



Chapter 1:

SCM

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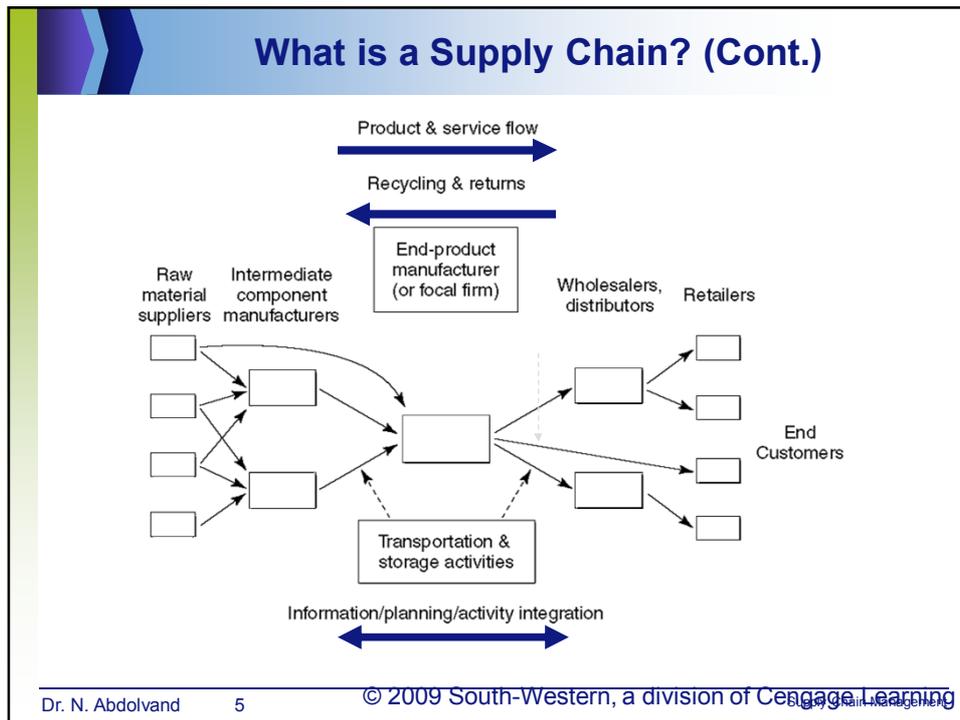
- ◆ Supply Chain Management (3/4 Edition), Chopra and Meindl, Prentice-Hall, 2006-2010 (Chapter 1 & Chapter 17)
- ◆ ROSS, D. F., Introduction to Supply Chain Management Technologies. 2nd ed. Boca Raton: CRC Press, 2010 (Chapter 1)
- ◆ Wisner, J.D., Tan, K & Leong, G.K, *Principles of Supply Chain Management: A Balanced Approach*. 3rd ed. USA: Cengage Learning. 2012. (Chapter 1)

Chapter Outline

- ◆ Describe a supply chain and define supply chain management.
- ◆ Describe the objectives and elements of supply chain management.
- ◆ Describe local, regional and global supply chain management activities.
- ◆ Describe a brief history and current trends in supply chain management.
- ◆ Understand the bullwhip effect and how it impacts the supply chain.

What is a Supply Chain?

- ◆ A supply chain consists of the flow of products and services from:
 - Raw materials manufacturers
 - Component and intermediate manufacturers
 - Final product manufacturers
 - Wholesalers and distributors and
 - Retailers
- ◆ Integrated through information, planning, and integration activities



Defining Logistics Management

- ◆ that part of SCM that plans, implements, and controls the efficient, effective forward and reverses flow and storage of goods, services, and related information between the point of origin and the point of consumption in order to meet customers' requirements
- ◆ Logistics contain 7 R:
 - Right product
 - Right quantity
 - Right condition
 - Right place
 - Right time
 - Right customer
 - Right price

Council of Supply Chain Management Professionals

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What is Supply Chain Management?

- ◆ The planning and management of all activities involved in sourcing and procurement, conversion, and all logistics management activities ... also includes coordination with channel partners, which can be suppliers, intermediaries, third party service providers, and customers.

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What is Supply Chain Management? (Cont.)

- ◆ Old paradigm - Firm gained synergy as a vertically integrated firm encompassing the ownership and coordination of several supply chain activities. Organizational cultures emphasized short-term, company focused performance.
- ◆ New paradigm - Firm in a supply chain focuses activities in its area of specialization and enters into voluntary and trust-based relationships with supplier and customer firms.
 - All participants in the supply chain benefit.
 - Boundaries are dynamic and extend from “the firm’s suppliers’ suppliers to its customers’ customers (i.e., second tier suppliers and customers).”
 - Supply chains now deal with reverse logistics to handle returned products, warranty repairs, and recycling.

The Foundations of Supply Chain Management	
Supply Management	Supplier management, supplier evaluation, supplier certification, strategic partnerships
Operations	Demand management, MRP, ERP, inventory visibility, JIT (AKA lean production & Toyota Production System), TQM (AKA Six Sigma)
Distribution	Transportation management, customer relationship management, distribution network, perfect order fulfillment, global supply chains, service response logistics
Integration	Process integration, performance measurement

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Current Trends in Supply Chain Management (Cont.)	
<ul style="list-style-type: none"> ◆ Increasing Supply Chain Responsiveness <ul style="list-style-type: none"> ■ Firms will increasingly need to be more flexible and responsive to customer needs ■ Supply chains will need to benchmark industry performance and meet and improve on a continuous basis ■ Responsiveness improvement will come from more effective and faster product & service delivery systems 	

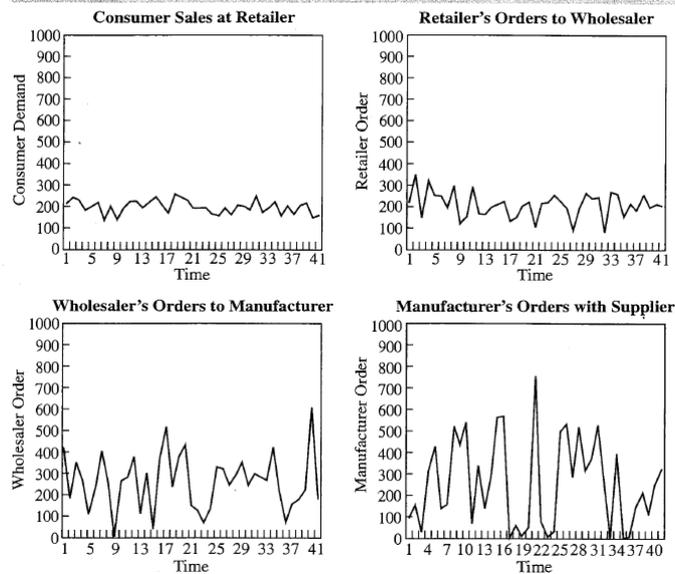
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Current Trends in Supply Chain Management- Cont.

- ◆ Reducing Supply Chain Costs
 - Cost reduction achieved through:
 - Reduced purchasing costs
 - Reducing waste
 - Reducing excess inventory, and
 - Reducing non-value added activities
 - Continuous Improvement through
 - Benchmarking- improve over competitors' performance
 - Trial & error
 - Increased knowledge of supply chain processes

Bullwhip Effect

FIGURE 17-1 Demand Fluctuations at Different Stages of a Supply Chain



EXAMPLES OF SUPPLY CHAINS

Gateway: A Direct Sales Manufacturer

- ◆ Why did Gateway have multiple production facilities in the US? What advantages or disadvantages does this strategy offer relative to Dell, which has one facility?
- ◆ What factors did Gateway consider when deciding which plants to close?
- ◆ Why does Gateway not carry any finished goods inventory at its retail stores?
- ◆ Should a firm with an investment in retail stores carry any finished goods inventory?
- ◆ Is the Dell model of selling directly without any retail stores always less expensive than a supply chain with retail stores?
- ◆ What are the supply chain implications of Gateway's decision to offer fewer configurations?

7-Eleven

- ◆ What factors influence decisions of opening and closing stores? Location of stores?
- ◆ Why has 7-Eleven chosen off-site preparation of fresh food?
- ◆ Why does 7-Eleven discourage direct store delivery from vendors?
- ◆ Where are distribution centers located and how many stores does each center serve? How are stores assigned to distribution centers?
- ◆ Why does 7-Eleven combine fresh food shipments by temperature?
- ◆ What point of sale data does 7-Eleven gather and what information is made available to store managers? How should information systems be structured?

W.W. Grainger and McMaster Carr

- ◆ How many DCs should there be and where should they be located?
- ◆ How should product stocking be managed at the DCs? Should all DCs carry all products?
- ◆ What products should be carried in inventory and what products should be left at the supplier?
- ◆ What products should Grainger carry at a store?
- ◆ How should markets be allocated to DCs?
- ◆ How should replenishment of inventory be managed at various stocking locations?
- ◆ How should Web orders be handled?
- ◆ What transportation modes should be used?

Toyota

- ◆ Where should plants be located, what degree of flexibility should each have, and what capacity should each have?
- ◆ Should plants be able to produce for all markets?
- ◆ How should markets be allocated to plants?
- ◆ What kind of flexibility should be built into the distribution system?
- ◆ How should this flexible investment be valued?
- ◆ What actions may be taken during product design to facilitate this flexibility?

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?



PERSPECTIVES & DECISION PHASES OF A SUPPLY CHAIN

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Perspectives of SCM

- ◆ Strategy
- ◆ Tactic
- ◆ Technology-enabled

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SCM as a strategy

- ◆ transition from a supply chain model that is interfaced, sequential, and linear to one centered on functional and strategic *interoperability*
- ◆ integrating of cross-channel correlative processes that create unique sources of value
 - by unifying the resources, capabilities, and competencies of the entire network ecosystem
 - to enhance the competitive power of the network as a whole and not just an individual company

Tactical SCM

- ◆ an operations management technique that seeks
 - first to optimize the capabilities of the enterprise's operations functions and
 - then to direct them to continuously search for opportunities for cost reduction and increased channel throughput by working with matching functions to be found in supply chain customers and suppliers
- ◆ Tactical SCM can be broken down into four key value-enhancing activities

Tactical SCM

1. **channel supplier management**,
 - Involves optimizing the inbound acquisition and movement of inventories and
 - includes supplier management, sourcing and negotiation, forecasting, purchasing transportation, and stores receipt and disposition.
2. *product and service processing*
 - product engineering, product manufacturing, and product costing
3. *channel customer management*
 - finished goods warehousing, value-added processing, customer order management, channel fulfillment, and transportation
4. *channel support activities*
 - utilizing channel partners to facilitate financial transactions, marketing information flows, electronic information transfer, and integrated logistics

The technology-enabled supply chain

- ◆ Technology-enabled SCM extends the reach of channel management systems beyond enterprise boundaries to integrate in real-time the customer/product information and productive competencies to be found in customers' customers and suppliers' suppliers channel systems.
- ◆ The synergy created enables companies to dramatically improve revenues, costs, and asset utilization beyond a dependence on internal capabilities and resources.
- ◆ The technology-enabled SCM provides today's supply chains with the means to realize the strategic possibilities of the original SCM model

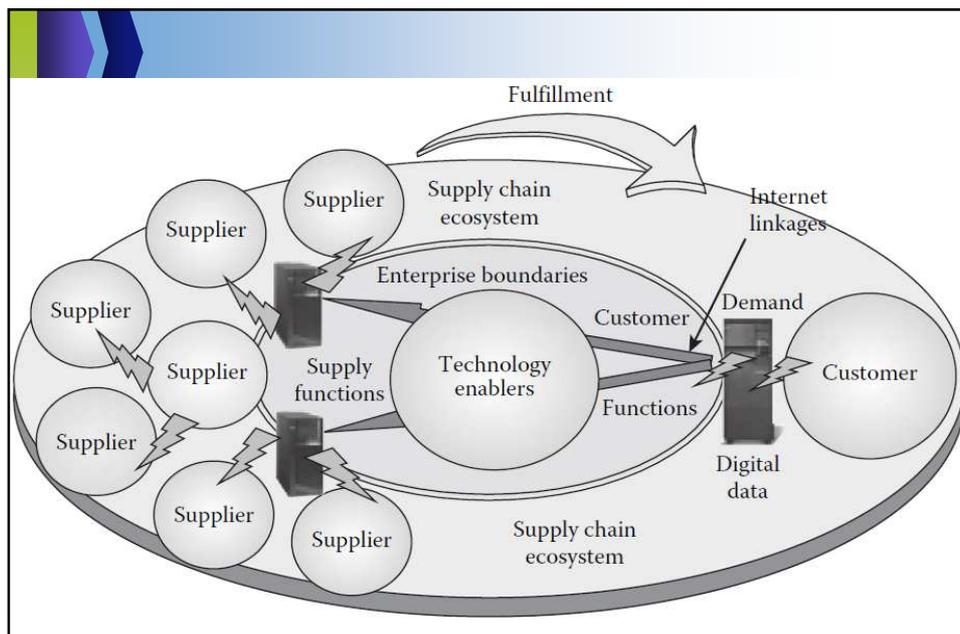


Figure 1.2 The technology-enabled supply chain.

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Supply Chain Management

Decision Phases of a Supply Chain

- ◆ Supply chain strategy or design
- ◆ Supply chain planning
- ◆ Supply chain operation

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Supply Chain Management

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

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
- ◆ The goal of planning is to maximize the supply chain surplus that can be generated over the planning horizon given the constraints established during the strategic or design phase.

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

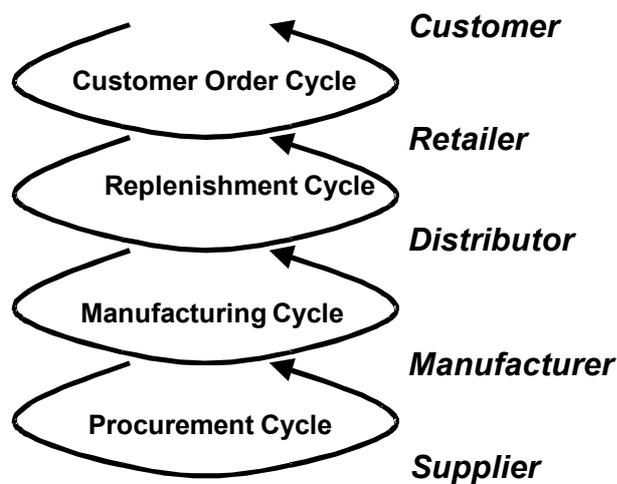
Supply Chain Operation

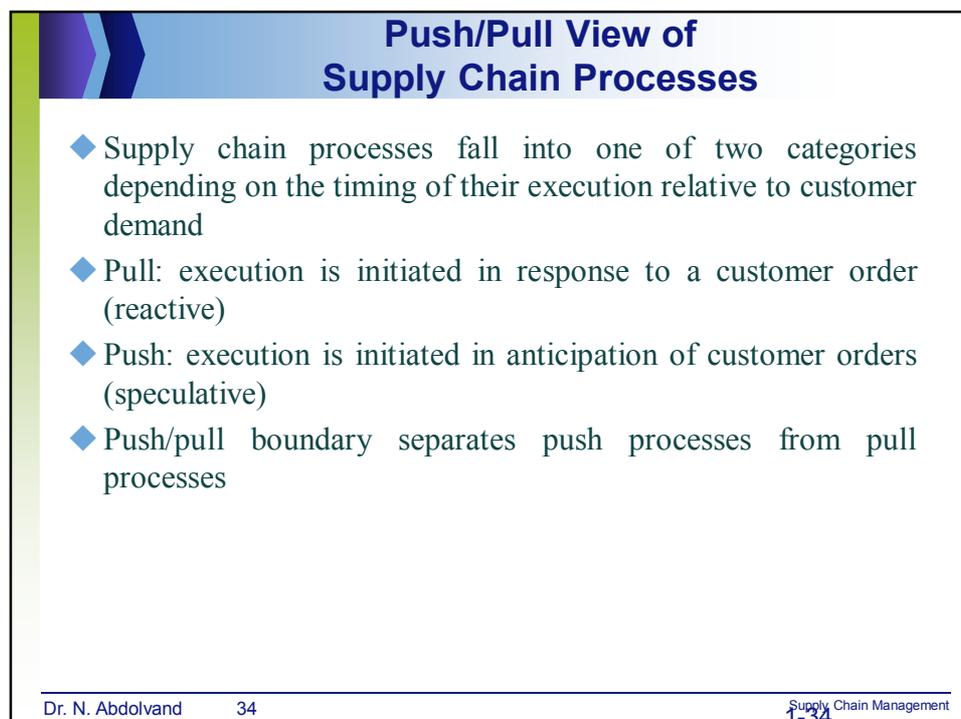
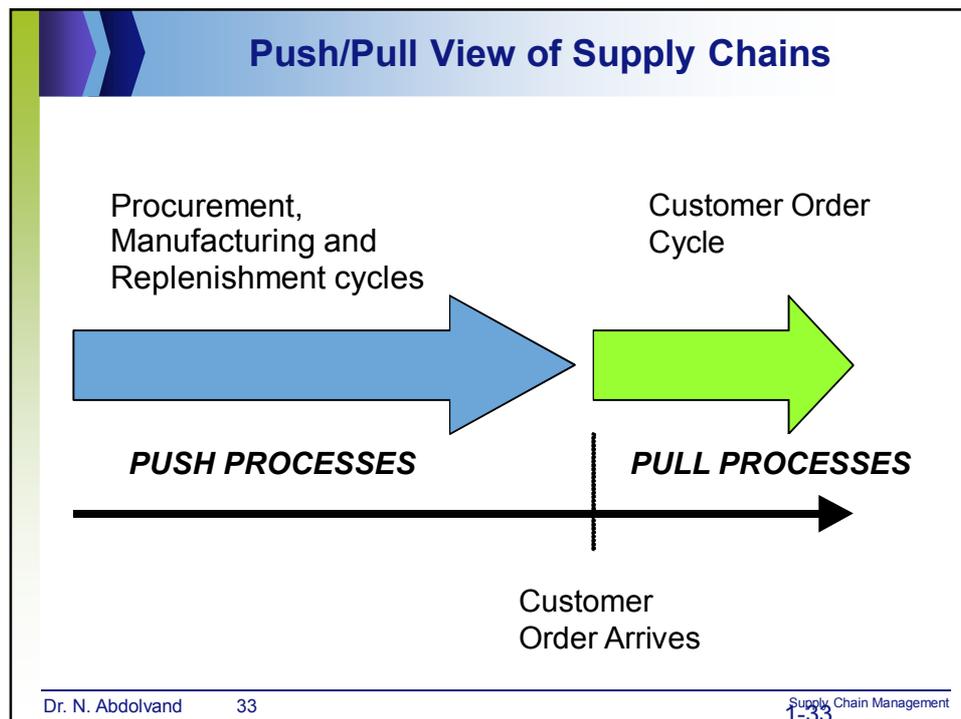
- ◆ Time horizon is weekly or daily
- ◆ Decisions regarding individual customer orders
- ◆ Supply chain configuration is fixed and operating policies are determined
- ◆ Goal is to implement the operating policies as effectively as possible
- ◆ Allocate orders to inventory or production, set order due 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)

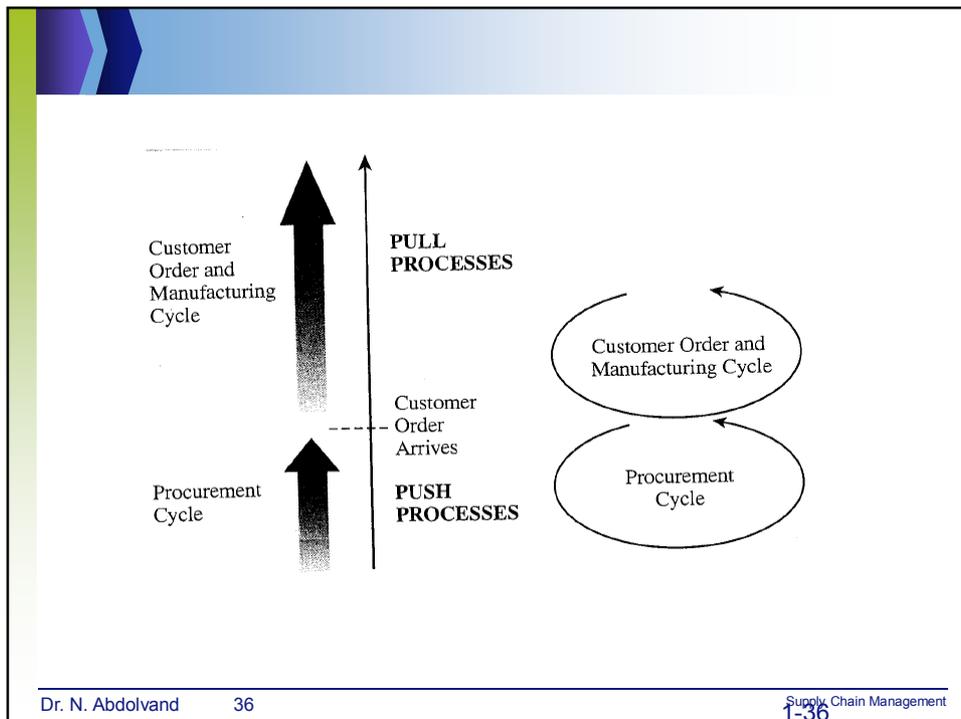
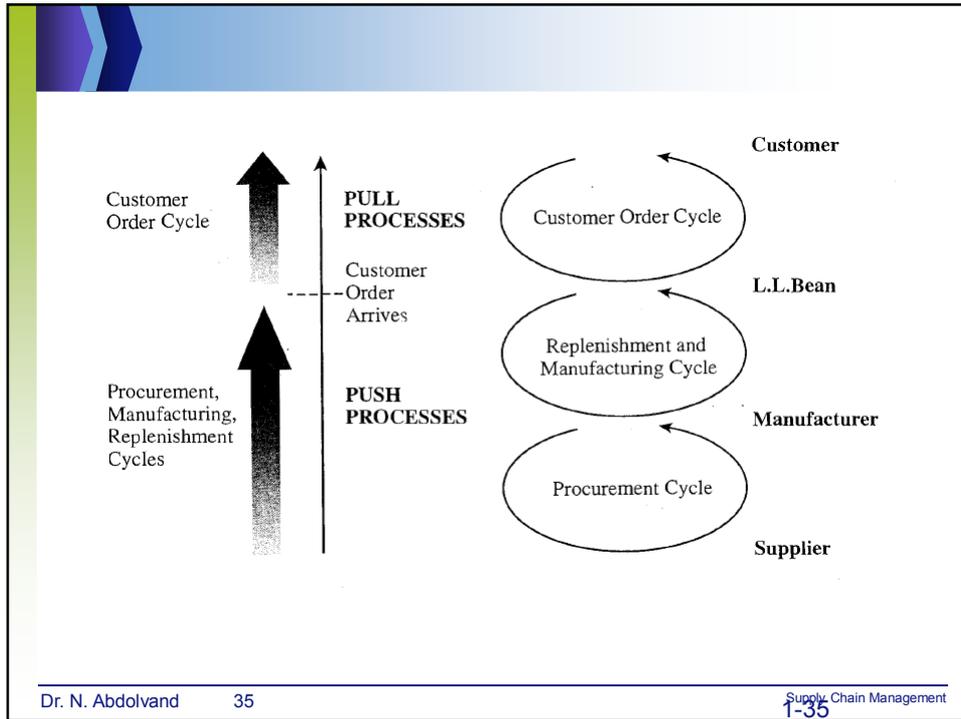
Process View of a Supply Chain

- ◆ Cycle view: processes in a supply chain are divided into a series of cycles, each performed at the interfaces between two successive supply chain stages
- ◆ Push/pull view: processes in a supply chain are divided into two categories depending on whether they are executed in response to a customer order (pull) or in anticipation of a customer order (push)

Cycle View of Supply Chains







Assignment

- ◆ Read paper titled
 - Build-to-order supply chain management: a literature review and framework for development
- ◆ By
 - A. Gunasekarana, E.W.T. Ngai
- ◆ In
 - Journal of Operations Management 23 (2005) 423–451

Questions?