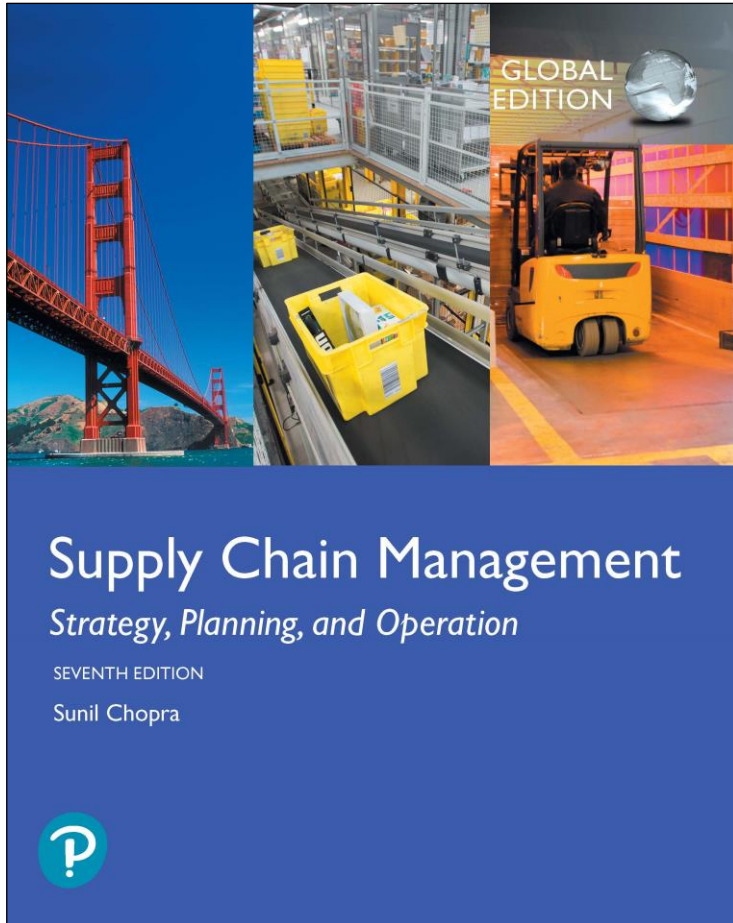


Supply Chain Management: Strategy, Planning, and Operation

Seventh Edition, Global Edition



Chapter 1

Understanding the Supply Chain

Learning Objectives

- 1.1** Discuss the goal of a supply chain and explain the impact of supply chain decisions on the success of a firm.
- 1.2** Define the three key supply chain decision phases and explain the significance of each one.
- 1.3** Describe the cycle and push/pull views along with the macro processes of a supply chain.
- 1.4** Identify important issues and decisions to be addressed in a supply chain.

What Is a Supply Chain? (1 of 3)

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

What Is a Supply Chain? (2 of 3)

- Customer is an integral part of the supply chain
- Includes movement of products from suppliers to manufacturers to distributors and information, funds, and products in both directions
- May be more accurate to use the term “supply network” or “supply web”
- Typical supply chain stages: customers, retailers, wholesalers, distributors, manufacturers, suppliers

What Is a Supply Chain? (3 of 3)

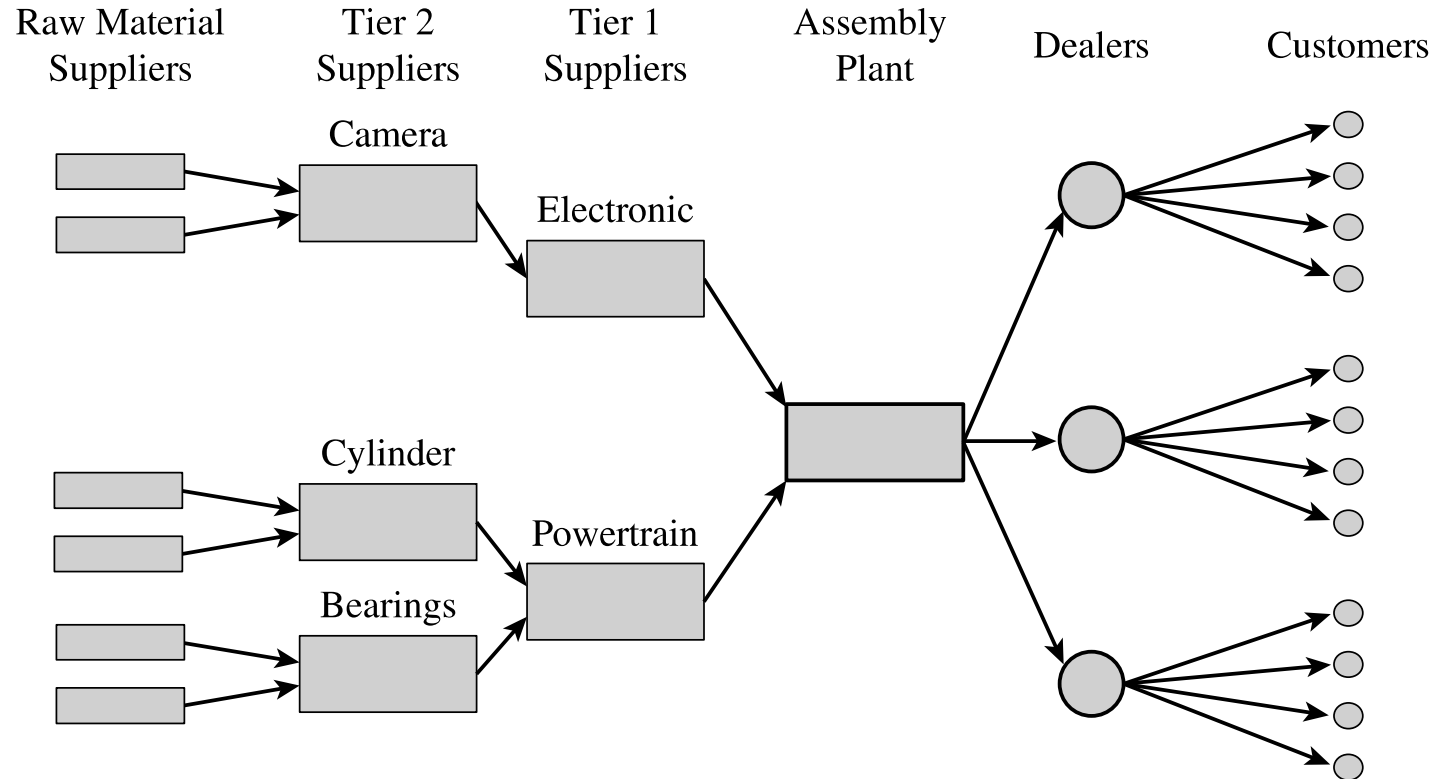


Figure 1-1 Stages of an Automotive Supply Chain

Flows in a Supply Chain

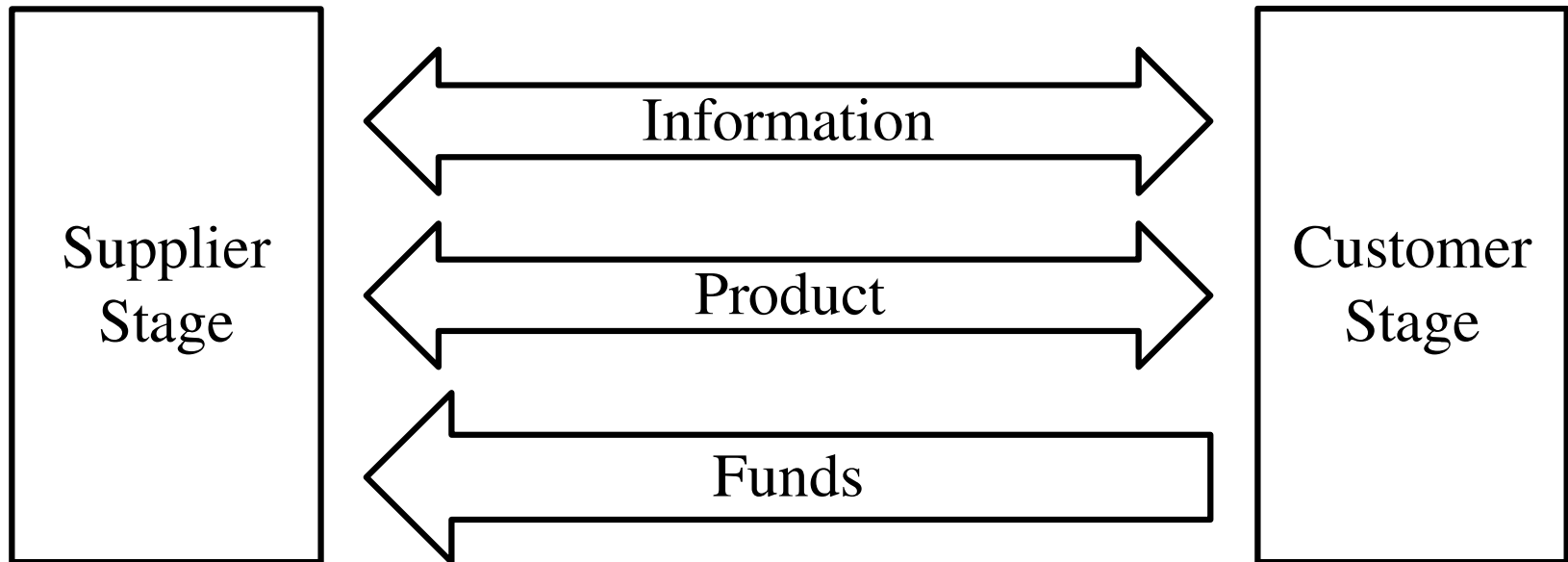


Figure 1-2 The Three Flows in a Supply Chain

The Objective of a Supply Chain (1 of 2)

- Maximize net value generated

Supply Chain Surplus = Customer Value – Supply Chain Cost

The Objective of a Supply Chain (2 of 2)

- Customer is the only source of revenue
- Sources of cost include flows of information, products, or funds between stages of the supply chain
- Effective **supply chain management** involves the management of supply chain assets and product, information, and fund flows to grow the total supply chain surplus

Decision Phases in a Supply Chain

1. Supply chain strategy or design
 - How to structure the supply chain over the next several years
2. Supply chain planning
 - Decisions over the next quarter or year
3. Supply chain operation
 - Daily or weekly operational decisions

Phase 1: Supply Chain Strategy or Design

- Decisions about the configuration of the supply chain, allocation of resources, and what processes each stage will perform
- Strategic supply chain decisions
 - Outsource supply chain functions
 - 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

Phase 2: Supply Chain Planning (1 of 2)

- Definition of a set of policies that govern short-term operations
- Fixed by the supply configuration from strategic phase
- Goal is to maximize supply chain surplus given established constraints
- Starts with a forecast of demand in the coming year

Phase 2: Supply Chain Planning (2 of 2)

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

Phase 3: Supply Chain Operation

- Time horizon is weekly or daily
- Decisions regarding individual customer orders
- Supply chain configuration is fixed and planning policies are defined
- Goal is to handle incoming customer orders 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)

Process Views of a Supply Chain

1. **Cycle View:** The processes in a supply chain are divided into a series of cycles, each performed at the interface between two successive stages of the supply chain.
2. **Push/Pull View:** The processes in a supply chain are divided into two categories, depending on whether they are executed in response to a customer order or in anticipation of customer orders. **Pull** processes are initiated by a customer order, whereas **push** processes are initiated and performed in anticipation of customer orders.

Cycle View of Supply Chain Processes (1 of 2)

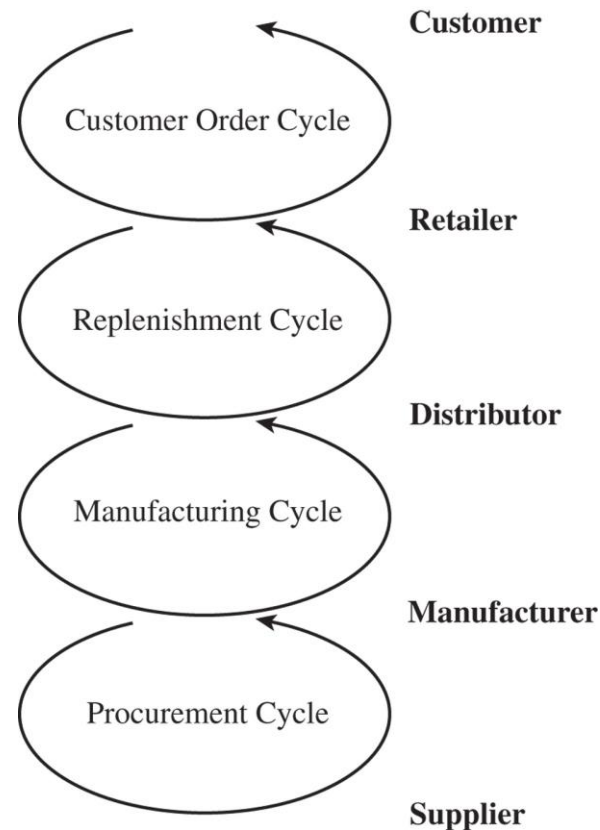


Figure 1-3 Supply Chain Process Cycles

Cycle View of Supply Chain Processes (2 of 2)

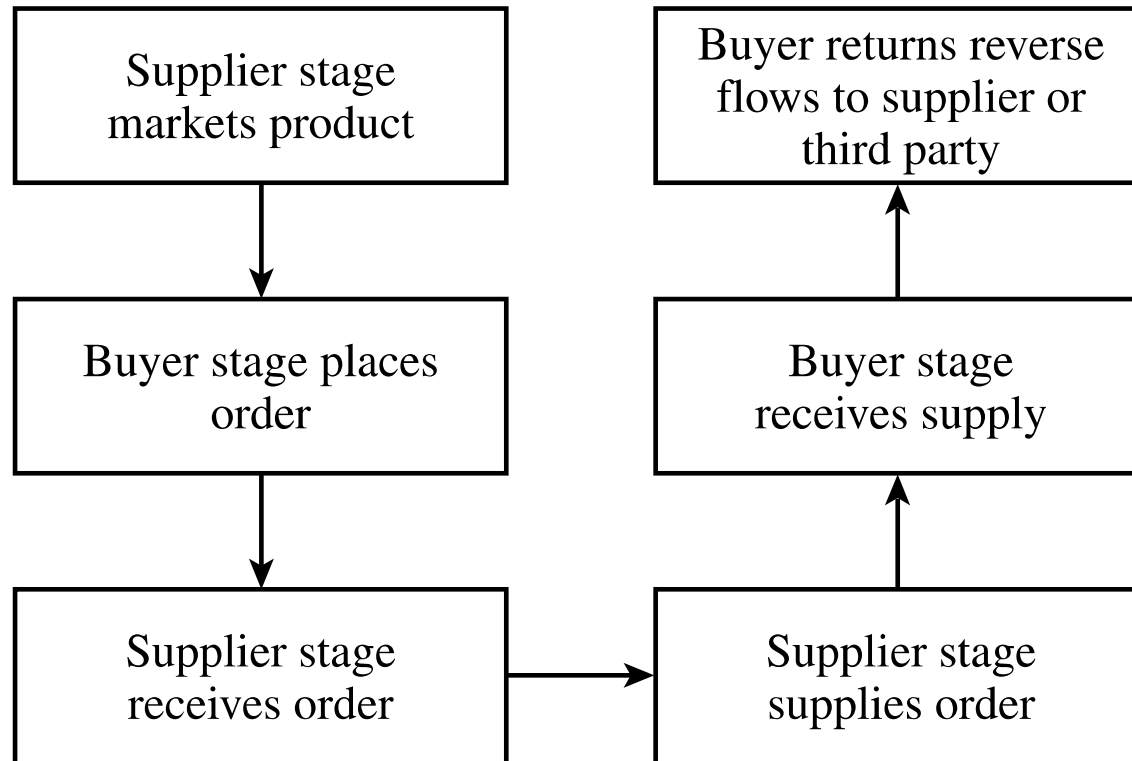
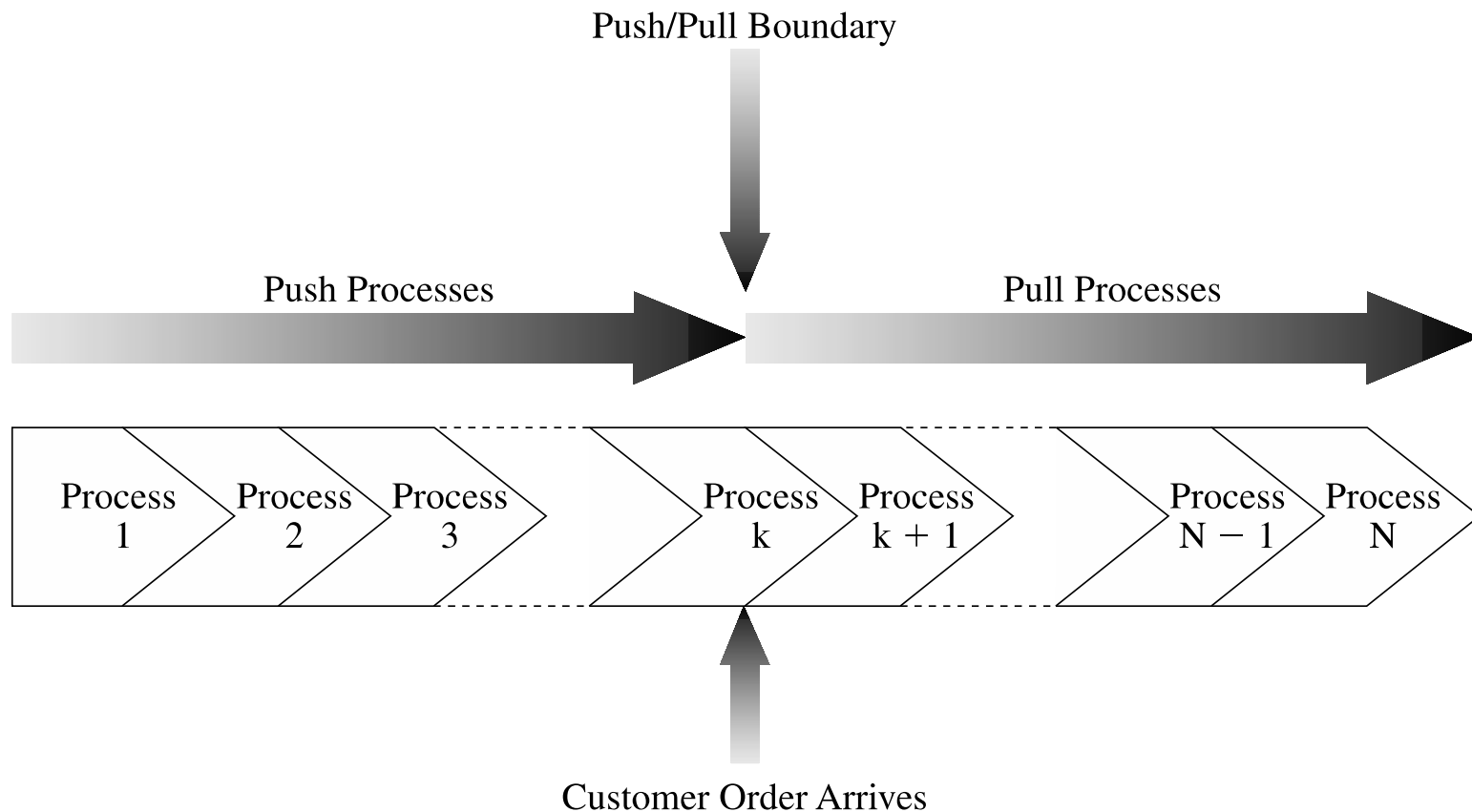


Figure 1-4 Subprocesses in Each Supply Chain Process Cycle

Push/Pull View of Supply Chain Processes

- Supply chain processes fall into one of two categories depending on the timing of their execution relative to customer demand
- Pull: execution is initiated in response to a customer order (**reactive**)
- Push: execution is initiated in anticipation of customer orders (**speculative**)
- **Push/pull boundary** separates push processes from pull processes

Figure 1-5 Push/Pull View of Supply Chains



Push/Pull View – L.L. Bean

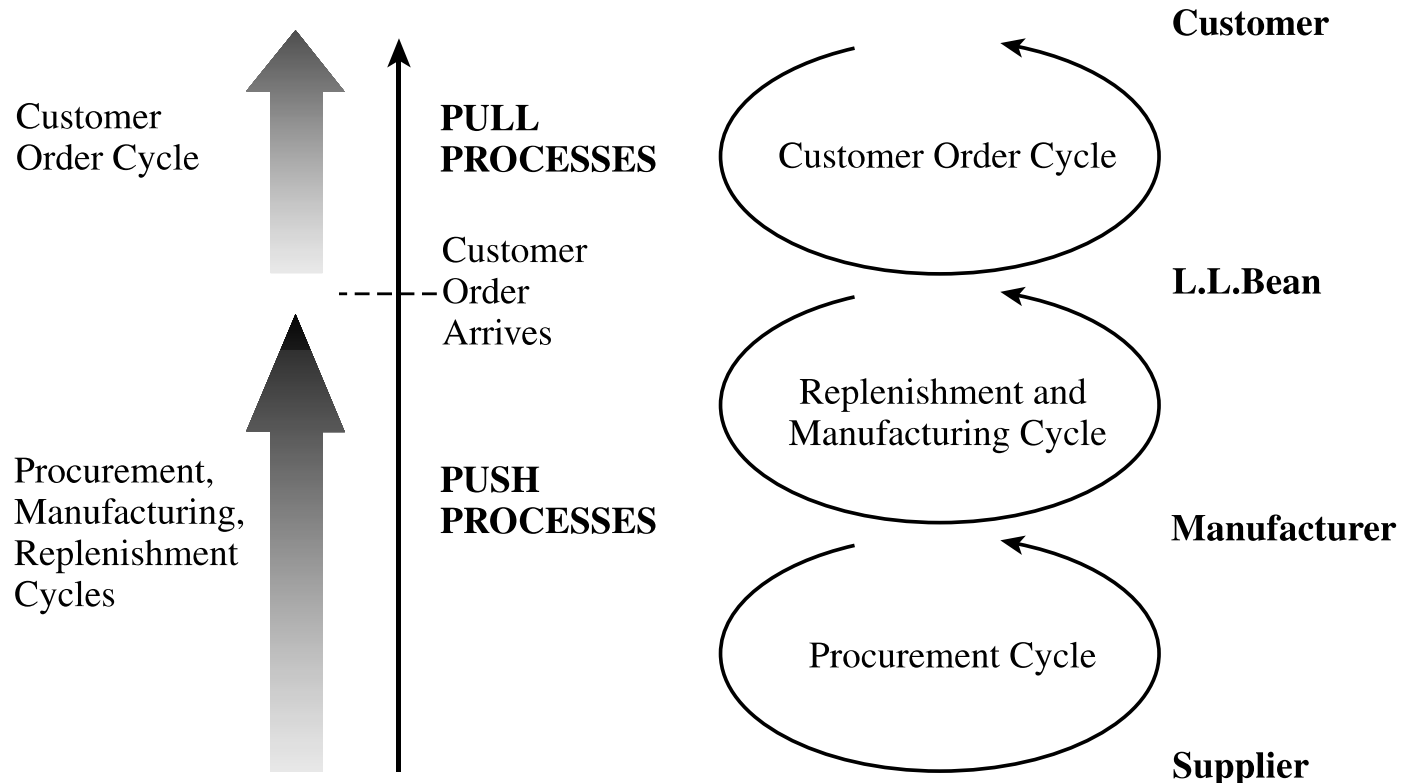


Figure 1-6 Push/Pull Processes for the L.L. Bean Supply Chain

Supply Chain Macro Processes

Supply chain processes discussed in the two views can be classified into

1. Customer Relationship Management (CRM):

- all processes at the interface between the firm and its customers

2. Internal Supply Chain Management (ISCM):

- all processes that are internal to the firm

3. Supplier Relationship Management (SRM):

- all processes at the interface between the firm and its suppliers

Figure 1-8 Supply Chain Macro Processes



Gateway and Apple

1. Why did Gateway choose not to carry any finished-product inventory at its retail stores? Why did Apple choose to carry inventory at its stores?
2. What are the characteristics of products that are most suitable to be carried in finished-goods inventory in a retail store? What characterizes products that are best manufactured to order?
3. How does product variety affect the level of inventory a retail store must carry?
4. Is a direct selling supply chain without retail stores always less expensive than a supply chain with retail stores?
5. What factors explain the success of Apple retail and the failure of Gateway Country stores?

Zara

1. What advantage does Zara gain against the competition by having a very responsive supply chain?
2. Why has Inditex chosen to have both in-house manufacturing and outsourced manufacturing? Why has Inditex maintained manufacturing capacity in Europe even though manufacturing in Asia is much cheaper?
3. Why does Zara source products with uncertain demand from local manufacturers and products with predictable demand from Asian manufacturers?
4. What advantage does Zara gain from replenishing its stores multiple times a week compared to a less frequent schedule?
5. Do you think Zara's responsive replenishment infrastructure is better suited for online sales or retail sales?

W.W. Grainger and McMaster-Carr

1. How many DCs should be built and where should they be located?
2. How should product stocking be managed at the DCs? Should all DCs carry all products?
3. What products should be carried in inventory and what products should be left with the supplier to be shipped directly in response to a customer order?
4. What products should W.W. Grainger carry at a store?
5. How should markets be allocated to DCs in terms of order fulfillment? What should be done if an order cannot be completely filled from a DC? Should there be specified backup locations? How should they be selected?

Toyota

1. Where should the plants be located, and what degree of flexibility should be built into each? What capacity should each plant have?
2. Should plants be able to produce for all markets or only for specific contingency markets?
3. How should markets be allocated to plants and how frequently should this allocation be revised?
4. How should the investment in flexibility be valued?

Amazon

1. Why is Amazon building more warehouses as it grows? How many warehouses should it have, and where should they be located?
2. Should Amazon stock every product it sells?
3. What advantage can online players derive from setting up a brick-and-mortar location? How should they use the two channels to gain maximum advantage?
4. What advantages and disadvantages does the online channel enjoy in the sale of shoes and diapers relative to a retail store?
5. For what products does the online channel offer the greater advantage relative to retail stores? What characterizes these products?

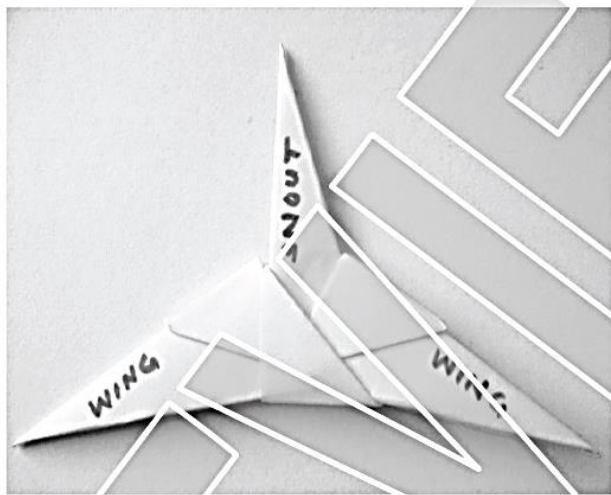
Macy's and W.W. Grainger

1. Should online orders be filled from stores or fulfillment centers? What role(s) should each facility play?
2. How should store inventories be managed in an omni-channel setting?
3. Should returns be kept at a store or sent to a fulfillment center?

Demonstrating Push and Pull Manufacturing Strategies: An Experiential Classroom Activity Using Origami Art

Dr-Tayyab

Snout and Wing Assembly



Body and Tail Assembly



Final Assembled Product

