A Course Material on

LOGISTICS AND SUPPLY CHAIN MANAGEMENT

Subject   : LOGISTICS AND SUPPLY CHAIN MANAGEMENT

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LECTURE - 2

THE BULLWHIP EFFECT

Inaccurate information can cause minor fluctuations in demand for a product to be amplified as one moves further back in the supply chain. Minor fluctuations in retail sales for a product can create excess inventory for distributors, manufacturers, and suppliers.

Supply chain software can be classified as either:

Supply chain planning systems: Systems which enable the firm to generate demand forecasts for a product, develop sourcing and manufacturing plans for that product, make adjustments to production and distribution plans, and share that information with relevant supply chain members. One of the most important supply chain planning functions is **demand planning**, which determines how much product a business needs to make to satisfy all of its customers' demands.

Supply chain execution systems: Systems that manage the physical flow of products through distribution centers and warehouses to ensure that products are delivered to the right locations in the most efficient manner.

Before the Internet, supply chain coordination was hampered by the difficulties of making information flow smoothly among disparate internal supply chain systems. Today, using intranets and extranets, all members of the supply chain can instantly communicate with each other, using up-to-date information to adjust purchasing, logistics, manufacturing, packaging, and schedules. The Internet provides a standard set of tools that are used by companies all over the

world to coordinate global supply chains that include participants from many countries.
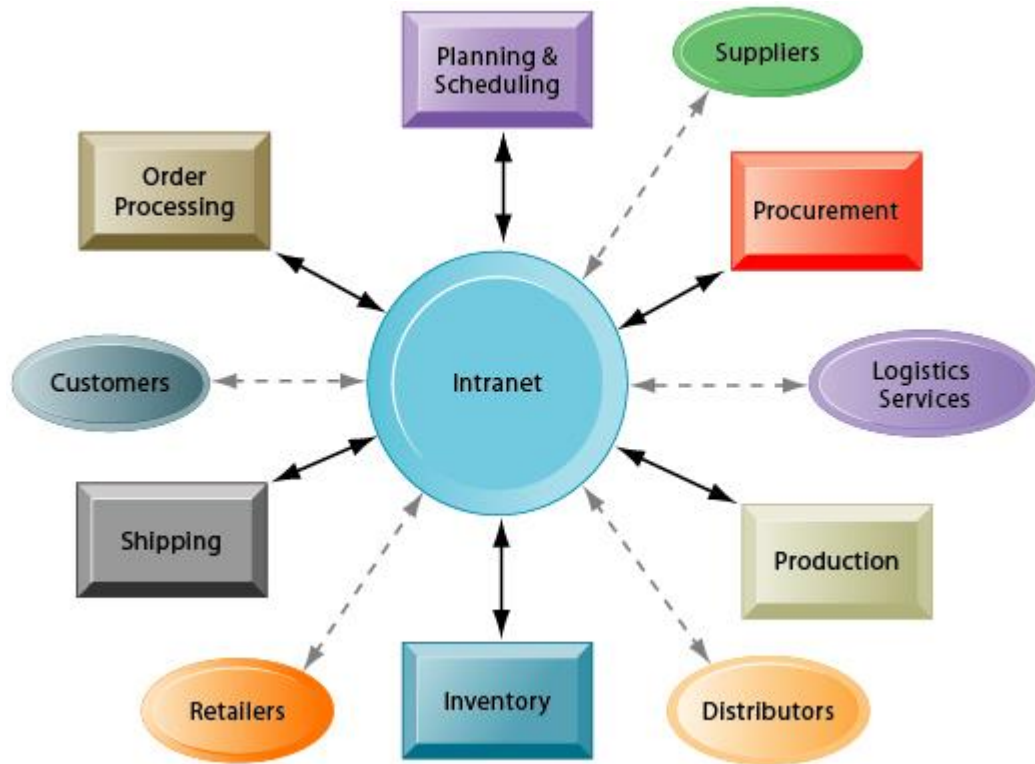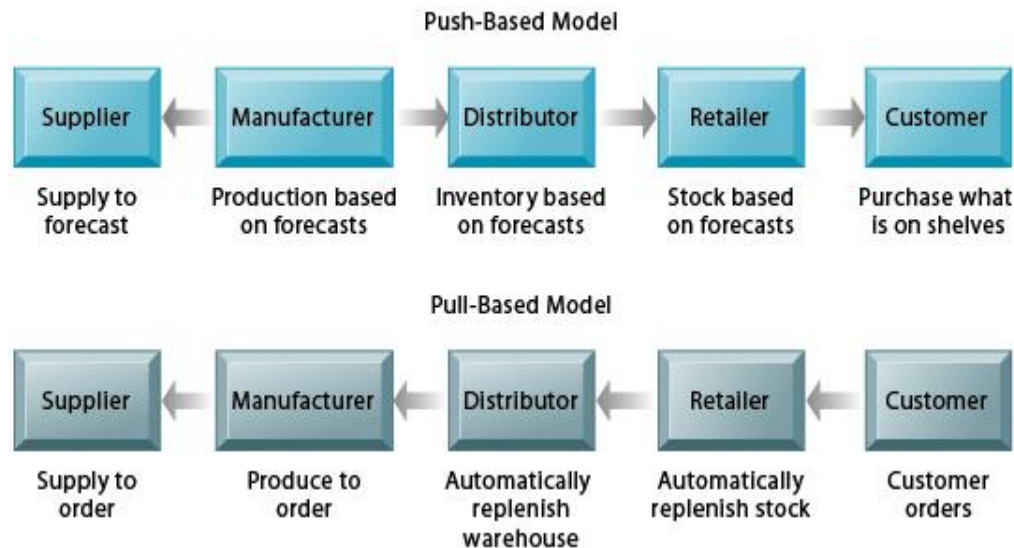

INTRANETS AND EXTRANETS FOR SUPPLY CHAIN MANAGEMENT

Intranets integrate information from isolated business processes within the firm to help manage its internal supply chain. Access to these private intranets can also be extended to authorized suppliers, distributors, logistics services, and, sometimes, to retail customers to improve coordination of external supply chain processes.

Earlier supply chain management systems were driven by a **push-based model** (also known as build-to-stock) in which production master schedules are based on forecasts or best guesses of demand for products, and products are "pushed" to customers. With Web-based tools, supply chain management

follows a pull-based model (or demand-driven model or build-to-order), in which actual customer orders or purchases trigger events in the supply chain.

Push-Based Model

Supplier	Manufacturer	Distributor	Retailer	Customer
Supply to forecast	Production based on forecasts	Inventory based on forecasts	Stock based on forecasts	Purchase what is on shelves

Pull-Based Model

Supplier	Manufacturer	Distributor	Retailer	Customer
Supply to order	Produce to order	Automatically replenish warehouse	Automatically replenish stock	Customer orders

PUSH-VERSUS PULL-BASED SUPPLY CHAIN MODELS

The difference between push- and pull-based models is summarized by the slogan "Make what we sell, not sell what we make."

Internet technology also makes it possible to move from sequential supply chains, where information and materials flow sequentially from company to company, to concurrent supply chains, where information flows in many directions simultaneously among members of a supply chain network. Ultimately, the Internet could create a "digital logistics nervous system" throughout the supply chain to permit simultaneous, multidirectional communication of information about participants' inventories, orders, and capacities.
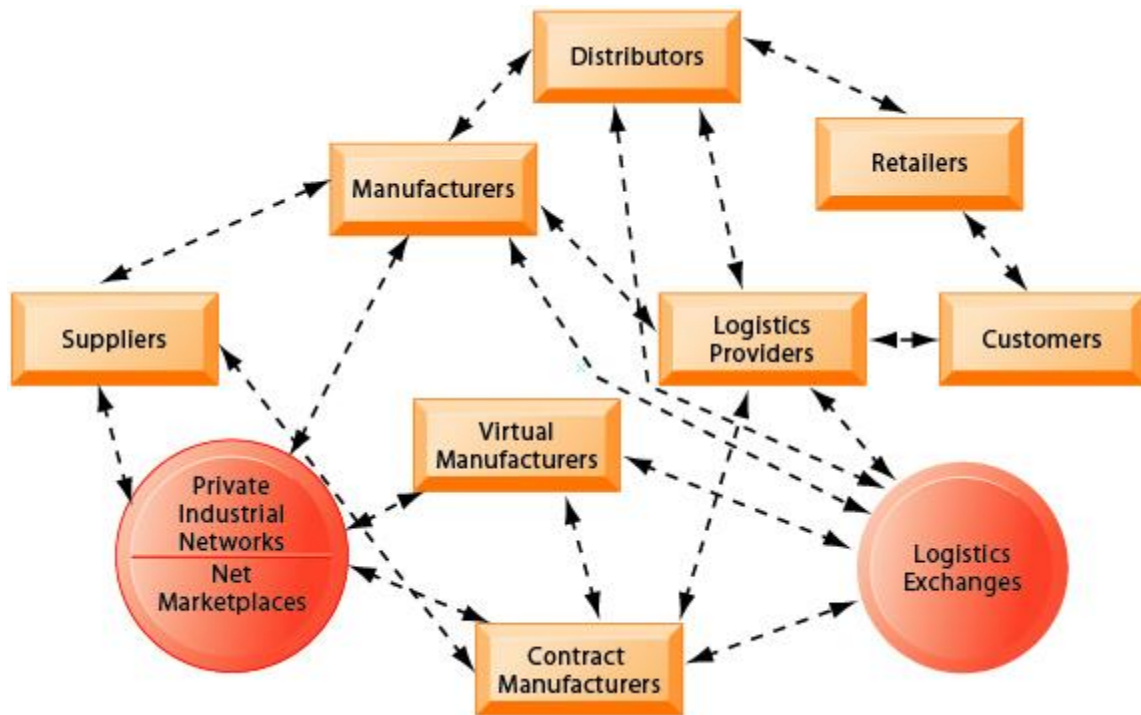
THE FUTURE INTERNET-DRIVEN SUPPLY CHAIN

The future Internet-driven supply chain operates like a digital logistics nervous system. It provides multidirectional communication among firms, networks of firms, and e-marketplaces so that entire networks of supply chain partners can immediately adjust inventories, orders, and capacities.

The business value of supply chain management systems includes:

- Streamlined supply chain and accurate information
- Reduced supply chain costs
- Increased sales through accurate product availability