Module-4

A macro and micro dimension

What are micro supply chains?

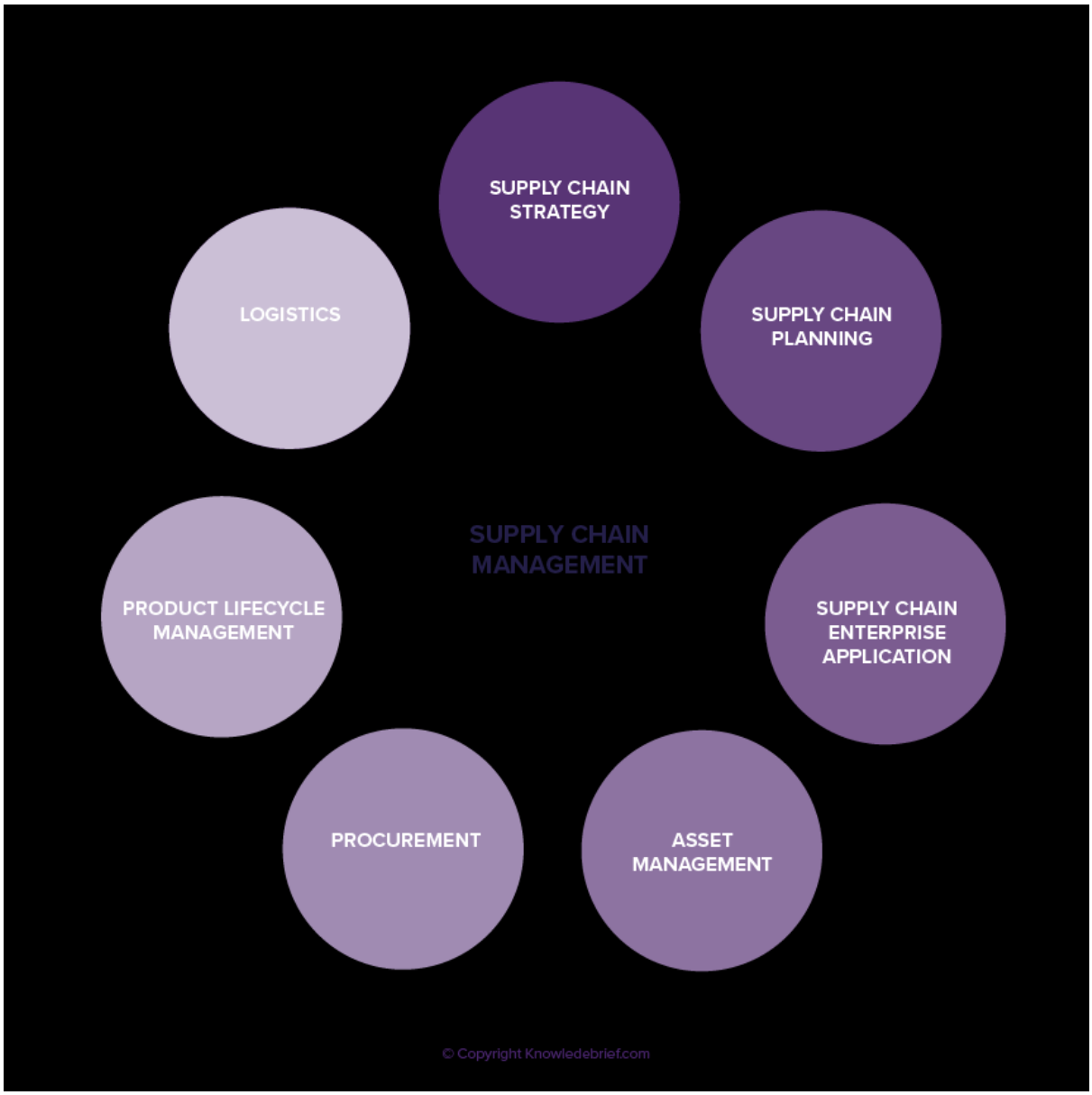
I next asked Todd to explain in more detail how e-commerce is changing supply chain requirements for fresh and perishable goods. He comments that consumers tastes are changing, especially among younger consumers. They want healthier prepared foods, grab-n-go items and meal kits that are more like commissary offerings than traditional grocery retail. “These fresh and perishable ‘to go’ items not only turn over faster, have shorter shelf lives and require higher demand, they also require special packaging and prep time,” says Todd. “And you may only receive the orders for these items 10-12 hours before they are needed on shelves. On top of that, shelf lives are typically only a few hours to a few days.”

Servicing these rapid turnover special items has created a need for “micro” supply chains. These operations must move at a faster pace, be closer to retail store groupings and hold short shelf life items and packaging. “The rapid growth of demand for these perishable items and the special operations to service them is what we refer to as the macro growth of micro supply chains,” adds Todd.

Impact on transportation and logistics

The need to be close to retail outlets for rapid replenishment of perishable goods, together with the increasing preference of consumers for locally sourced produce, is fundamentally changing transportation and logistics strategies. “Where large grocery retail chains may traditionally have a few huge warehouses geographically dispersed with long truckload halls to stores, these micro supply chains require many smaller distribution sites close to store clusters,” explains Todd. “Instead of long haul, multi-day shipments, you’ll have more less-than-truckload shipments with much shorter lead times. Grocers will have to build consolidation and deconsolidation points into their logistics and transportation strategies to accommodate this. They also will have to develop relationships with a wider network of carriers to handle these shipments. And they’ll need to adapt their technology to support these strategy changes.”

Logistics interfaces with other areas



Order Processing

The major role of logistics in the supply chain begins with order processing as the company accepts the order from the customer. Effective logistics tends to manage the entire workflow that starts from order placement to delivery. Nowadays, the order processing activity is technical-centric which is crucially dependent on the size of the business as it focuses on fulfilling the customer orders. A well-managed logistics ecosystem ensures that the orders are properly prepared, packaged, and delivered to the destination. These are the major functions of order processing-

Picking inventory

Order placement

Sorting

Packing
Shipping

2. Warehouse Management

Managing and storing the inventory is a major process of warehouse management system because it safeguard the goods which are to be distributed to the customers. It plays a huge role in the supply chain as it is the centralized location that stores all the inventory, whether it is raw materials or finished goods. Therefore, it is always advisable that warehouses should be near to the dealer or the distributors' place for the efficient delivery of the goods.

Therefore, a warehouse management system effectively audits and tracks the materials and goods. Also, it is responsible for determining the special requirements like docking facilities, cold storage, etc.

3. Inventory Management

It is among the logistics functions that determine and identify how much stock is needed to order at what time. As it is important to maintain sufficient level inventories for fulfilling the customer demands. It helps organizations to monitor inventory records for restocking and predicting the demand for goods, ensuring safety, and so on. Effective inventory management tends to determine and analyze if there is too much or too little stock in the warehouses. It will help you to meet the customer demands through production and optimizing the inventory. Therefore, tracking inventory databases is essential to making decisions about supply chain operations.

4. Transportation

The act of transporting the goods throughout a company's supply chain efficiently is the most important role of logistics management. It involves automated routing and route optimization that tremendously saves cost and determines the success of supply chain management. In the contemporary world, implementing technological advancements in logistics activities is highly inevitable as it manages the overall operations and strengthens customer loyalty. Therefore, it involves the movement of goods from one point to another by following the compliance and regulations in the logistics industry. Investing in a fleet management system can mitigate the transportation risk.

5. Packaging

During transport and handling, the products or goods can be subjected to breakage or spillage so good packaging is necessary to prevent any kind of mishap. The role of logistics management is to ensure that the products are safely transferred in large volumes from point A to point B. The necessary measures should be taken to avoid regulatory issues and make transportation cost-effective in the logistics industry.
Having the right logistics packaging is majorly important for a well-packaged product that can prevent your product from any kind of damage, deterioration, and tampering.

6. Demand Forecasting

Logistics demand forecasting is an effective way to anticipate the requirement for products or goods in the supply chain management process. The scheduling and planning of processes are important to manage the uncontrollable conditions or circumstances of the market. Therefore, forecasting models help businesses to make informed decisions by predicting customer demands and fulfilling the orders in the shortest time span. Therefore, the use of modern

technology with advanced analytics and powerful databases can take your organization to the next leap.

7. Quick Response

One of the most important roles of logistics is to resolve the customer query in the shortest time span. It enables the fleet owners to manage the supply chain for meeting consumer demands. Therefore, it helps the organizations to operate reactively to each order without bottlenecks, delays, and errors. A quick response strategy can lead to accuracy and fulfillment of customer orders.

8. Material Handling

It is necessary that logistics companies should store and protect the materials throughout the process of manufacturing, warehousing, and distribution. Handling the materials efficiently can ensure that the products or goods are reaching safely to the customers with ever-rising shipping costs.

The role of logistics management is to embrace and support the diverse needs of the customers by analyzing the product demand and implementing robust material handling systems. Therefore, optimizing the logistics processes by improving the material handling and streamlining the delivery times can improve the overall customer service.

9. Fleet Management

Tracking and monitoring commercial vehicles with the best GPS company in Jaipur is an important function of logistics as it manages cost and improves the maintenance of fleets. It enhances the safety of the drivers and fleets by providing real-time visibility to businesses. It is the best way to enhance operational efficiency and ensure compliance within the supply chain.

In order to effectively manage fleets, businesses are using new-age technologies like Artificial Intelligence, the Internet of Things, Big Data and so on to improve vehicle performance and utilization. Therefore, it is known to be the major role of logistics management as it is the most effective way to establish customer retention by delivering the goods to the right customers at the right time.

10. Information and Control

Data-driven logistics operations are fundamental processes of supply chain operations. It is essential to monitor and manage the operations to make better decisions. However, getting insightful information for operating a workflow can help businesses to achieve transparency in the entire supply chain.

factors affecting the cost and importance of logistics

1.Competitive relationships Customer service can be a very important form ofcompetition.
2.Order cycle length - Shorter order cycles reduce the inventory required by thecustomer.
3.Substitutability - Customer service is important for highly substitutable products toreduce lost sales cost.
4.Inventory effect - Increasing inventory costs can reduce the cost of lost sales
5.Transportation effect - Cost of lost sales can be reduced by spending more ontransportation service to improve customer service
6.Product-related factors

7.Spatial relationships - The location of fixed points in the logistics system with respectto demand and supply points are very important to transportation costs

Demand Management and Customer Service Outbound to customer logistics systems

What Is Demand Management?

Demand management is a planning methodology. Companies use it to forecast and plan how to meet demand for services and products. Demand management improves connections between operations and marketing. The result is tighter coordination of strategy, capacity and customer needs.

What is demand management in logistics?
Demand management informs the work of logistics in the supply chain. Logistics is the part of the supply chain process that plans and controls the flow of objects between origin and consumption.

Role of demand management in the organization
Demand management covers multiple areas, including strengthening inventory levels and planning, trade and promotion planning and customer service.

Demand management is a process that supports supply chain management (SCM). Supply chain management applies to managing all of an organization's sourcing, developing, manufacturing and delivery activities, including moving materials, services and goods from suppliers. The supply chain is a complex, interconnected system that enables companies to build products and bring them to market. A company may be a critical link in other businesses' supply chains.

Key Takeaways:

- Demand is now driving supply. Demand management helps smooth out the volatility created by higher consumer expectations and shorter fulfillment cycles.
- Successfully anticipating and planning demand is a competitive advantage. The process eliminates waste and increases value in every area of the supply chain.
- Data and analytic capabilities supporting customer-centric demand management are what it takes to win in a fast-paced and intensely competitive global marketplace.

What Is the Purpose of Demand Management?

Demand management formulates an action plan to meet current and anticipated conditions in target markets. The process provides data and insights to marketing, demand planning. production and sales forecasting teams to help them achieve company goals.

Objectives of Demand Management

Successful demand management teams today are customer-centric — it's all about the ability to predict and fulfill demand with the right products and services. Specific areas of focus include improved customer service, more accurate forecasting and lower costs.

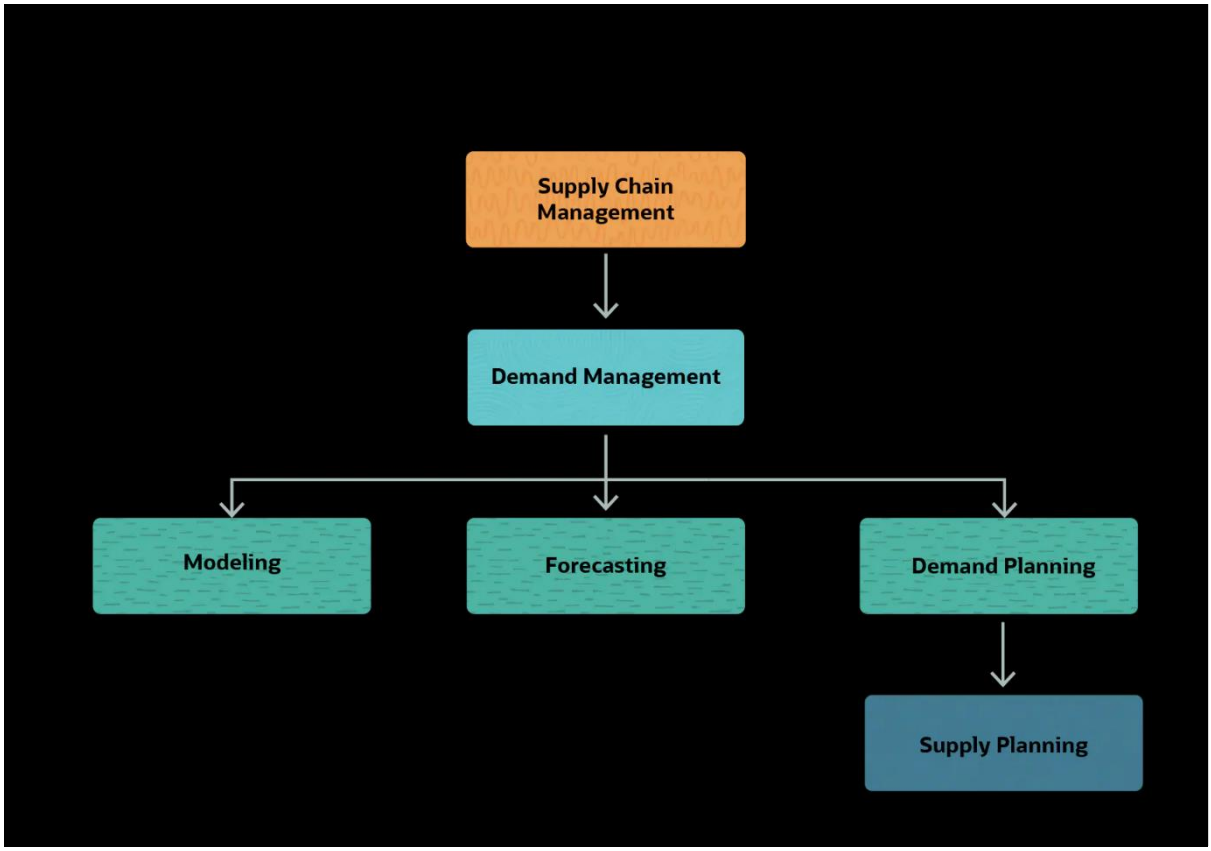
Specific objectives of customer-centric demand management include:

- **Improved customer service:** Understanding client needs and behaviors increases customer satisfaction and improves service.
- **Forecasting with greater accuracy:** Predictive analytics efforts optimize decisions by business leaders and improve supply chain management.
- **Reduced costs:** Improved forecasting optimizes inventory investments and can minimize safety stock levels.
- **Enhance existing products and excel at new product introductions:** Create a line of customer-appropriate new products and refine them based on feedback.
- **More efficient planning:** Strike the right balance of demand to supply and minimize surpluses with reliable data.

Goals of Demand Management

The end goals of demand management are to boost sales growth and deliver strong profit margins. Business leaders use the process as a central decision support tool, contributing to strategic initiatives and tactical execution.

Demand Management component process



utbound to customer logistics systems

what is Outbound Logistics?
Outbound Logistics is the process of moving goods from the producer or seller to the consumer and fulfilling several objectives such as packaging, shipping, distribution, and delivery of products to make the movement successful.

Outbound Logistics: Technical Definition
ClickPost defines Outbound Logistics as the process that facilitates the movement of goods towards end consumers, fulfilling consumer demand in the supply and demand spectrum. The process includes a variety of functions such as shipping, packing, and last-mile delivery of products.

How does Outbound Logistics work?
Outbound Logistics begins as soon as the company prepares goods that can be sent to the final destination. However, the process includes the movement of goods between multiple facilities to improve accessibility.

What are the activities of Outbound Logistics?
There are four primary activities associated with Outbound Logistics.
1. Packing
Packing products is generally the first step of an outbound logistics operation. It involves placing products in the proper packaging materials to keep them safe during transit. Further, shipping labels are pasted on the packages used to send products to their destination.
2. Shipping
Shipping usually follows packing and begins as the shipping partner receives the products and places them onto the surface, air, or sea transport vehicles. Shipping allows companies to move products closer to their end consumer for final delivery.
3. Picking
Upon shipping, products are sent to warehouse facilities, hubs, or distribution locations, where they are sorted and dispatched for final delivery. At this stage, last-mile delivery partners pick the products and begin the final transit towards the customer.
4. Delivery
Delivery begins as soon as the last-mile delivery partner picks the product from the hub, warehouse, or distribution center. The partner then follows a pre-determined and optimized route to deliver the product to the end consumer most efficiently.
Who are the key players involved in Outbound Logistics?
Outbound Logistics primarily involves three entities.
1. Shipping Partners
Shipping partners enable companies to move their products from their production facilities or origin to a location that is closer to their customers. This allows companies to strategically aggregate products based on market demand and geographical locations.
2. Warehousing Partners
Warehousing partners enable companies to store their products in strategic locations from where delivery partners can deliver smaller batches of items based on the product’s final destination. Warehousing partners also allow companies to manage their inventory and distribute products to smaller facilities.
3. Last-Mile Delivery Partners

Last-mile delivery partners enable companies to reach their end consumers. They collect or receive the products through warehouses or distribution centers. Upon collection, they begin the final movement of goods to the end consumers.

Why is Outbound Logistics important?
Outbound Logistics is the process that connects companies to their customers. The process allows producers to move their products to strategic locations for aggregation, quick dispatch, and last-mile delivery. This process is responsible for moving products to their final destination, helping satisfy consumer demand.

How is Outbound Logistics different from Inbound Logistics?
The processes of Outbound Logistics and Inbound Logistics are separate and opposite parts of an integrated logistics operation.
Outbound Logistics is the movement of products in the direction of the consumers, from the origin to the final destination for further sale or consumption. Whereas Inbound Logistics is the movement of products towards the producer or seller, involving the movement of raw material and unfinished goods for further processing to produce finished goods fit for final consumption.

Demand Management –Traditional Forecasting CPFRP
Collaborative Planning, Forecasting and Replenishment process(CPFRP)

Collaborative Planning, Forecasting and Replenishment (CPFR) is defined as a business practice that combines the brainpower of two or more trading partners in planning the ways to fulfill the customer demand. They also explained the relationship that CPFR links best practices of sales and marketing, such as category management, to the implementation of supply chain planning and completion process, to increase availability while reducing inventory, transportation and logistics costs. Basically CPFR is an approach that deals with the requirements for good demand management. The most involved industries with CPFR are consumer products and food and beverage.

Benefits of CPFR:

- Strengthens supply chain partner relationships.
- Provides analysis of sales and order forecast which improves the forecast accuracy.
- Manage the demand chain and proactively eliminate problems before they appear.
- Allow collaboration on future requirements and plans.
- Combine planning, forecasting and logistic activities.
- Provides efficient category management and understanding of consumer purchasing patterns.

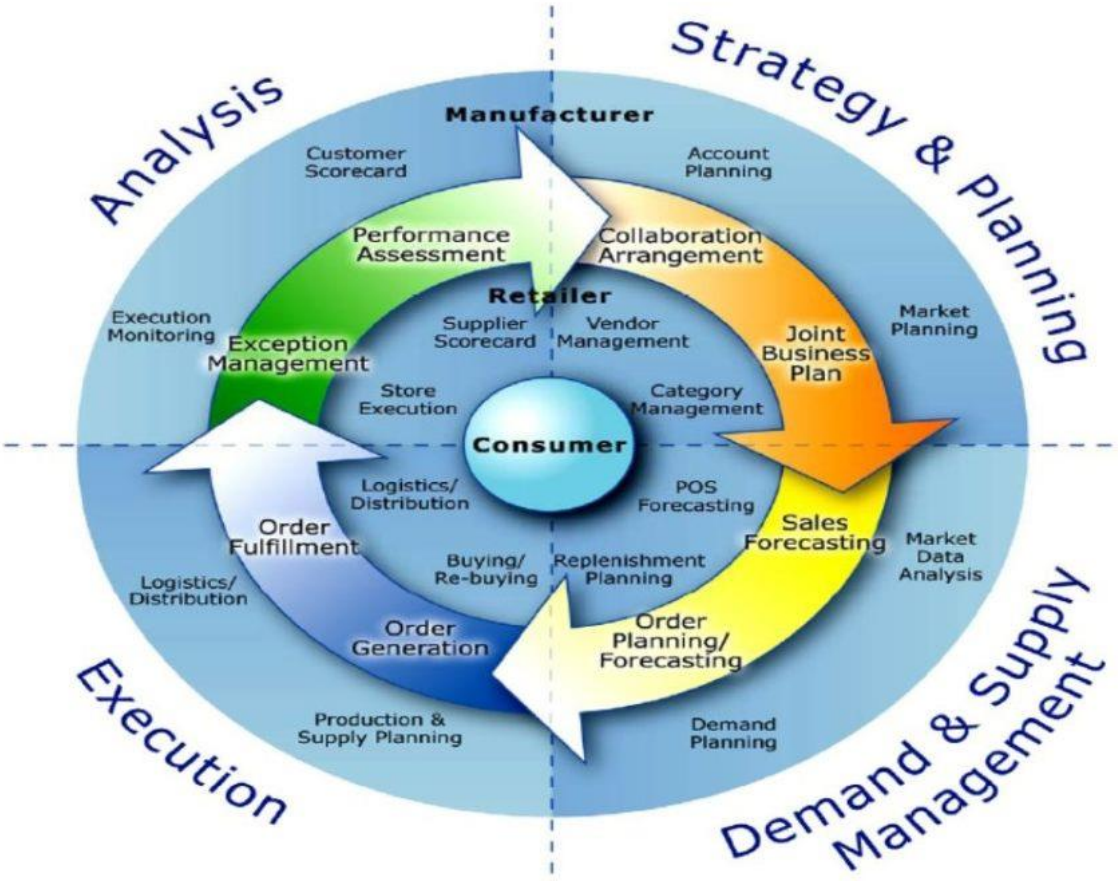
Challenges for CPFR implementation

There are top three difficulties faced by organizations in implementing CPFR:

1. **Making internal changes:** Internal changes must always be tackled by top management as change is always difficult but if the top management is dedicated to the project and in educating employees about the benefits of CPFR then there are more chances of getting a successful internal change.
2. **Total implementation cost:** Although cost is an important factor to be considered always but companies must determine whether they are at a competitive disadvantage.
3. **Trust:** It is one of the biggest hurdles in general implementation of CPFR as many retailers are unwilling to share the information required to implement CPFR.

Collaborative Planning, Forecasting and Replenishment (CPFR) Process Model

The Collaborative Planning, Forecasting and Replenishment (CPFR) reference model provides a framework for planning, forecasting and replenishment process. Figure below represents the framework components. A buyer and a seller work as Collaboration Partners and work together to satisfy the customer demand which at the centre of the model.



The key Collaborative Planning, Forecasting and Replenishment (CPFR) activities to enhance performance of Collaboration partners are –

1. **Strategy & Planning** – Establish the rules for collaborative relationship. Determine the product mix and develop event plans for the period.

2. **Demand and Supply Management** – Project consumer (POS) demand, as well as order and shipment requirements over the planning period.
3. **Execution** – Place orders, prepare and deliver shipments, receive and stock products in retail stores, record sales transactions and make payments.
4. **Analysis** – Monitor planning and execution activities for exception conditions. Aggregate results and calculate KPI's. Share insights and adjust plans for better **performance.**

customer service - expected cost of stock outs

Effects of a Stockout

The basic scenario for a stockout is when an item that is to be used for a customer's order or for a production order is not in stock when required. If an item is not available for manufacturing then it may be possible to change the production schedule, although there is a significant cost in this due to the changes in a machine, teardown costs, resource changes, plus the time involved in carrying out all the changes. If an item is not available for a customer order then four possible effects can occur.

- *Customer agrees to wait for the item* - If the item is vital to the customer, then they may be prepared to wait. Despite the goodwill of the customer, there may be significant damage to the customer's satisfaction level.
- *Customer backorders the item* - Not as ideal as when the customer agrees to wait for the order to be complete, but the order is still being fulfilled. Nevertheless, the customer's satisfaction level is still significantly reduced.
- *Customer cancels the order* - If the customer is able to obtain the item from another vendor or does not need the item immediately, then the customer can cancel the order. It is still possible that the customer will order from you in the future, but their customer satisfaction level has been damaged.
- *Customer cancels the order, and is no longer a customer* - This is the worst-case scenario of a stockout. However, if a customer is unhappy with the communication or information supplied by the vendor then they may be willing to cut all ties and work with another vendor.

Cost of Back Ordering

If a customer is unwilling to wait for their order to be fulfilled then they could backorder the item. This will mean that the vendor will incur some costs due to the stockout.

There are increased order processing costs as the customer service staff amends the order to create a new suitable delivery date. In addition, there may be additional shipping charges if the order was part of a larger delivery, then the backorder will require special transportation.

As a means of stimulating some much-needed customer satisfaction, the vendor can also agree to expedite shipping at their expense or offer the customer free shipping or a discount on the order.

Cost of Cancelled Orders

If a customer decides to cancel their order due to the stockout then they have probably found an alternate vendor for the item. Many companies will ensure that they have more than one source of supply for their key items; therefore, it may be easier to order from the alternate than to wait for the order to be completed.

For the vendor, a canceled order can be costly, not only in lost profit but in the purchase of raw materials or parts that were brought in or on order for the customer's order. Obsolete, slow-moving or unusable inventory costs money - not just due to its purchase price, but also in inventory carrying costs.

There is also the cost involved in trying to minimize customer dissatisfaction, either by offering incentives for them to order from the vendor again or in marketing to reduce any negative posts that may have been made on social media.

Cost of Losing a customer

Losing a customer to a stockout is the worst outcome, and comes with it the highest cost to the vendor. By a customer no longer placing any order with a vendor, every order is a cost that has to be considered. If a customer was a major purchaser of goods then the cost could be severe and put the vendor in financial difficulty. There is also the cost of trying to find new customers to replace the order that would have been placed.

channels of distribution

Channels of Distribution

Although the diagram finishes at the customer stage, there is the final step of having items available for sale to consumers. A Supply Chain ensures Availability of items; Channels of Distribution satisfy the Demand Chain. Channels from the brand company at the ‘tertiary’ industries stage to the consumer, can be a mix of:

Direct channels owned or controlled by a brand company (a shipper), for sales, storage and delivery of items

Indirect channels – reselling, storage and delivery of intermediate and manufactured/assembled items. Of the list in the diagram under ‘customer’, the channels of eCommerce, franchisor and retail have the infrastructure to directly connect with consumers. Generally, the role of the other four customers is to use their channels to supply products for the first three. In addition, ‘Trade supply’ channel examples are:

- Food service for hospitality sector
- Cut length supply service (steel, aluminium, timber)
- Electrical supplies
- Agricultural industry inputs e.g. fertilisers

Deliveries to consumers can also be made via the channels of: the route trade (vans or even motorcycles loaded with popular product lines to sell), ‘pop-up’ vans at venues, markets stalls, vending machines and party sales. events.

Servicing the channels can require multiple warehouses and distribution centres (DCs) that can be owned and operated by different businesses, using different IT systems and with different transport modes and operators (links) between the nodes. Commencing at the factory warehouse (possibly in multiple locations), products can be delivered to a geographic region warehouse, then to a warehouse in a country; then to city warehouses or DCs and finally local DCs (which might be attached to a retail shop). Direct delivery to consumers can happen from any of these facilities.

Delivery routes structures and transport modes and operators to service retail locations are dependent on the geographical area being serviced: Inner city; Inner suburbs (5-10km ring of a city); Outer suburbs of a city; Region outside a city (2 hours driving distance); Rural and remote.

Channel of distribution challenges for Logisticians will differ by geographic region and country. Influences on decisions will be at least: Culture and organisation structure of the business; Location density for warehouse activities, Transport infrastructure; Communications technology and Payment systems in the country. Importantly, copying what other organisations are doing in terms of: customer and supplier relationships, people management, technologies and capital investment, may not provide the ‘best’ solutions for your business.