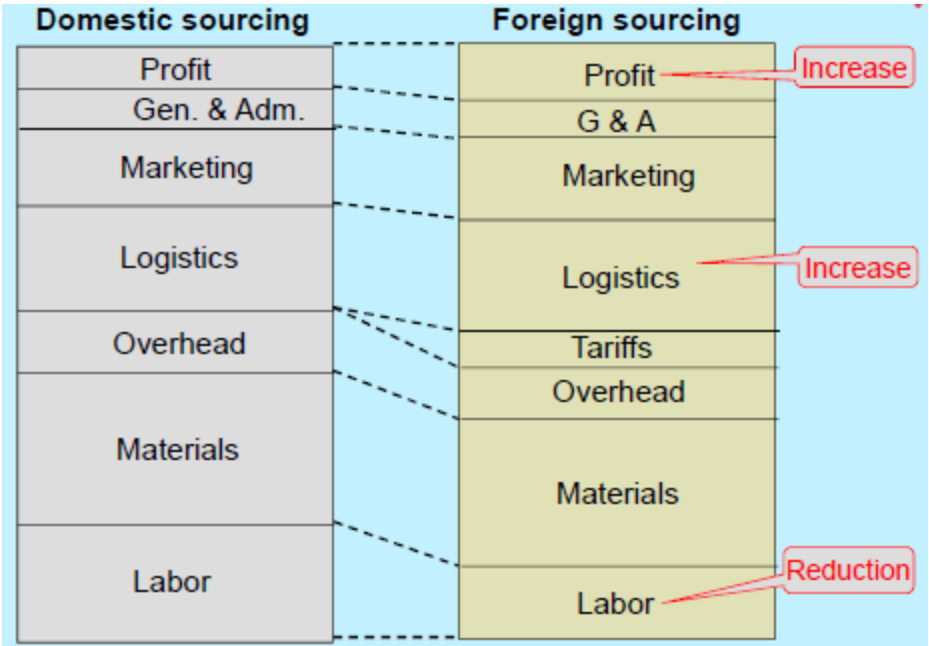
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Significance of Logistics

- Costs are high
 - About 10.5% of GDP domestically
 - About 12% of GDP internationally
 - A range of 4 to 30% of sales for individual firms, avg. about 10%
 - A high as 70-80% of sales if purchasing and production are included
- Customers are more demanding of the supply chain
 - Desire for quick response
 - Desire for mass customization
- An integral part of company strategy
 - Generate revenue
 - Improve profit
- Logistical lines are lengthening
 - Local vs. long distance supply
- Logistics is a key to trade and an increased standard of living
 - Law of comparative economic advantage applies
- Logistics adds value
 - Time and place utilities

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Effect on Logistics Foreign Outsourcing



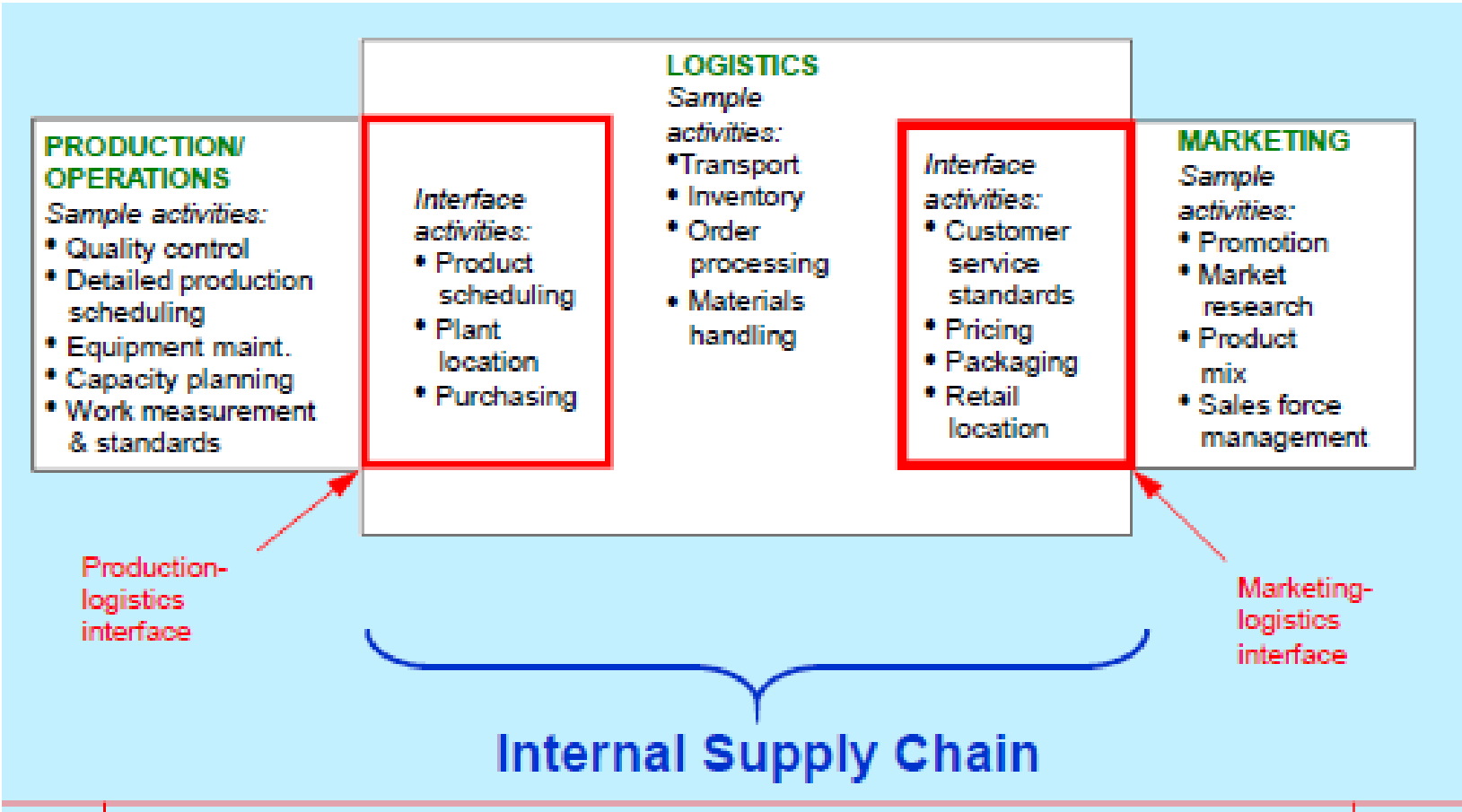
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Scholars and practitioners of both marketing and production have not neglected the importance of logistics. In fact, each area considers logistics within its scope of action.

- **Marketing's** concern is to place its products or services in convenient distribution channels to facilitate the exchange process.
- **Production/operations** is likely to be most interested in those activities that directly affect manufacturing (lower unit cost).
- Next figure shows activities that are at the interface (interface activity is one that cannot be managed effectively within one functional area) of marketing and logistics and production/operations and logistics within the firm.

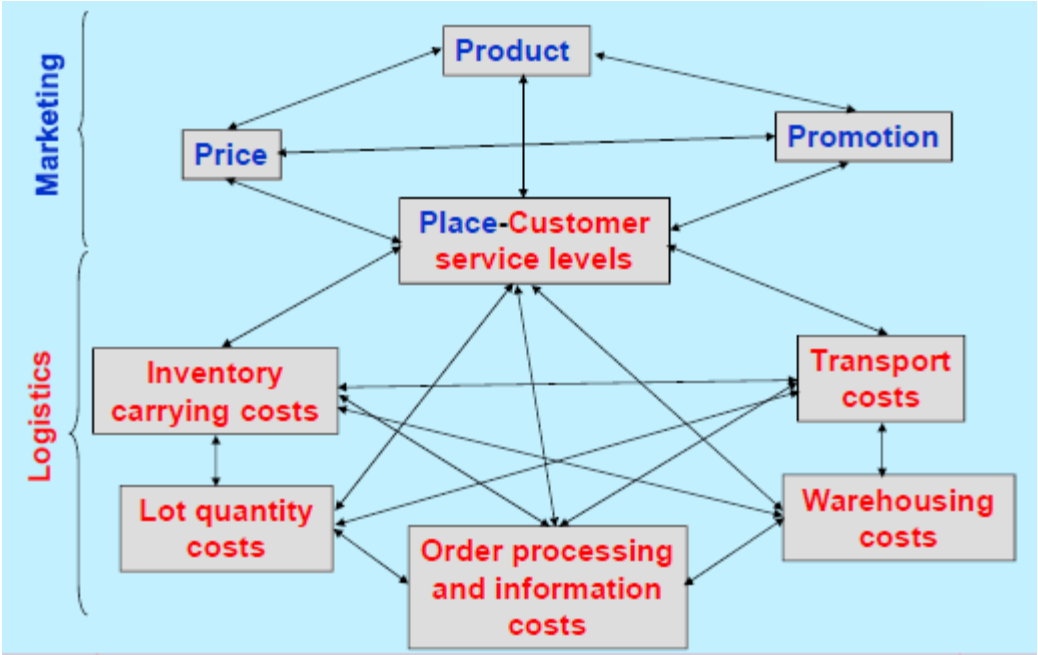
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Relationship of Logistics to Marketing and Production



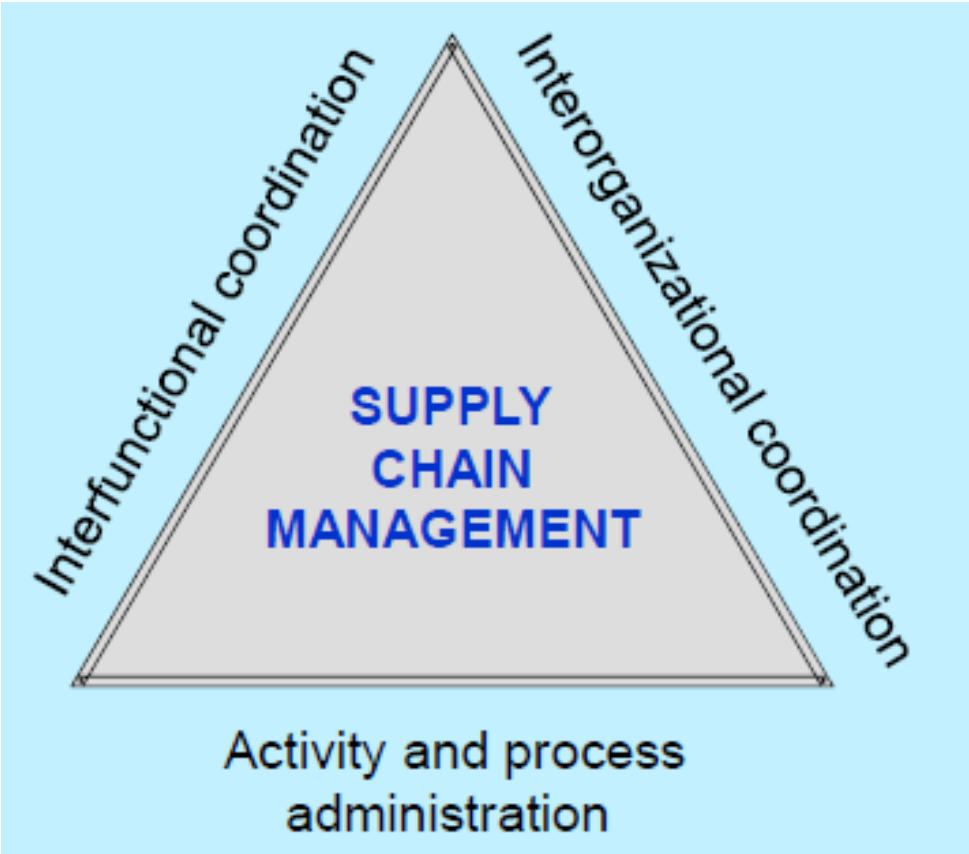
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Relationship of Logistics to Marketing



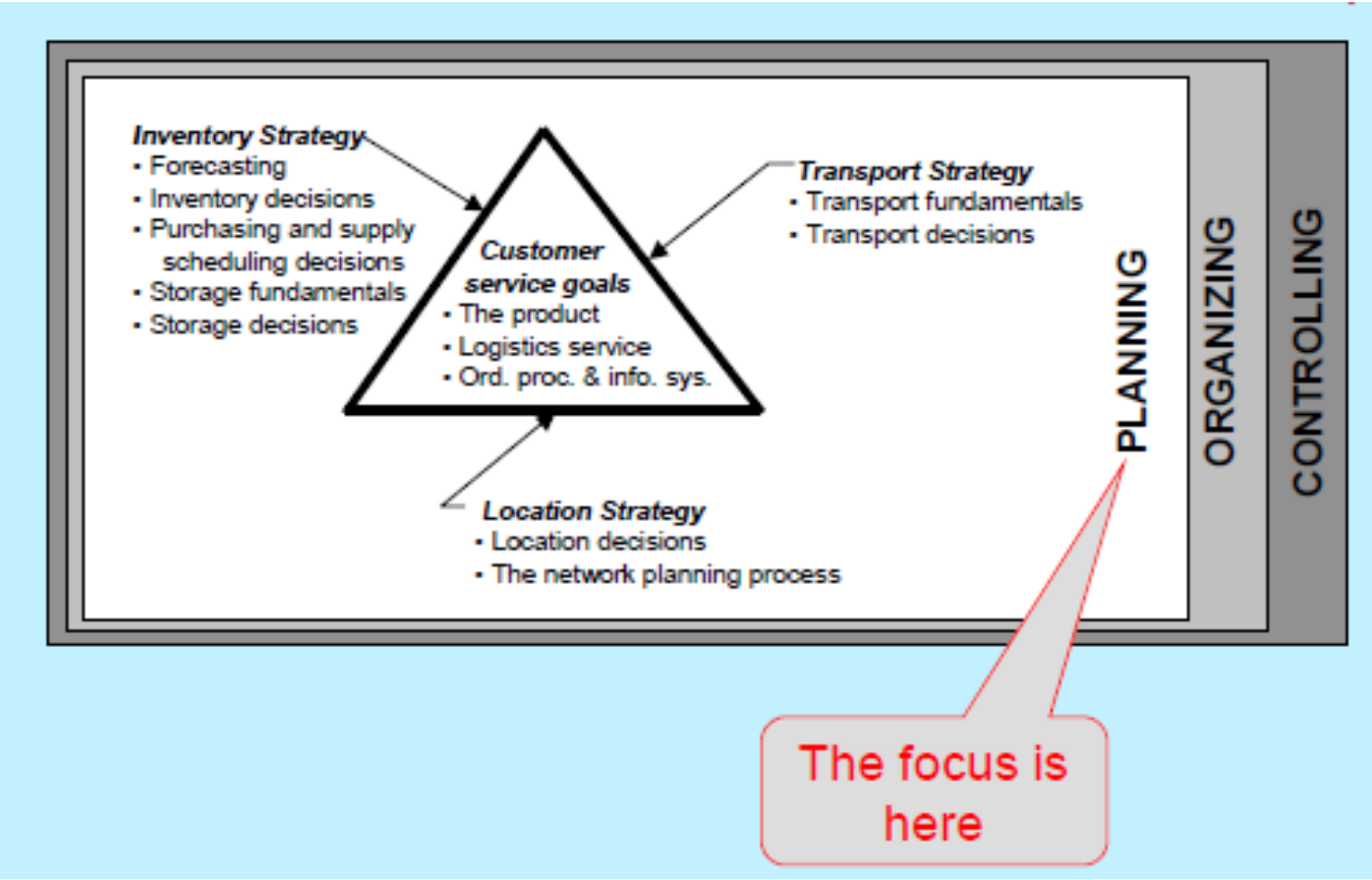
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The Multi-Dimensions of SC



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Study Framework

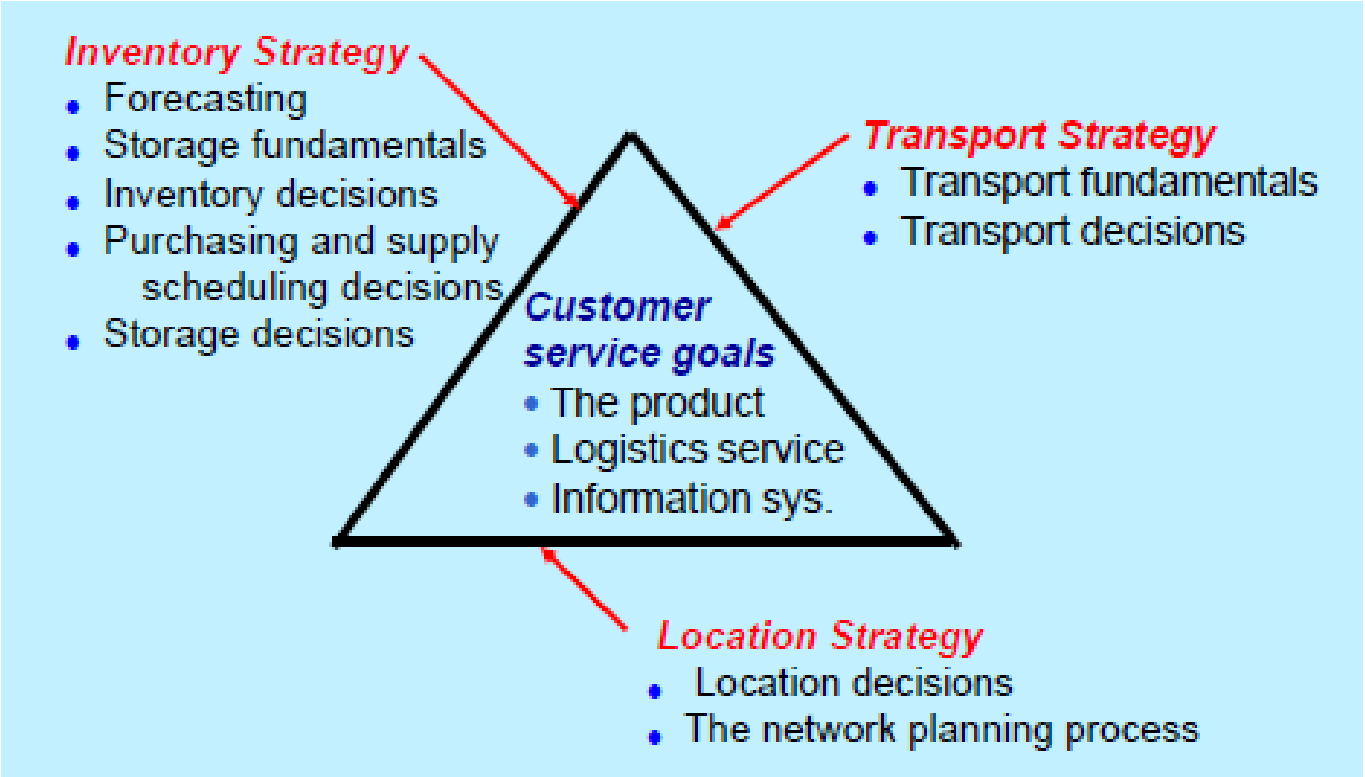


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- To do effective planning, it is useful to have a vision of the goals of the firm, to have concepts and principles for guidance on how to get there, and to have tools that help to sort among alternative courses of action.
- Specifically, **for logistics management**, planning follows a primary decision triangle of location, inventory, and transportation, with customer service being the result of these decisions (see next figure).

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The Logistics Strategy Triangle



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Logistics/SC in Diverse Areas

- **Manufacturing**—most common
- **Environment**—causing restrictions (recycling, packaging materials, transporting hazardous materials... governmental regulations make the logistics for a product more costly by extending the distribution channel)
- **Service**—emerging opportunities (many service oriented firms may be distributing an intangible product, but they do engage in many physical distribution activities and decisions... hospital, bank, church, etc.)
- **Non-profits**—little explored
- **Military**—long history (invasion of Europe WWII, invasion of Iraq...)

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Contemporary Logistics Terms

- Quick response and flexible manufacturing
- Mass customization
- Supply chain management/collaborative logistics
- Reverse logistics
- Service logistics
- Continuous replenishment
- Lean logistics
- Integrated logistics

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