

## CMRIT-MBA

### Logistics & Supply chain management 20MBAMM402 July/Aug 2022

1a. What is inbound logistics.

Inbound logistics is **the way materials and other goods are brought into a company**. This process includes the steps to order, receive, store, transport and manage incoming supplies. Inbound logistics focuses on the supply part of the supply-demand equation.

1b. Write short notes on innovations in supply chain management.

- Last-mile delivery
- Self-service/do-it-yourself logistics
- On-demand warehousing
- Collaborative mobile robots
- Truck platooning
- Blockchain
- Tagging, sensors and geolocation technologies
- Big data and AI

1c. Explain the significance of effective supply chain management.

Supply chain management is important because it can help achieve several business objectives. For instance, controlling manufacturing processes can improve product quality, reducing the risk of recalls and lawsuits while helping to build a strong consumer brand.

The ultimate goal of effective supply chain management is higher profits through improved customer satisfaction and a lower cost of doing business. Profits are healthier when costs are controlled and reduced wherever possible. Operating costs go down when raw materials and production costs go down.

- Better collaboration.
- Improved quality control.
- Higher efficiency rate.
- Keeping up with demand.
- Shipping optimization.
- Reduced overhead costs.
- Improved risk mitigation.
- Improved cash flow.

2a. What is HUB and Spoke model?

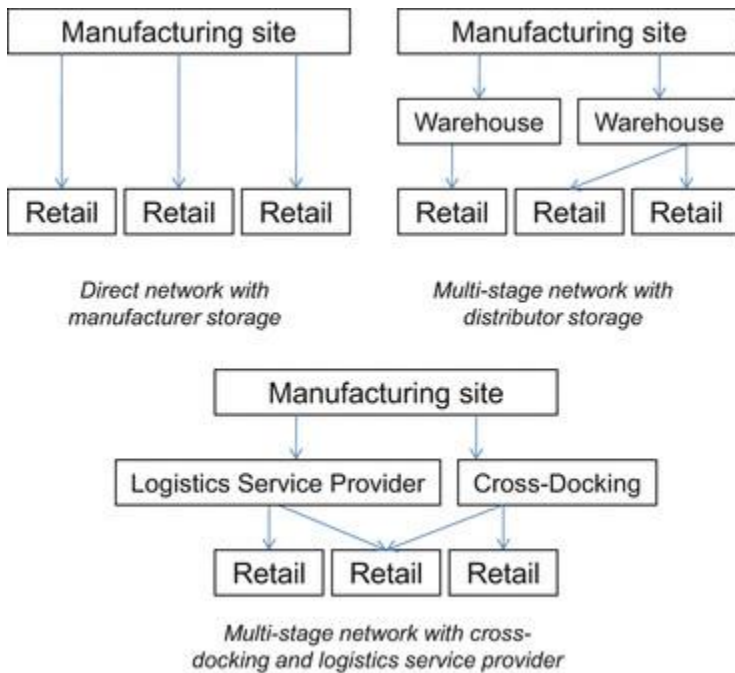
Appropriately named, the hub and spoke is essentially a distribution model that resembles the spherical shape of a bicycle wheel. In the middle of a wire-spoked wheel is what is known as the hub. It is this hub

that allows each of the spokes, sprawled out in all directions around the wheel, to meet at a centralized location at the center of the wheel.

2b. Write short notes on challenges of supply chain management.

- Material scarcity.
- Increasing freight prices.
- Difficult demand forecasting.
- Port congestion.
- Changing consumer attitudes.
- Digital transformation.
- Restructuring.
- Inflation.

2c. Discuss the various types of distribution networks.



3a. What is ware house management system?

A warehouse management system is a set of policies and processes intended to organize the work of a warehouse or distribution centre, and ensure that such a facility can operate efficiently and meet its objectives

**3b. Analyze the various types of ware house.**

1. Public Warehouse

A public warehouse is a warehouse owned by governmental entities that are available to private sector companies. These types of warehouses can be rented out for business or personal use. Public warehouses are an especially attractive option for business owners that might need to only store inventory for a short amount of time as other warehouse options might be more expensive. Public warehouses are commonly used by new or growing businesses, such as e-commerce companies and startups, due to their affordability versus a private warehouse. Note, public warehouses tend to be fairly bare-bones in terms of their setting, they won't have the technological capabilities of other warehouse types.

Accessible to the public

An affordable option for new businesses

Great for seasonal businesses

Ideal for short-term storage

## 2. Private Warehouse

Another popular warehouse option is a private warehouse, oftentimes referred to as proprietary warehousing. While a public warehouse is owned by a government body or a third-party, private warehouses are owned by a company division. If a business is interested in a private warehouse they will need to make a large upfront investment to secure the building, facilities management, and general maintenance and upkeep. Private warehouses are a popular option for wholesalers, distributors, and manufacturers. While a private warehouse is a more expensive option than a public warehouse, they offer business owners more overall control of their inventory management.

Increased control over building facilities

Great for companies that need a significant long-term presence in a specific region

Provide a more exclusive location for business operations

## 3. Smart Warehouse

An increasingly popular warehouse option is a smart warehouse, which is a warehouse where the storage and fulfillment processes are automated with AI, such as robots and drones. The AI is responsible for packing, weighing, transporting, and storing raw materials, with many incoming orders being automated to be fulfilled immediately. Smart warehouses have been a go-to option for large e-commerce companies such as Amazon that seek to make their order fulfillment and inventory management a more accurate and expedited process.

Inventory management is more accurate

Automated functions decrease human error and save on labor

Increase safety and security within the facility

Provide insight into overall business efficiency

## 4. Cooperative Warehouse

A cooperative warehouse is a warehouse owned by multiple organizations or businesses. These companies tend to work closely together and access to the cooperative warehouse can save money for both companies. Cooperative warehouses are especially common among farmers or wineries, as these businesses can easily store their products in a mutual space. Both businesses that utilize a cooperative

warehouse can reduce their spending for inventory storage, increasing all of the co-op member's profits in the long run.

Great for groups of businesses with similar inventory types.

Fairly accessible due to combined investments

Can save businesses money on reduced rates for multiple tenancies

#### 5. Consolidated Warehouse

Consolidated warehouses are warehouses that collect small shipments from numerous different suppliers into one geographical location to combine them into a bigger, thus more economical, shipping load to one area. The grouping together of these smaller shipments is an attractive feature for companies that might not have a very large amount of inventory, such as new companies or startups. The only caveat of this warehouse type is that these shipments will need to be intended for only one area, which might be restrictive for companies trying to expand.

Economically-friendly and time-saving

Lower shipping costs for warehouse tenants

Doesn't require high inventory levels

No capital investments are necessary for low-risk use

#### 6. Bonded Warehouse

A bonded warehouse is a type of warehouse that stores imported goods before customs duties are completed and paid for the products. Customs clearance can be an extensive process, and bonded warehouses provide a safe space for these goods in the meantime. Government bodies provide businesses a bond to rent the space to ensure the business doesn't suffer from any loss of profits once products are ordered. These features of bonded warehouses can be attractive for importers that might need short-term or long-term storage for items that would usually be restricted.

Companies do not need to pay duties until items are released from storage for delivery

Facilities tend to be versatile to accommodate a large variety of products

Ideal for companies or businesses that deal with cross-border trading

#### 7. Government Warehouse

A government warehouse is owned by the government that is available for either public or private businesses to use. Government warehouses are often seen as a more ideal option than public warehouses as they tend to have increased security, which might be a necessity for certain products or goods. While the increased security of the facility is an appealing option, government warehouses tend to involve an intense application and extensive paperwork to store products in those facilities. Another

drawback of government warehouses occurs in the case of a business failing to pay their rent, as the government can easily dispose of inventory to recover that rent.

Increased security for sensitive goods and products

Affordable rates and accessible warehousing

#### 8. Cold Storage Warehouse

A cold storage warehouse is a warehouse used for the storage of temperature-sensitive products. Cold storage warehousing might include an entire building or even a specific portion of a warehouse that can accommodate these goods. Cold storage warehouses have regulated environmental conditions to ensure inventory is safe and no losses are suffered before goods are delivered. While cold storage warehouses seem like any other warehouse from the outside, they have vastly different inner workings to provide a safe space for these goods.

Ideal for companies or businesses that sell perishable inventory

Attractive for businesses that require certain conditions for rare products, such as artwork or plants

Commonly used by pharmaceutical companies

#### 9. On-Demand Warehouse

With the increase in online commerce, on-demand warehousing has only become more popular. On-demand warehousing, or on-demand storage, is warehousing provided to businesses that need to connect to companies with an excess of warehousing space. Since the company utilizing the warehouse might not need the extra space, on-demand warehousing provides an attractive option to businesses that might need storage for temporary or seasonal needs for the warehouse. Similar to cooperative warehouses, on-demand warehouses are great for merchants that are willing to combine their inventory needs.

Great for businesses dealing with a sudden spike in inventory

Appealing for similar companies that can easily store goods together

Cost-effective for seasonal or temporary warehousing needs

#### 10. Distribution Centers

Distribution centers are built around the premise of taking large quantities of inventory in for the purpose of moving it out to retailers and merchants relatively quickly. Products move within a distribution center much more than a typical warehouse. Distribution centers are different from fulfillment centers, as fulfillment centers are typically used by third-party logistic companies rather than businesses or companies. Products stored in a distribution center are moved around quickly within a supply chain. Distribution centers are paramount to the connection between suppliers and customers and are not simply for inventory storage but rather distribution, order fulfillment, and shipment preparation.

Generally affordable to utilize for companies selling to wholesalers

Designed to increase overall efficiency for inventory management

Less money is wasted on long-term storage of product

3c. Explain the functions of warehouse.

- Storage. A primary function of a warehouse is offering storage space for inventory, equipment or other items.
- Safeguarding goods.
- Moving goods.
- Financing.
- Price stabilisation.
- Information management.

4a. What is Bullwhip effect?

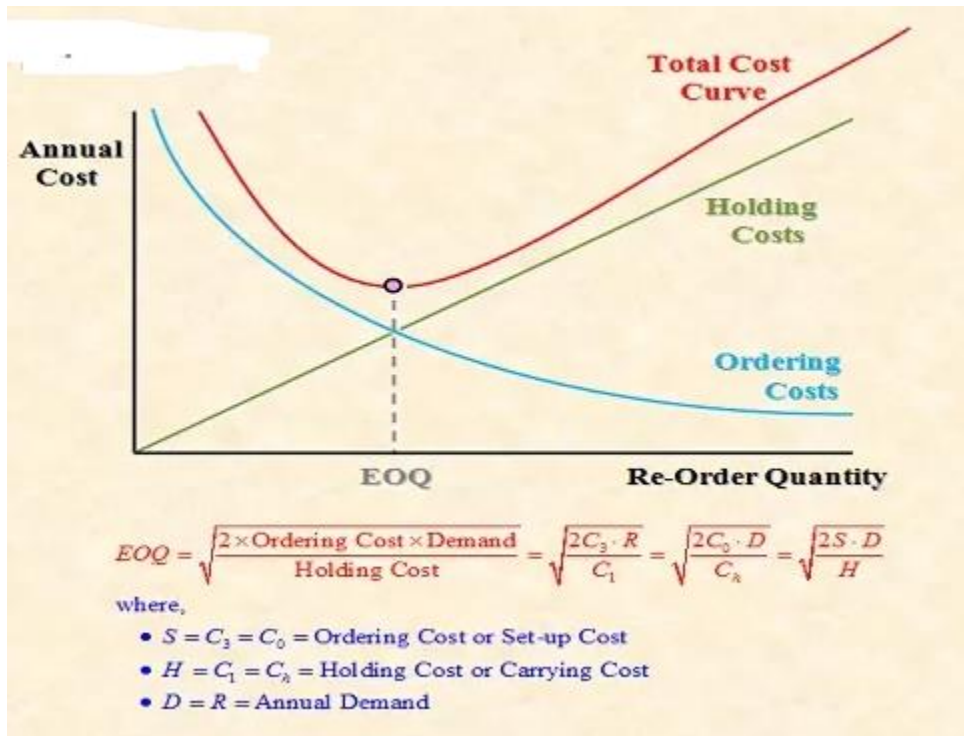
The bullwhip effect is a supply chain phenomenon describing how small fluctuations in demand at the retail level can cause progressively larger fluctuations in demand at the wholesale, distributor, manufacturer and raw material supplier levels. The effect is named after the physics involved in cracking a whip.

4b. Discuss the various types of inventory costs.



4c. Analyze the concept of EOQ.

Economic order quantity (EOQ) is a calculation companies perform that represents their ideal order size, allowing them to meet demand without overspending. Inventory managers calculate EOQ to minimize holding costs and excess inventory.



5a. What is a container?

A container is a large, sealed standard-sized boxes used to transport goods, primarily for intermodal and international shipping. Standard containers can be handled by shipping, rail and road transit operators and the benefits of their use include reductions to transit time, loss prevention, reduced packaging requirements, limit to potential damage whilst goods are in transit and reductions in the overall costs of transporting goods to markets.

5b. Elaborate on modes of transportation.

Characteristics	Rail	Road	Pipeline	Air	Water
Door to door service	Sometimes	Yes	Sometimes	No	Sometimes
Price	Low	High	Very low	Very high	Very low
Speed	Slow	Medium	Slow	Very fast	Very slow
Reliability	Medium	Medium	Very high	Very high	Low
Packaging needs	High	Medium	Nil	High	High
Risk of loss/damage	Medium	Medium	Very low	Low	Medium
Flexibility	Low	High	Very low	Very low	Low
Environmental impact	Low	Medium	Low*	High	Low

\* Possibility of disaster causing significant impact

5c. Discuss the various factors impacting road transport costs.

## Conditions Affecting Transport Costs

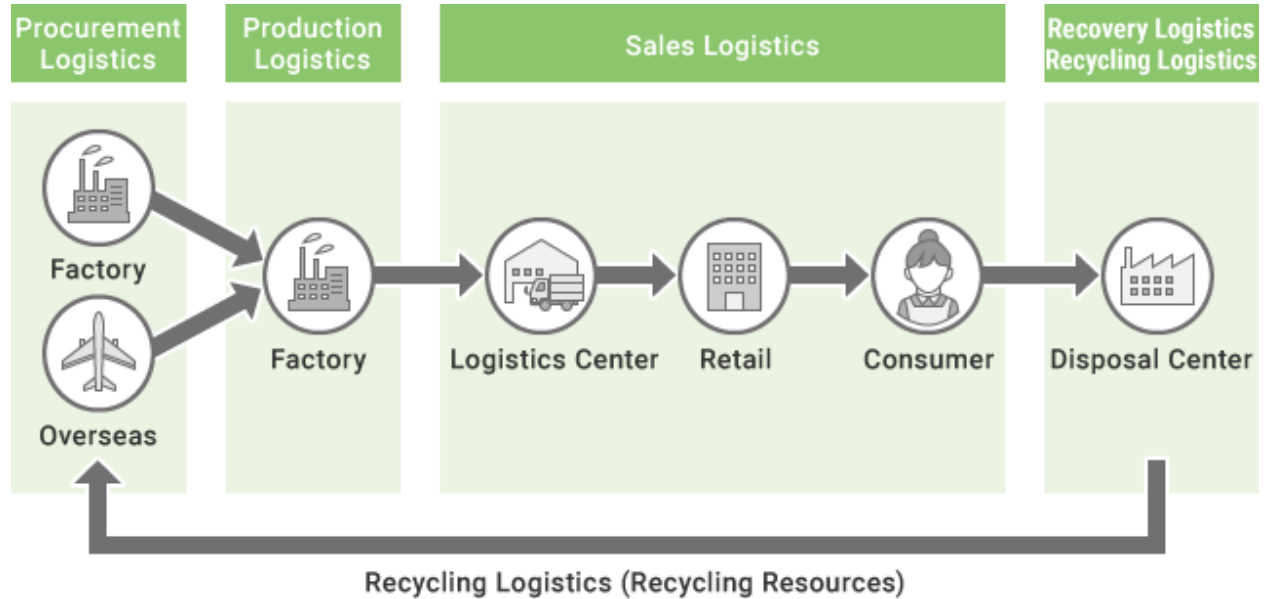
Condition	Factors	Example
Geography	Distance and accessibility	Long distance rates
Type of product	Packaging, weight, perishable	Seafood; time sensitive goods
Economies of scale	Shipment size	Container vs less than container
Trade imbalance	Empty travel- "back haul rates"	Wine ship
Infrastructure	Quality of Surface	Natural disasters
Mode	Capacity, limitations, operational conditions	Air cargo; rail bulk; distance limits?



6a. What is CRM?

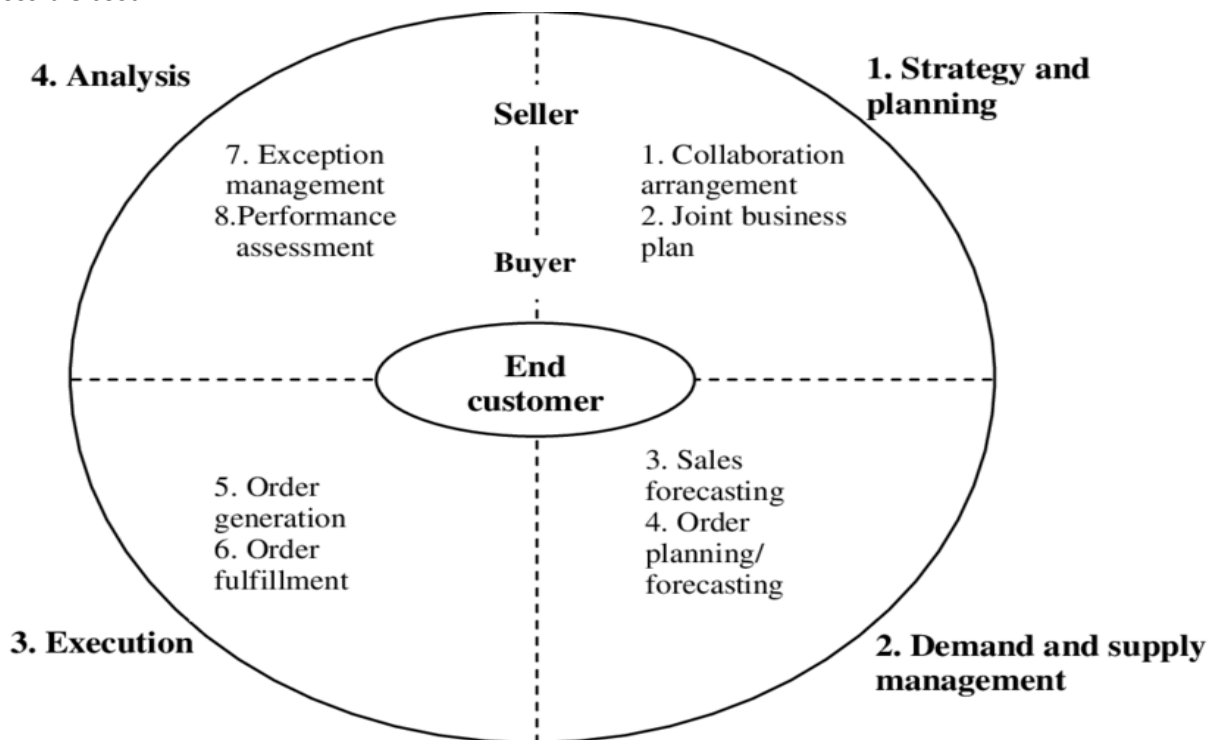
Customer relationship management is a process in which a business or other organization administers its interactions with customers, typically using data analysis to study large amounts of information.

6b. Analyze the different types of logistics.



6c. Define CPFR. Explain the various steps involved in CPFR.

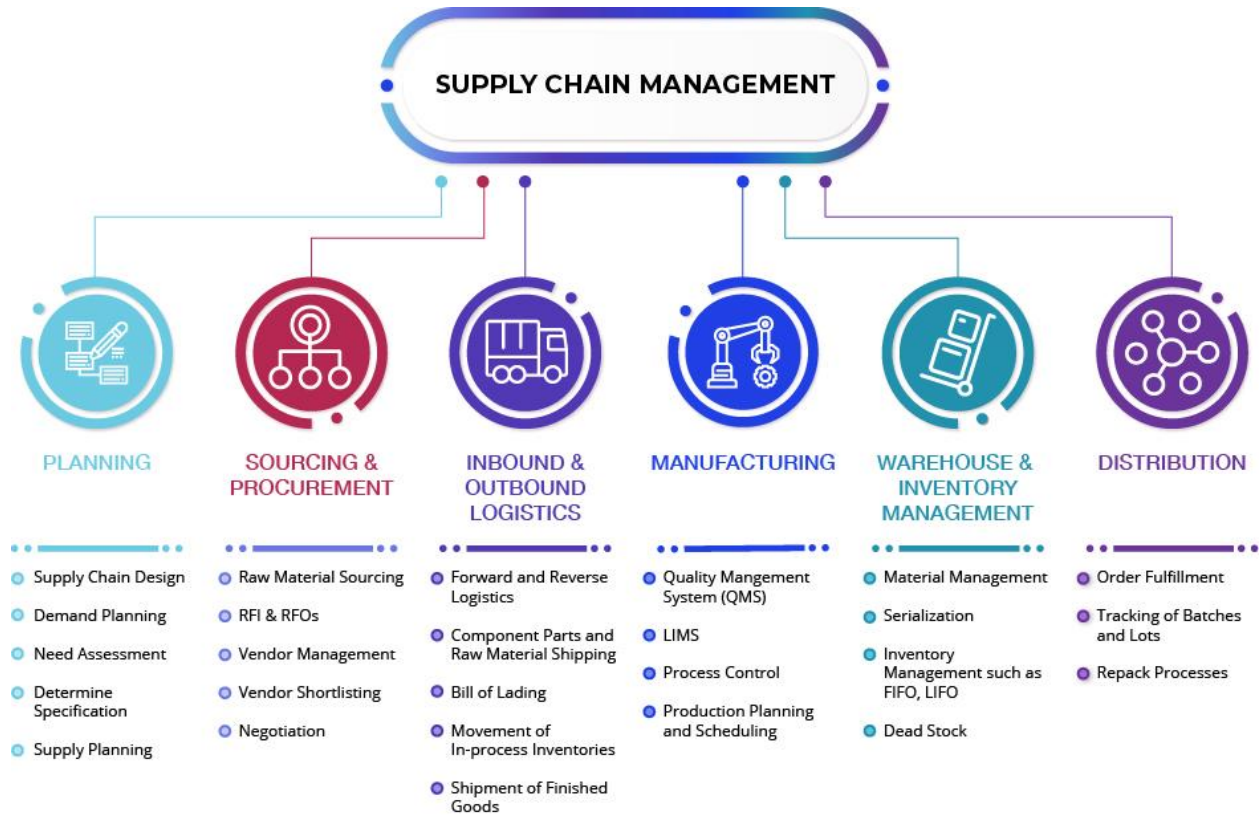
Collaborative Planning, Forecasting and Replenishment (CPFR) describes a set of practices in which trading partners plan key supply chain activities to efficiently meet customer demand at the lowest possible cost.



7a. What is supply chain security?

Supply chain security is the part of supply chain management that focuses on the risk management of external suppliers, vendors, logistics and transportation. Its goal is to identify, analyze and mitigate the risks inherent in working with other organizations as part of a supply chain.

7b. Discuss the integrated supply chain and logistics.



7c. Analyze the factors influencing outsourcing.



8 a.

The important considerations for selecting a suitable location are given as follows: a) Natural or climatic conditions. b) Availability and nearness to the sources of raw material. c) Transport costs-in obtaining raw material and also distribution or marketing finished products to the ultimate users.

8b.

Depending on the requirements of globalparts, it may be appropriate for plants to be able to supply to all markets. But in the case that marketsare so differentiated that the ability for a plant to provide global supply is cost prohibitive, then a specificcontingency market should be designated for each regional plant.

8c.

Standard allocation should be optimized during the planning phase.  
Adjusted when necessary, reviewed either annually or twice in a year.

8d.

At the transmission level, flexibility is interpreted as the ability to alleviate any imbalances between supply/demand, and at the distribution level relieving the overloading and/or voltage limit violations.

