Supply Chain Management (Part of Slides provided by the 3rd Edition with slight changes made by Nesim K. Erkip)

Chapter 1
Understanding the Supply Chain

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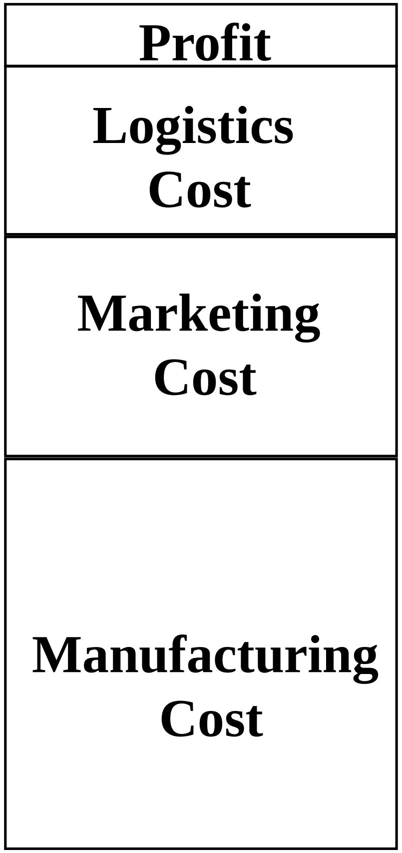
Traditional View: Logistics in the Manufacturing Firm

- Profit 4%
- Logistics Cost 21%
- Marketing Cost 27%
- Manufacturing Cost 48%



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What is a Supply Chain?

- All stages involved, directly or indirectly, in fulfilling a customer request
- Includes manufacturers, suppliers, transporters, warehouses, retailers, and customers
- Within each company, the supply chain includes all functions involved in fulfilling a customer request (product development, marketing, operations, distribution, finance, customer service)
- Example: Fig. 1.1 Detergent supply chain (Wal-Mart)

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Figure 1.1 Stages of a Supply Chain

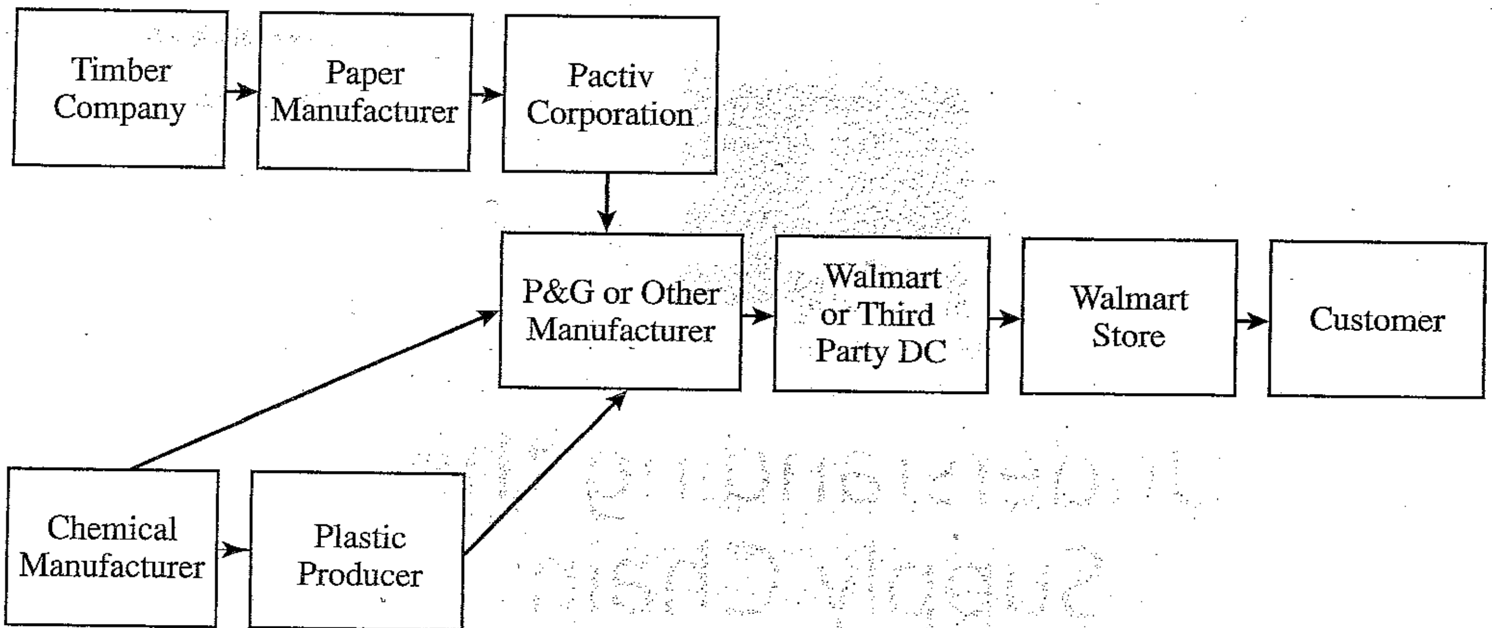

FIGURE 1-1 Stages of a Detergent Supply Chain

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What is a Supply Chain?

- 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 (Fig. 1.2)
- All stages may not be present in all supply chains (e.g., no retailer or distributor for Dell)

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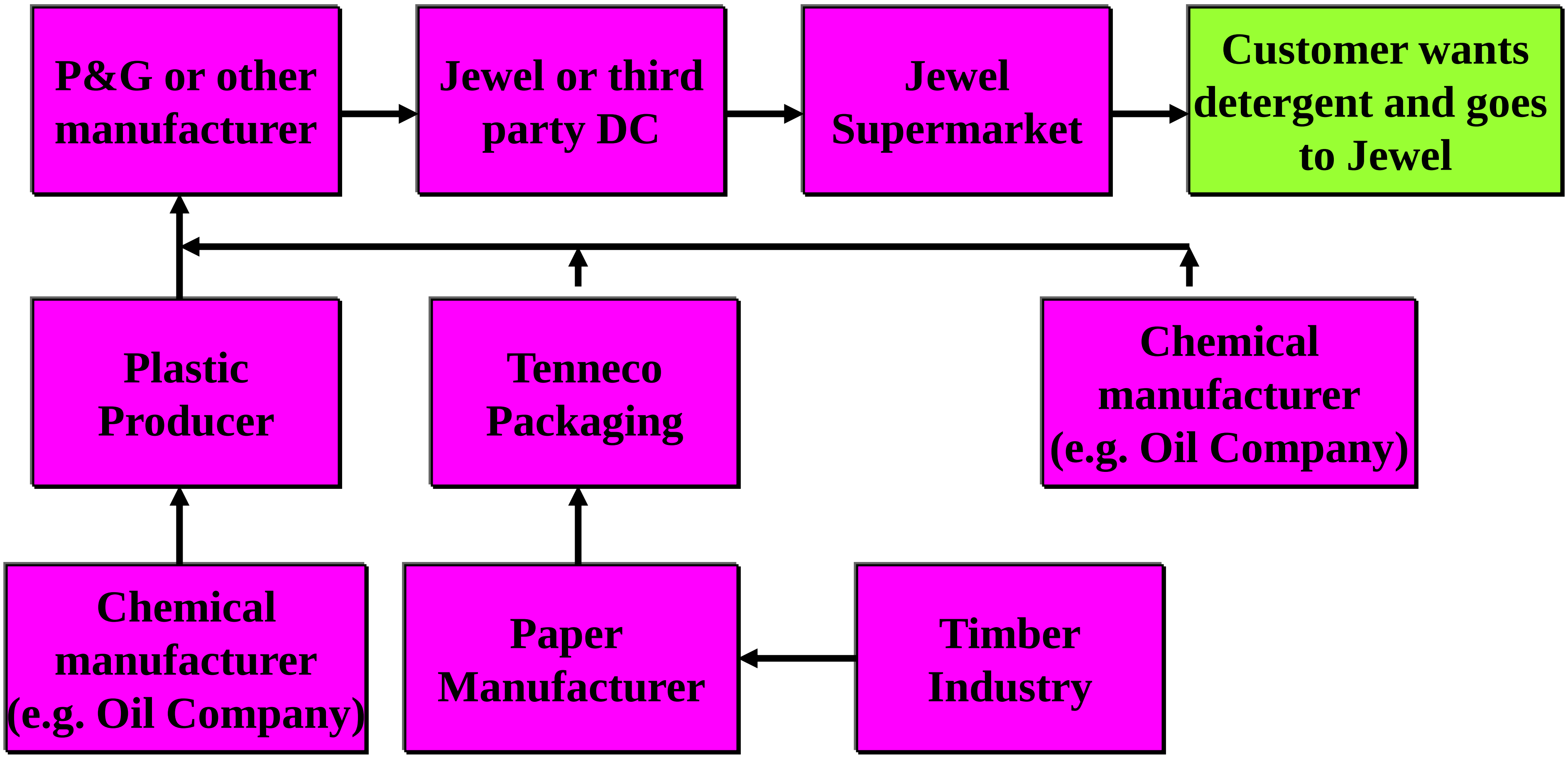
What is a Supply Chain?



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The Objective of a Supply Chain

- 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

- 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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The Objective of a Supply Chain

- Example: Dell receives $2000 from a customer for a computer (revenue)
- Supply chain incurs costs (information, storage, transportation, components, assembly, etc.)
- Difference between $2000 and the sum of all of these costs is the supply chain profit
- Supply chain profitability is total profit to be shared across all stages of the supply chain
- Supply chain success should be measured by total supply chain profitability, not profits at an individual stage

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Supply Chain Strategy or Design

- Decisions about the structure of the supply chain and what processes each stage will perform
- Strategic supply chain decisions
  - Locations and capacities of facilities
  - Products to be made or stored at various locations
  - Modes of transportation
  - Information systems
- Supply chain design must support strategic objectives
- Supply chain design decisions are long-term and expensive to reverse – must take into account market uncertainty

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Supply Chain Planning

- Definition of a set of policies that govern short-term operations
- Fixed by the supply configuration from previous phase
- Starts with a forecast of demand in the coming year

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Supply Chain Planning

- Planning decisions:
  - Which markets will be supplied from which locations
  - Planned buildup of inventories
  - Subcontracting, backup locations
  - Inventory policies
  - Timing and size of market promotions
- Must consider in planning decisions demand uncertainty, exchange rates, competition over the time horizon

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Supply Chain Operation

- Time horizon is weekly or daily
- Decisions regarding individual customer orders
- Supply chain configuration is fixed and operating policies are determined
- Goal is to implement the operating policies as effectively as possible
- Allocate orders to inventory or production, set order due dates, generate pick lists at a warehouse, allocate an order to a particular shipment, set delivery schedules, place replenishment orders
- Much less uncertainty (short time horizon)

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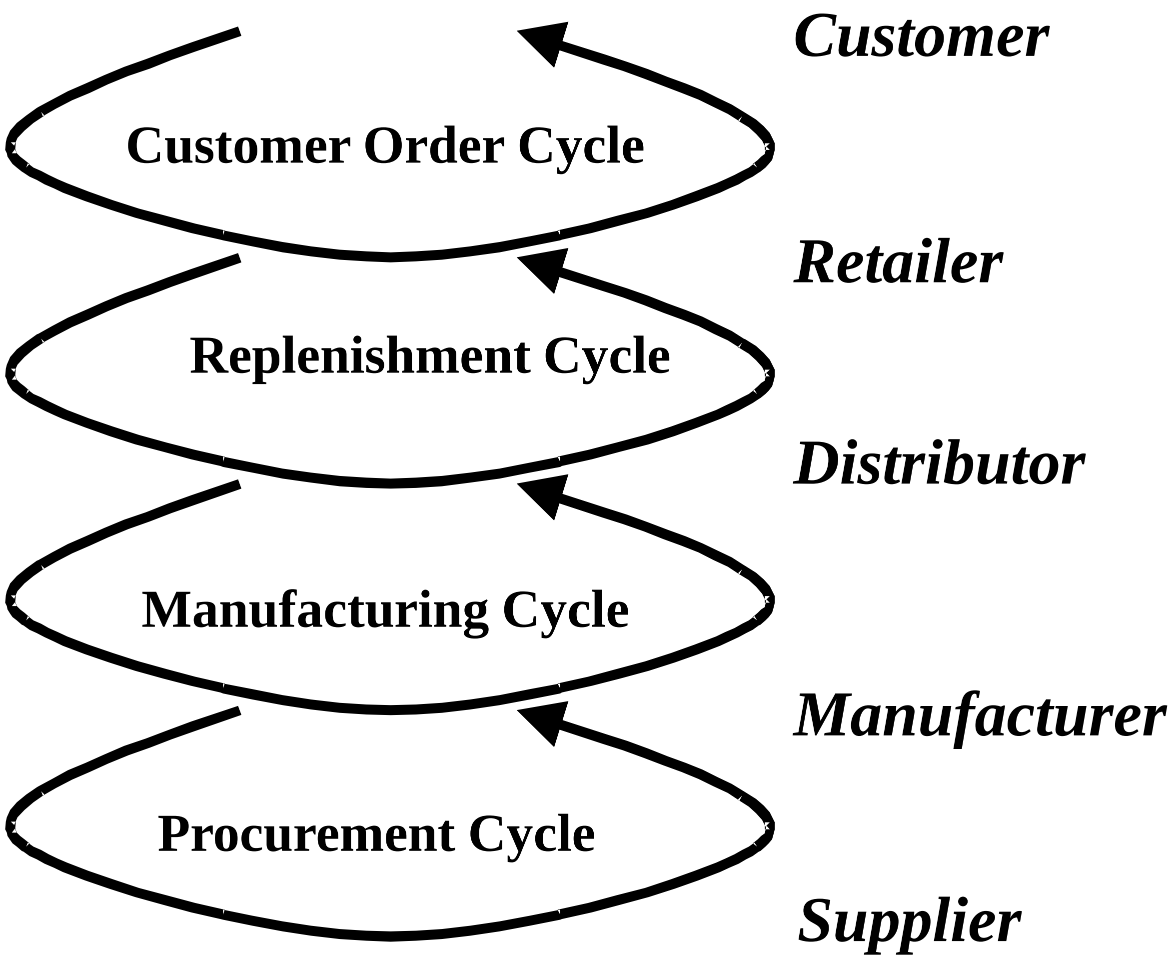
Cycle View of Supply Chains



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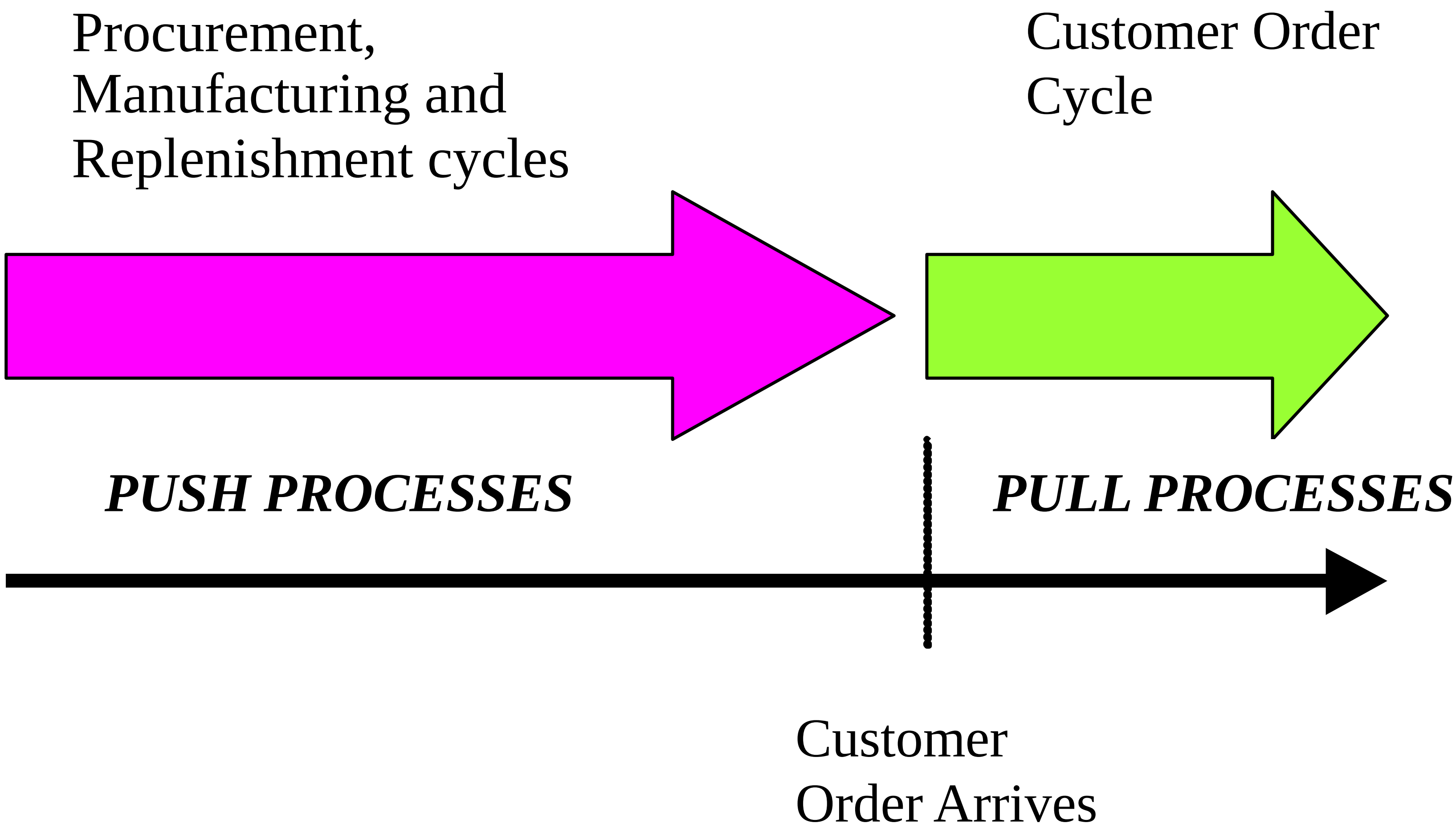
Push/Pull View of Supply Chains



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Amazon.com

- Why is Amazon building more warehouses as it grows? How many warehouses should it have and where should they be located?
- What advantages does selling books via the Internet provide? Are there disadvantages?
- Why does Amazon stock bestsellers while buying other titles from distributors?
- Does an Internet channel provide greater value to a bookseller like Borders or to an Internet-only company like Amazon?
- Should traditional booksellers like Borders integrate e-commerce into their current supply?
- For what products does the e-commerce channel offer the greatest benefits? What characterizes these products?

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