

# LOGISTICS AND SUPPLY CHAIN MANAGEMENT

## UNIT 4

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### SOURCING DECISIONS

**Sourcing** is the entire set of business processes required to purchase goods and services. It is a process of acquiring raw materials and other components, products or services of a company from its suppliers to execute its operations. In **supply chain** field, it's a major decision whether outsource production/function or perform in-house. **Outsourcing** results in the **supply chain** functions being performed by a third party.

### Benefits of effective sourcing

- Better economies of scale can be achieved if orders within a firm are aggregated.
- Reduction in the overall cost of purchasing (for items with large number of low value transaction).
- Design collaboration can result in products that are easier to manufacture and distribute, resulting in lower overall costs. ( for products that contribute a significant amount to product cost and value)
- Coordination with the supplier and improve forecasting and planning.
- Appropriate supplier contracts can allow for the sharing of risk, resulting in higher profits for both the supplier and the buyer.
- Firms can achieve a lower purchase price by increasing competition through the use of auctions.

### IN-HOUSE OR OUTSOURCE

A firm should consider outsourcing if the growth in supply chain surplus is large with a small increase in risk. Performing the function in-house is preferable if the growth in surplus is small or the increase in risk is large.

### **How Do Third Parties Increase the supply chain surplus**

Third parties increase the supply chain surplus if they either increase value for the customer or decrease the supply chain cost relative to a firm performing the task in-house. Three

important factors that affect the increase in surplus that a third party provides: scale, uncertainty, and the specificity of assets.

**1. Capacity aggregation:** Surplus can be created by aggregating demand across multiple firms and gaining production economies of scale that no single firm can on its own.

→ The growth in surplus from outsourcing is highest when the needs of the firm are significantly lower than the volumes required to gain economies of scale.

**2. Inventory aggregation:** Surplus can be created by aggregating inventories across a large number of customers. Aggregation allows them to significantly lower overall uncertainty and improve economies of scale in purchasing and transportation.

→ The third party performing inventory aggregation adds most to the supply chain surplus when demand from customers is fragmented and uncertain.

**3. Transportation aggregation by transportation intermediaries:** Surplus can be created by aggregating the transportation function to a higher level than any shipper can on its own. The transportation intermediary aggregates shipments across multiple shippers, thus lowering the cost of each shipment below what could be achieved by the shipper alone.

→ This is particularly true if the shipper's transportation flows are highly unbalanced, with the quantity coming into a region very different from the quantity leaving the region.

**4. Transportation aggregation by storage intermediaries:** Surplus can be created by aggregating in bound and out bound transportation.

→ This form of aggregation is most effective if the intermediary stocks products from many suppliers and serves many customers, each ordering in small quantities.

**5. Warehousing aggregation:** Surplus can be created by aggregating warehousing needs over several customers. (in terms of lower real estate cost and lower processing cost).

→ Savings through warehousing aggregation arise if a supplier's warehousing needs are small or if its needs fluctuate over time

**6. Procurement aggregation:** Surplus can be created if a third party if it aggregates procurement for many small players and facilitates economies of scale in production and inbound transportation.

→ Procurement aggregation is most effective across many small buyers.

**7. Information aggregation:** Supply chain surplus can be increased by aggregating information to a higher level than can be achieved by a firm performing the function in-house. This information aggregation reduces search costs for customers.

→ Information aggregation increases the surplus if both buyers and sellers are fragmented and buying is sporadic.

**8. Receivables aggregation:** Supply Chain surplus can be increased if a third party can aggregate the receivables risk to a higher level than the firm or it has a lower collection cost than the firm. Collecting receivables from each retail outlet is a very expensive proposition for a manufacturer.

→ Receivables aggregation is likely to increase the supply chain surplus if retail outlets are small and numerous and each outlet stocks products from many manufacturers that are all served by the same distributor.

**9. Lower costs and higher quality:** A third party can increase the supply chain surplus if it provides lower cost or higher quality relative to the firm. If these benefits come from specialization and learning, they are likely to be sustainable over the longer term. A specialized third party that is further along the learning curve for some supply chain activity is likely to maintain its advantage over the long term.

## **TRANSPORTATION IN SUPPLY CHAIN**

**Transportation** refers to the movement of product from one location to another as it makes its way from the beginning of a **supply chain** to the customer. This requires a new broad look at the business of **transportation supply chain**, including **supply chain management**, logistics, and procurement. Transportation is a key logistics function and is critical to supply chain performance. To meet the vigorous requirements of the supply chain, the strategy should be dynamic. It must be responsive, both as to service and cost demands.

### **Transportation strategy for supply chains:**

Transportation is a key logistics function of supply chains which runs from suppliers through to customers or stores. It involves the movement of product, service/transit time, and cost which are three of five traditional key issues of effective supply chains. It also impacts with

the other two issues of movement of information and integration within and among suppliers, customers and carriers. A transportation strategy, to be effective in supply chain management, is fitting the movement of goods to the corporate supply chain. It is not playing one carrier off against another. Rather it is a way to respond to the dynamics of the business, its customers, suppliers' and operation.

The strategy, regardless of whether you are involved with domestic or international, should recognize:

**1. Segment:** Each shipment does not have the same priority. Products, suppliers, customers, time of the year, and other factors can affect the importance and urgency of transport movements. The strategy cannot be one-dimensional. It should be segmented to reflect urgencies. That can mean mode changes and/or alternative carriers.

**2. Customer requirements:** The supply chain involves continuous and efficient movement of product from vendor to manufacturer to customer. Therefore, the transportation program must reflect and meet customer needs. The time and service aspects of transportation are vital.

**3. Shipments must move timely:** Customers demand their shipments be delivered as they require--on the date needed, by the carrier preferred, in the proper shipping packaging method and complete, both shipped complete and delivered complete and in good order. Being able to have a transportation program with can do this provides customer satisfaction and can give your company a competitive advantage.

**4. Mode selection:** How will products move, by air versus surface? What modes will be used? What roles do transit time play in your supply chain? How will the inventory and service impacts be measured as compared to the freight charges?

**5. Carrier relationships:** Volume creates carrier/forwarder attention. Even if there is no strategy, the number of carriers trying to get business will make firms develop one. Infrequent shipping dictates another approach. The carrier attention with volume creates a competitive interest in your business. But there is another side to this attention as to freight cannot be divided among many carriers. This cannot be done for two reasons. First, as random, fracturing of the freight impacts negotiating or leverage position. Second, too many carriers hinder the ability to develop carrier relationships needed to meet supply chain requirements. Developing supply chain responsive programs be demands effort by both the

carriers and shipper. Transportation must be responsive and needs a focus with a carrier--a relationship.

**6. Measuring/Metrics:** It is important to know how well the strategy and carriers are performing. This takes two approaches. One is measuring. Measuring means comparing performance versus agreed standards. What is the actual delivery to customer performance, on a macro basis, carrier and customer by customer basis? A macro measure can hide a problem even if the overall measure is good. And, with supply chain management, this means realizing primary customers and delivery locations. A test of measuring costs is how well the transport spend is being managed. Transport performance metrics can provide a way to view the value of the spend.

**7. Carrier mergers and alliances and closings:** This is an important and difficult issue. Firms should understand what is happening within each mode and align the strategy with carriers who will still be viable in the future—often five years since strategic plans may extend that far. A great strategy with a carrier who is taken over or goes out of business is suddenly not a good strategy.

**8. Flexibility/Adaptability:** Change is happening. It is not a question of whether or not it happens. The only question is how quickly it occurs. The strategy should be able to change. New customers. New products. New businesses. New suppliers. New corporate emphasis. Each of these can dramatically impact the strategy. The times they are a changing and so will the strategy.

## **USES OF TRANSPORTATION IN SUPPLY CHAIN MANAGEMENT**

Transportation is frequently used in the facilitation of a supply chain. Below are seven uses of transportation in supply chain management:

1. Transportation is used to reduce costs.

The transportation in a supply chain can be used to control costs in a business operation. Freight and fuel costs take up most of the logistics budget. Moving products from one location to another using one or a combination of the various modes of transportation is a cost-intensive affair. To control transportation costs and keep them as low as possible, conducting a full freight audit is essential. Technologies exist that make it possible to enhance transparency in transport and logistics.

## 2. Transportation is used to enhance customer service.

The transportation in a supply chain can be used for customer service. As products move from one location to another, and from the supplier to the customer, the needs of the customer must be at the heart of the transportation system. Making sure products reach a customer in the condition they were shipped in and on time are essentials of transportation in a supply chain.

## 3. Transportation is used to segment shipments in supply chain.

The prioritization of shipments is essential in transportation. The customers, products, time of year, and suppliers, among other factors, determine the urgency and importance of goods in transit. The transportation in supply chains must be segmented to reflect these often complex realities. This often requires a change in the mode of transport and settling on alternative carriers.

## 4. Transportation is used to synchronize with supply chain technology.

The daily monitoring of transportation operations is best handled by a transportation management software (TMS). Among activities tracked by a TMS are route planning, fleet management, fuel costing, supplier relations, cargo handling, and customer communications. A TMS is highly effective in controlling and lowering transportation costs. For instance, according to Forbes, a TMS can reduce freight costs by 8%. While not all shipping companies are using a TMS, its uptake is on the rise as companies embrace the realities of efficient, cost-effective transportation.

## 5. Transportation is used to provide more supply chain options.

The majority of products rely on multiple modes of transportation as they travel throughout the supply chain. Therefore, various modes of transportation are required for an effective freight transportation system. Such a system is ideally suited to support international and domestic supply chains. Trucks are by far the most popular mode of transportation, making road transport a critical part of the supply chain. Pipelines are also highly popular, especially in the transportation of gaseous and liquid products. Items moved by air and road have a higher value per ton, meaning that these two modes have a higher value than the others.

6. Transportation is used to bypass geographical limitations.

Trucks have, for a long time, been the preferred mode of transportation in supply chain operations. They traverse roads alongside railways to move products across the land efficiently. They feature a chassis, which can hold standard shipping containers. The reason trucks are the mode of choice when transporting shipments is because they can pass through terrains that other modes of transportation can't. For instance, trains travel to limited destinations, while air freight has weight and airport limitations. This leaves trucks as the most convenient for moving vast volumes of products cost effectively.

7. Transportation is used to boost the economy.

To freely move products from domestic to international markets and vice versa, an efficient transportation system is a must. The vast distances between farms, mines, urban centres and forests demand a sound transportation system so that manufactured products can reach customers as efficiently as possible.

## **TRANSPORT SERVICES FORMATS IN THE GLOBAL SUPPLY CHAIN**

**Transport infrastructure** refers to the framework that supports our **transport** system. This includes roads, railways, ports and airports. National and local government are responsible for the development of our **transport infrastructure**. The supply chain relies on the efficient management of assets and logistics to get raw materials, parts and finished products from one place to another. When sending goods around the world, it's vital to use transportation resources in the right way. Pairing the optimized usage of containers, vehicles and other assets with effective logistics execution including financial audit and settlement greatly improves operational efficiency, security and speed.

### **Transportation formats in the Global Supply Chain**

1. Roadways
2. Railways
3. Airways
4. Waterways
5. Pipelines

## **INFRASTRUCTURE SUPPLIERS OF TRANSPORT SERVICES**

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### **Various modes of transportation in the global supply chain**

#### **1. Shipping Containers in the Supply Chain**

Shipping containers and the containerization revolution have transformed how we transport goods around the world. They are a key part of "intermodal transportation" and containers are critical to the functioning of the modern supply chain. A shipping container is a metal box structure that can be easily moved between trucks, railcars, ocean-going vessels and other transportation, quickly and easily. All shipping containers are manufactured to common standards that will fit to specific chassis, railcars and other transportation.

The standardization of shipping containers means they work to a common specification and framework. This makes it extremely easy to load, unload, manage and transport shipping containers across multiple types of transport. Containerization significantly improves efficiency and security, protects goods and ensures faster movement through the supply chain.

#### **2. Trucks in the Supply Chain**

Trucks are the main workhorses of the international supply chain. Alongside railways, they're the main way to move goods across land in an efficient way. They are often fitted with chassis that can hold standardized shipping containers. Trucks are, by far, the most common way to move goods in the supply chain. Trucks can get to places that other transportation methods cannot. Railways don't travel to all destinations, and air freight is expensive and limited by weight and available airports. This makes trucks the default choice for moving large quantities of goods. Trucks move more goods domestically than railway, water, air



freight and pipelines combined. When pulling a chassis, a truck can move shipping containers quickly and efficiently.

### **3. Chassis in the Supply Chain**

The chassis is critical to moving shipping containers across land. Chassis are the hardware bases that connect to trucks and locomotives. They are designed to accommodate a standardized shipping container. Chassis are another essential part of intermodal transport the transfer of goods between various types of transport, for example trucks, railways and ocean-going vessels. They ensure that containers can be loaded and secured safely. Chassis need to be available in the right place at the right time for the efficient loading, unloading and further transportation of goods. Without a chassis, it is impossible to move shipping containers.

### **4. Railcars and Engines in the Supply Chain**

Engines pull railcars and intermodal railcar chassis which distribute products on land in the global supply chain. Although railway freight is often a distant second to sending goods by road, rail transport still accounts for a good proportion of freighted products. Moving goods by rail is often much cheaper, more efficient and less environmentally damaging than sending goods by road. Freight railroads are a vital supplement to trucking for moving goods through the supply chain. Intermodal transport accounts for a significant part of freight rail revenue.

### **5. Aircraft in the Supply Chain**

Specialized commercial cargo aircraft are used to ship freight quickly and efficiently between and within countries. Commercial cargo aircraft are typically loaded with Unit Load Devices for moving air freight between airports. Due to the higher cost of air freight, it is often used only for the most critical shipping needs, and most supply chains will use it as a supplementary service after trucks and railroads. Aircraft excel in two main areas for transporting goods, speed and reliability. Aircraft are generally the fastest way to get freight from one place to another, vital when time is an issue. Air freight is also more reliable than other forms of transport, as aircraft are less affected by delays than trucks.

### **6. Unit Load Devices in the Supply Chain**

Unit Load Devices (ULDs) are specialized storage and transportation units, mainly used to move goods via air freight. In most cases, ULDs are specifically designed for commercial, supply chain applications. ULDs consolidate goods together into standardized pallets or other

storage units. These units can be moved via forklift and other machinery, making it fast and easy to load and unload aircraft. Commercial freight aircraft come in a variety of sizes and capacities. ULDs introduce standardization for transporting goods, enhancing safety, speed and efficiency. The right ULD needs to be available at the right time to maximize throughput and shorten end-to-end air freight delays.

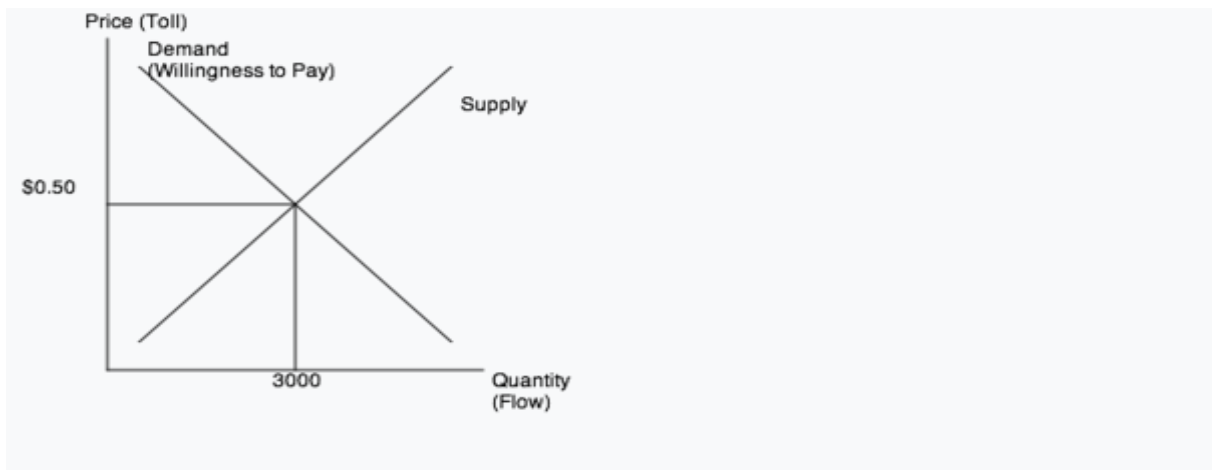
## **7. Ocean-Going Vessels in the Supply Chain**

Large container ships and other ocean-going cargo vessels are the primary way to move goods internationally. Ocean-going vessels include container ships, oil tankers, general cargo ships and bulk carriers. Ocean-going vessels move goods between international ports in the global supply chain. These ships are designed for rapid loading and unloading and are well-served by transport infrastructure for the rapid onward distribution of goods. The international shipping industry is responsible for around 90 percent of world trade. Container ships and other cargo vessels transport vast amounts of raw materials, parts and finished products between international suppliers, manufacturers and final destinations.

## **TRANSPORTATION ECONOMICS AND PRICING**

In **transportation economics**, costs are represented by a supply curve, which rises with the amount of travel demanded. As described above, demand (for example, the number of vehicles which want to use a facility) depends on the **price**: the lower the **price**, the higher the demand. **Transport Economics** is the study of the movement of people and goods over space and time. It is a branch of economics that deals with the allocation of resources within the transport sector. Historically, it has been thought of as the intersection of microeconomics and civil engineering, as shown on the right. Traditional microeconomics is just a special case of transport economics, with fixed space and time, and where the goods being moved is money. Transport Economics include Privatization, Nationalization, Regulation, Pricing, Economic Stimulus, Financing, Funding, Expenditures, Demand, Production, and Externalities.

## DEMAND AND SUPPLY EQUILLIBRIUM



As with earning grades, transportation is not free; it costs both time and money. In transportation economics, costs are represented by a supply curve, which rises with the amount of travel demanded. As described above, demand (for example, the number of vehicles which want to use a facility) depends on the price: the lower the price, the higher the demand. These two curves intersect at a point of equilibrium. In the example figure, they intersect at a toll of \$0.50 per km, and flow of 3000 vehicles per hour. Time is usually converted to money to simplify analysis. Costs may be variable, and can include users' time and out-of-pockets costs. Out-of-pocket costs can be paid on a per trip or per distance basis, for example, tolls and gasoline, or *fixed*, for example, insurance or buying an automobile, which are only borne once in a while and are independent an individual trip's cost.

## TRANSPORT DOCUMENTATION

A **transport document** is a kind of document used to convey information about cargo that is being transported.

Kinds of transport documents include:

- **Air Waybill:** a transport document used for air freight. An Air Waybill AWB is a non-negotiable transport document covering transport of cargo from airport to airport.
- **Bill of Lading:** a transport document for sea freight. A Bill of Lading B/L is a document issued by the agent of a carrier to a shipper, signed by the captain, agent, or owner of a vessel, furnishing written evidence regarding receipt of the goods (cargo), the conditions on which transportation is made (contract of carriage), and the engagement to deliver goods at the prescribed port of destination to the lawful holder of the bill of lading.

- **CMR** ("Convention relative au contrat de transport international de marchandises par route"): a transport document for road freight for use in all European countries, as well as additional countries in Asia and Africa. The CMR transport document is an international consignment note used by drivers, operators and forwarders alike that govern the responsibilities and liabilities of the parties to a contract for the carriage of goods by road internationally.
- **Multimodal bill of lading FBL**: A Multimodal Bill of Lading FBL is a type of international transport documents covering two or more modes of transport, such as shipping by road and by sea.
- **Cargo insurance certificate**: The Cargo Insurance Certificate is a document indicating the type and amount of insurance coverage in force on a particular shipment. It includes the name of the insurance company and conditions of coverage.
- **International commercial invoice**: The International Commercial Invoice is an administrative document which contains all the information about the international sale. The item, quantity, price for the products/services sold, delivery and payment conditions, as well as the taxes and other expenses that might be included in the sale, are detailed in an International Commercial Invoice.
- **Packing list**: The Packing List is a more detailed version of the commercial invoice but without price information. It must include, inter alia, the following: invoice number, quantity and description of the goods, the weight of the goods, number of packages, and shipping marks and numbers.
- **Delivery note**: A Delivery Note is one of the transport documents accompanying the shipment of goods that list de description and quantity of goods delivered. A copy of the Delivery Note, signed by the buyer or consignee is returned to the seller or consignor as a proof of delivery.

## **PRICING AND REVENUE MANAGEMENT IN SCM**

Pricing is a factor that gears up profits in supply chain through a suitable match of supply and demand. Revenue management is the application of differential **pricing** on the basis of customer segment, time of use and product or capacity availability to increment **supply chain** surplus. Revenue management suggest that an organization should first utilize pricing to keep up adjust between the supply and demand and should consider additionally contributing or dispensing with assets simply after the adjust is kept up.

The assets in supply chain are available in two structures, in particular limit assets and inventory assets. Limit assets in the supply chain are available for assembling, shipment, and storage while inventory assets are available inside the supply chain and are conveyed to develop and add item accessibility. In this way, revenue management is the utilization of differential pricing based on client portion, time of utilization and item or limit accessibility to increase supply chain overflow.

Revenue management assumes a noteworthy part in supply chain and has an offer of credit in the profitability of supply chain when at least one of the accompanying conditions exist i.e.,

- The product value differs in different market segments.
- The product is highly perishable or product tends to be defective.
- Demand has seasonal and other peaks.
- The product is sold both in bulk and the spot market.

The strategy of revenue management has been effectively connected in numerous streams that we frequently tend to utilize yet it is never taken note. For instance, the finest genuine utilization of revenue management can be found in the aircraft, railroad, lodging and resort, journey transport, social insurance, printing and distributing.

### **RM for Multiple Customer Segments**

In the idea of revenue management, has to deal with two key issues. The first is the manner by which to recognize two portions and outline their pricing to make one fragment pay more than the other. Furthermore, how to control the demand with the goal that the lower value fragment does not utilize the total resource that is accessible. To pick up totally from revenue management, the manufacturer needs to minimize the volume of limit committed to bring down value section regardless of whether enough demand is accessible from the lower value portion to use the entire volume. Here, the general exchange off is in the middle of submitting a request from a lower cost or sitting tight at a high cost to arrive later on.

### **RM for Perishable Assets**

Any advantage that loses its incentive at the appropriate time of time is considered as a perishable thing, for instance, all natural products, vegetables and pharmaceuticals. We can likewise incorporate PCs, mobile phones, design attire, and so on.; whatever loses its incentive after the dispatch of new model is considered as perishable.

Two methodologies for perishable assets in the revenue management. These methodologies are

- Fluctuate cost over time to maximize expected revenue.
- Overbook sales of the assets to cope or deal with cancellations.

The primary approach is exceedingly suggested for goods like form clothes that have an exact date crosswise over which they lose a great deal of their esteem; for instance, attire intended for specific season doesn't have much an incentive toward the finish of the season. The second approach is extremely productive here. There are events where the clients can wipe out set requests and the estimation of benefit brings down essentially after the due date.

### **RM for Seasonal Demands**

One of the significant utilizations of revenue management can be found in the occasional demand. Here we see a demand move from the crest to the off-crest span; subsequently a superior adjust can be kept up amongst supply and demand. It likewise creates higher general profit. The usually utilized viable and proficient revenue management way to deal with adapt to occasional demand is to demand higher cost amid top time length and a lower cost amid off-crest time span. This approach prompts exchanging demand from top to off-crest period. Organizations offer rebates and other esteem added services to inspire and charm clients to move their demand to off-crest period. The most appropriate illustration is Amazon.com. Amazon has a pinnacle period in December, as it brings here and now volume that is costly and lessens the profit edge. It entices clients through different rebates and free dispatching for orders that are set in the period of November.

### **RM for Bulk and Spot Demands**

When overseeing revenue for mass and spot demand, the fundamental exchange off is to some degree compatible to that of revenue management for different client sections. The organization needs to make a decision in regards to the amount of advantage for be reserved for spot market, which is higher cost. The booked amount will rely on the distinctions all together between the spot market and the mass deal, along with the circulation of demand from the spot market.

There is a comparable circumstance for the client who tends to make the purchasing decision for production, warehousing and transportation assets. Here the fundamental trade-off is between marking on long-term mass concurrence with a settled, bring down value that can be

squandered if not utilized and purchasing in the spot market with higher value that can never be squandered. The essential decision to be made here is the measure of the mass contract.

## **LACK OF SUPPLY CHAIN COORDINATION AND THE BULLWHIP EFFECT**

**Channel coordination** (or **supply chain coordination**) aims at improving supply chain performance by aligning the plans and the objectives of individual enterprises. It usually focuses on inventory management and ordering decisions in distributed inter-company settings. Channel coordination models may involve multi-echelon inventory theory, multiple decision makers, asymmetric information, as well as recent paradigms of manufacturing, such as mass customization, short product life cycles, outsourcing and delayed differentiation.

A lack of coordination creates "bullwhip effect" in the supply chain. Due to this effect, fluctuations in sales become larger and larger fluctuations in orders at higher stages in the supply chain. This leads to situations wherein large shortages or large surplus capacities are felt in the supply chain cyclically.

**Bullwhip effect** reduces the profit of a supply chain by making it more expensive to provide a given level of product availability. The bullwhip effect can be explained as an occurrence detected by the supply chain where orders sent to the manufacturer and supplier create larger variance than the sales to the end customer. These irregular orders in the lower part of the supply chain develop to be more distinct higher up in the supply chain. This variance can interrupt the smoothness of the supply chain process as each link in the supply chain will over or underestimate the product demand resulting in exaggerated fluctuations.

### **Bullwhip effect increases costs for the supply chain in the following way:**

1. **In increases manufacturing cost:** A lack of coordination increases manufacturing costs in a supply chain. As a result of the bullwhip effect, there is an increase in demand variability, so suppliers must respond to the increased variability by either building excess capacity or holding excess inventory. Both increase the manufacturing cost per unit produced.

2. **It increases inventory cost:** A lack of coordination increases inventory cost in the supply chain. Again, where there exists a bullwhip effect, there is an increased variability in demand. As such, it is necessary for the company to carry a higher level of inventory than would be

required if the supply chain were coordinated. This causes both the inventory costs and the warehousing costs to increase.

3. It increases replenishment lead times: Lack of coordination increases replenishment lead times in the supply chain. The bullwhip effect increases variability, which makes supply chain scheduling more difficult than it would be when the demand is level. As a result, there are often times when the available capacity and inventory cannot supply the orders coming in, which results in an increased replenishment lead time.

4. Increases transportation cost: A lack of coordination increases transportation costs in the supply chain. As a result of the bullwhip effect and the increase in demand variability that accompanies, transportation requirements also fluctuate significantly over time. This increases transportation costs because surplus transportation capacity needs to be maintained to cover high-demand periods.

5. Increases labour cost in shipping and receiving: All items of cost increase because excess capacity has to be installed to take care of unnecessary peaks in demand. A lack of coordination increases labour costs for shipping and receiving. With the increase in demand variability, labour requirements for shipping at multiple levels of the supply chain also fluctuate.

6. It reduces product availability due to some orders not getting filled when demand peaks. So some retail outlets may go out of stock. The fundamental challenge is for supply chains to achieve coordination in spite of multiple ownership and increased product variety.

7. Leads to problems of relationships: Everybody claims that they have done right. But still there is problem in the supply chain either as unfilled orders or excess inventory not having the order from downstream side. The main reasons for coordination problems in supply chain are distributed owners of various stages of production & distribution, and product variety.

### **IMPACT OF LACK OF COORDINATION IN A SUPPLY CHAIN**

**1. Incentive obstacles:** If a transport manager's incentive compensation is based on average transport cost, he tries to optimize his incentive objective without considering its effect on other supply chain stages. If sales force has incentive for selling to dealers, they push sales to dealers even though there is no sale in the period to customers. This will reduce orders from the dealers in the subsequent periods.



**2. Information processing obstacles:** If each supply stage depends on orders from its previous stage without considering the ultimate sales to the consumer bull whip effect will appear. Relying on past demand information to estimate current demand information of a product does not take into account any fluctuations that may occur in demand over a period of time. Companies may order weekly or even monthly. This creates variability in the demand as there may for instance be a surge in demand at some stage followed by no demand after.

**3. Operational obstacles:** Economic batch quantities result in large lot sizes which are released periodically. Lack of communication between each link in the supply chain makes it difficult for processes to run smoothly. Managers can perceive a product demand quite differently within different links of the supply chain and therefore order different quantities.

**4. Pricing obstacles:** Quantity discounts and sales promotion discounts to dealers create distortions in orders. Special discounts and other cost changes can upset regular buying patterns; buyers want to take advantage on discounts offered during a short time period, this can cause uneven production and distorted demand information.

**5. Behavioural obstacles:** Each stage of the supply chain thinks locally and is unable to see the effect on the total supply chain and other supply chain stages. Customers may intentionally overstate demands due to shortages and then cancel when the supply becomes adequate again, without return forfeit retailers will continue to exaggerate their needs and cancel orders; resulting in excess material.

## **CRM**

**C-R-M** stands for **customer relationship management**. **CRM** system allows businesses to manage business relationships and the data and information associated with them. **Customer relationship management (CRM)** is an approach to managing a company's interaction with current and potential customers. It uses data analysis about customers' history with a company to improve business relationships with customers, specifically focusing on customer retention and ultimately driving sales growth. CRM (Customer Relationship Management) intends to provide technological solutions which make it possible to strengthen the communication between the company and its clients in order to improve the relationship with the clientele through atomization of the different components of the client relationship:

A CRM system gives everyone — from sales, customer service, business development, recruiting, marketing, or any other line of business — a better way to manage the external interactions and relationships that drive success. A CRM tool lets you store customer and prospect contact information, identify sales opportunities, record service issues, and manage marketing campaigns, all in one central location — and make information about every customer interaction available to anyone at your company who might need it.

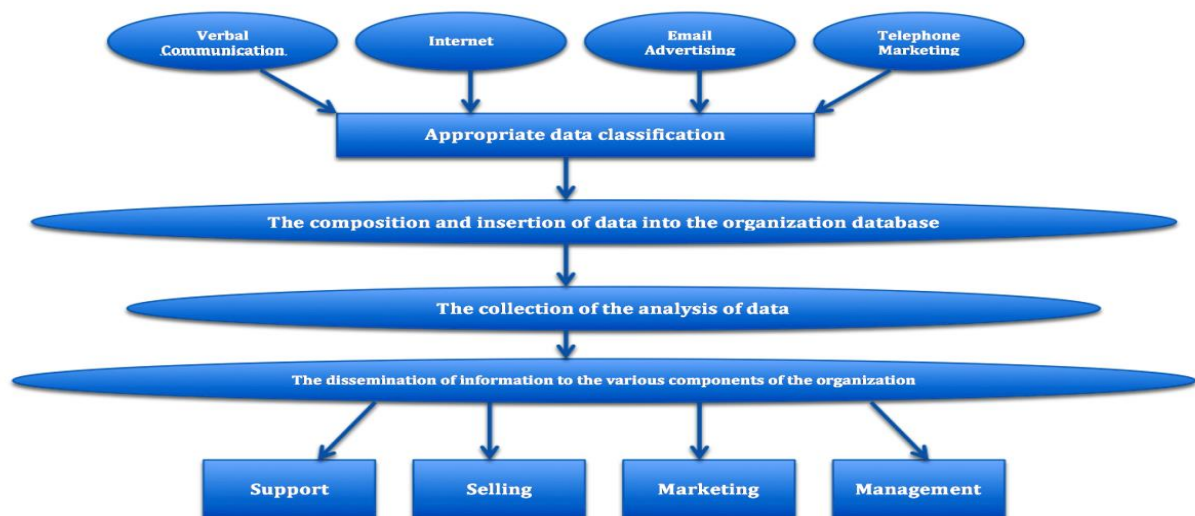
With visibility and easy access to data, it's easier to collaborate and increase productivity. Everyone in your company can see how customers have been communicated with, what they've bought, when they last purchased, what they paid, and so much more. CRM can help companies of all sizes drive business growth, and it can be especially beneficial to a small business, where teams often need to find ways to do more with less.

- **Pre-sales:** Refers to marketing, consisting in studying the market, i.e. the needs of clients and identifying prospects. Analyzing the client information collected allow the enterprise to revise its product selection to more closely match expectations. Enterprise Marketing Automation (EMA) consists in automating marketing campaigns.
- **Sales:** Sales forces automation (SFA), consists in providing piloting tools to businesses to assist them in their prospecting measures (contact management, sales meeting management, re-launch management, but also assistance with the preparation of business proposals, etc).
- **Client service management:** clients loved to feel known to and acknowledged by the enterprise and cannot stand having to recount, upon every contact, the history of its relationship with the enterprise.
- **After-sales,** consisting in providing assistance to the client, in particular through the implementation of call centers (also Help Desk or Hot-Line) and the online provision of technical support information.

The purpose of CRM is improved proximity to clients to respond to their needs and turn them into loyal customers. A CRM project therefore includes providing each sector of the company with access to the information system to get to know the client better and provide him with

products and services which meet his expectations in the best possible way. One important aspect of the CRM approach is the systems of CRM that compile data from a range of different communication channels, including a company's website, telephone, email, live chat, marketing materials and more recently, social media. Through the CRM approach and the systems used to facilitate it, businesses learn more about their target audiences and how to best cater to their needs.

### Components in the different types of CRM

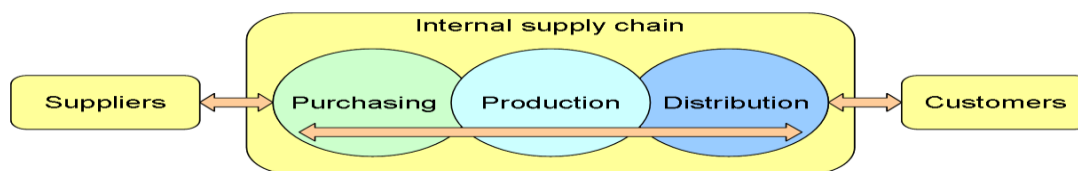


### INTERNAL SUPPLY CHAIN MANAGEMENT

Internal supply chain management refers to the chain of activities **within** a company, specifically, purchasing, production, sales and distribution. The internal supply chain has a significant impact on a company's success; operations need to run smoothly in order to create a harmonized working environment and an efficient workflow. There is so much focus on the external supply chain that internal processes can often be left behind. The external supply chain refers to the network of activities outside of a company such as transportation, and the environmental factors, which can have a direct or indirect effect on operations e.g. supplier failure, changes in laws and natural disasters. These external activities are usually deemed to have a greater impact on the supply chain.

Internal supply chain management focuses on **value chain**. This means a combination of systems an organization uses to create its products and services and in the end make money.

Looked at from Michael Porter's point of view your value chain consists of five primary activities, that is, inbound logistics, operations, outbound logistics, marketing and sales, services. The value chain approach helps to understand supply chain, which is, the flow of information and resources within into and through the organization. It will have **inbound activities**, which means procuring and receiving the inputs needed, this will be followed by conversion of these inputs into output. The next stage of the chain is **outbound activities**, which is the moving of outputs, resulting from conversion activities, onwards to customers. The process is summed up as: procurement, production, storage, distribution, sales and marketing.



### **Importance of Internal supply chain management**

Given that value addition and how a firm is good at it is one of those factors that contribute to how much profit it will make, it is important therefore in the quest for value creation to look at how the process used in creation of goods and services are linked internally, since this is what gives the internal supply chain which will explain the value chain. The other reason why this really matters is because it helps you to start looking at production units in terms of suppliers and customers, basically one unit produces something that the next unit needs to use and so on. This approach means you end up with your own version of **upstream and downstream operations**. The 'supplier unit' will need to anticipate the needs and satisfy the requirements of these internal customers just as a supplying firm will seek to do for its external customers.

1. It helps with integration of departments through value chain such that each sees how they can contribute to value addition.
2. It encourages procurement staff to be proactive in planning procurement rather than just reacting to procurement needs.
3. Reducing resistance to procurement involvement in strategic issues and processes since most departments assume that procurement is about cost cutting and low price

