UNIT-5

Pricing Product and Documentation: Pricing - Revenue Management Lack of coordination and Bullwhip Effect - Impact of lack of coordination - Documentation - functions and types.

PRICING AND REVENUE MANAGEMENT IN A SUPPLY CHAIN

The Role of Revenue Management in the Supply Chain

- Revenue management is the use of pricing to increase the profit generated from a limited supply of supply chain assets
- Supply assets exist in two forms: capacity and inventory
- Revenue management may also be defined as the use of differential pricing based on customer segment, time of use, and product or capacity availability to increase supply chain profits

REVENUE MANAGEMENT APPLICABLE UNDER THE FOLLOWING CONDITIONS

1. The Seller is selling fixed stock of perishable capacity
2. Customer book capacity prior to departure
3. The seller manages a set of fare classes, each of which has a fixed price (at least in the short run)
4. The seller can change the availability of fare classes over time.

CONDITIONS UNDER WHICH REVENUE MANAGEMENT HAS THE GREATEST EFFECT

- The value of the product varies in different market segments (Example: airline seats)
- The product is highly perishable or product waste occurs (Example: fashion and seasonal apparel)
- Demand has seasonal and other peaks (Example: products ordered at Amazon.com)
- The product is sold both in bulk and on the spot market (Example: owner of warehouse who can decide whether to lease the entire warehouse through long-term contracts or save a portion of the warehouse for use in the spot market)

REVENUE MANAGEMENT FOR MULTIPLE CUSTOMER SEGMENTS

- If a supplier serves multiple customer segments with a fixed asset, the supplier can improve revenues by setting different prices for each segment
- Prices must be set with barriers such that the segment willing to pay more is not able to pay the lower price
- The amount of the asset reserved for the higher price segment is such that the expected marginal revenue from the higher priced segment equals the price of the lower price segment.

REVENUE MANAGEMENT FOR PERISHABLE ASSETS

Any asset that loses value over time is perishable

Examples: high-tech products such as computers and cell phones, high fashion apparel, underutilized capacity, fruits and vegetables

Two basic approaches:

- Vary price over time to maximize expected revenue
- Overbook sales of the asset to account for cancellations

PRICING AND REVENUE OPTIMIZATION PROCESS

Introducing a pricing and revenue optimization system involves four basic steps:

1. **Segmenting the Market**
2. **Calculating Customer Demand**
3. **Optimizing Prices**
4. **Recalibrating Prices**

Step-1 **Segmenting the Market:** Using historical transaction data, a company develops statistically relevant micro-market segmentation based on customer buying behaviors.

Step 2: **Calculating Customer Demand**: Powerful pricing software predicts how a customer or micro-segment will respond to products and prices based on the current state of the market and other conditions.

Step 3: **Optimizing Prices:** Based on the predicted customer response, the PRO systems determine which prices to offer to which customers for each product through each channel in order to maximize a particular profit objective, market share or other strategic goals. It recommends the optimum prices - not the lowest prices - to achieve these goals.

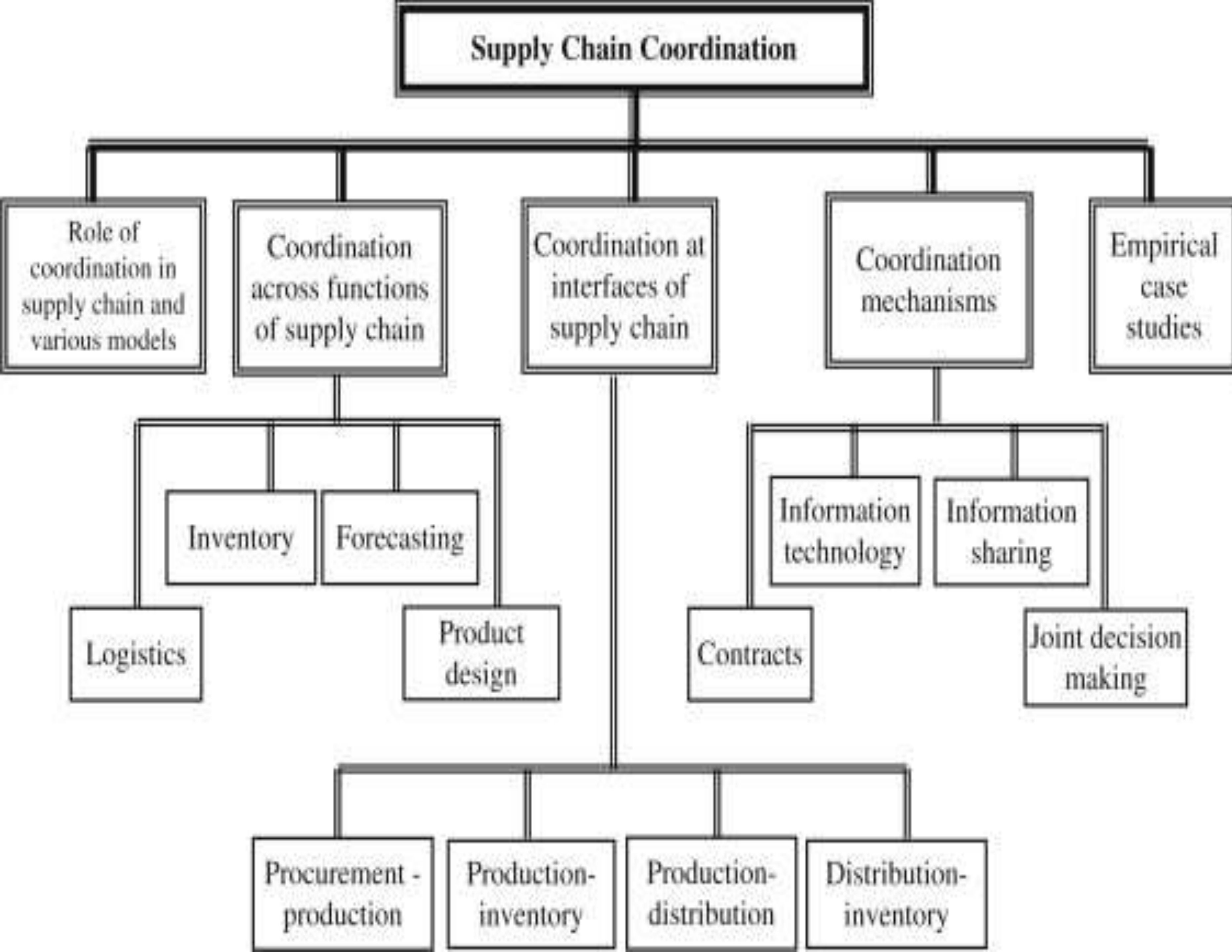
Step 4: **Recalibrating Prices:** Based on the actual results of optimization actions, the system continually recalibrates forecasting and optimization models.

Once such a system becomes part of a company's operations, ongoing price targeting helps to maximize its revenues. As introducing a PRO system does not require changes to the company's asset base, the cost of implementation is minimized and the majority of savings become profit.

COORDINATION IN SUPPLY CHAIN

Supply chain coordination (SCC) is an effective approach to improve supply chain (SC) performance.

The coordination can be achieved when interdependent entities work together by sharing resources and information to achieve common objectives aligned to maximize customer value for the entire SC.


Supply Chain Coordination
Role of coordination in supply chain and various models
Coordination across functions of supply chain
Coordination at interfaces of supply chain
Coordination mechanisms
Empirical case studies
Inventory
Forecasting
Logistics
Product design
Information technology
Information sharing
Contracts
Joint decision making
Procurement - production
Production-inventory
Production-distribution
Distribution-inventory

LACK OF SUPPLY CHAIN COORDINATION

- Supply chain coordination improves if all stages of the chain take actions that are aligned and increase total supply chain surplus.
- Coordination requires each stage of the supply chain to share information and take into account the impact its actions on other stages.
- A lack of coordination occurs either because different stages of the supply chain have local objectives that conflict or because information moving between the stages is delayed and distorted.

EXAMPLE:
FORD MOTOR COMPANY

The company has thousands of suppliers, from goodyear to motorola, and each of these suppliers has many suppliers in turn. Not only does each stage focus on its own objective, but information often distorted as it moves across the supply chain because complete information is not shared between stages

BULLWHIP EFFECT

- One outcome of lack of coordination is bullwhip effect. Fluctuation in orders increase as they move up the supply chain from retailers to wholesalers to manufacturers to suppliers.
- Demand information is distorted as it travels within the supply chain, so that different stages have different perspectives and estimates of the chain demand. More the supply chains less is the coordination

LACK OF COORDINATION

Lack of Coordination on the Performance on every stage of the supply chain, in trying to optimize its own objectives, can take actions that hurt the performance of the entire **supply chain**.

When this happens, profits for the entire chain are reduced. This happens because each stage is working independently and not taking into account the impact its decisions have on the rest of the chain.

Manufacturing Cost

When each stage of the supply chain tries to optimize its local objectives without considering the impact on the complete chain, the chain suffers. Profits for the entire chain are less than they could be if there was better coordination.

Likewise, information distortion within the supply chain can interfere with optimal decision-making and hurt the chain's performance.

Inventory Cost

The lack of coordination increases inventory costs in the supply chain. To handle the increased variability in demand, a higher level of inventory would be required if the supply chain were coordinated. As a result, inventory costs in the supply chain increase. The high levels of inventory also increase the warehousing space required and thus the warehousing cost incurred.

Replenishment Lead Time

Lack of coordination in the supply chain can lead to increased replenishment lead times. The bullwhip effect creates more variability, making it difficult to schedule replenishment for the supplier. When there isn't enough capacity or inventory to meet orders, it can cause problems.

Transportation Cost

The lack of coordination increases transportation costs in the supply chain. The transportation requirements overtime. As a result of the bullwhip effect, transportation requirements fluctuate significantly over time. This raises transportation costs because surplus transportation capacity needs to be maintained to cover high-demand periods.

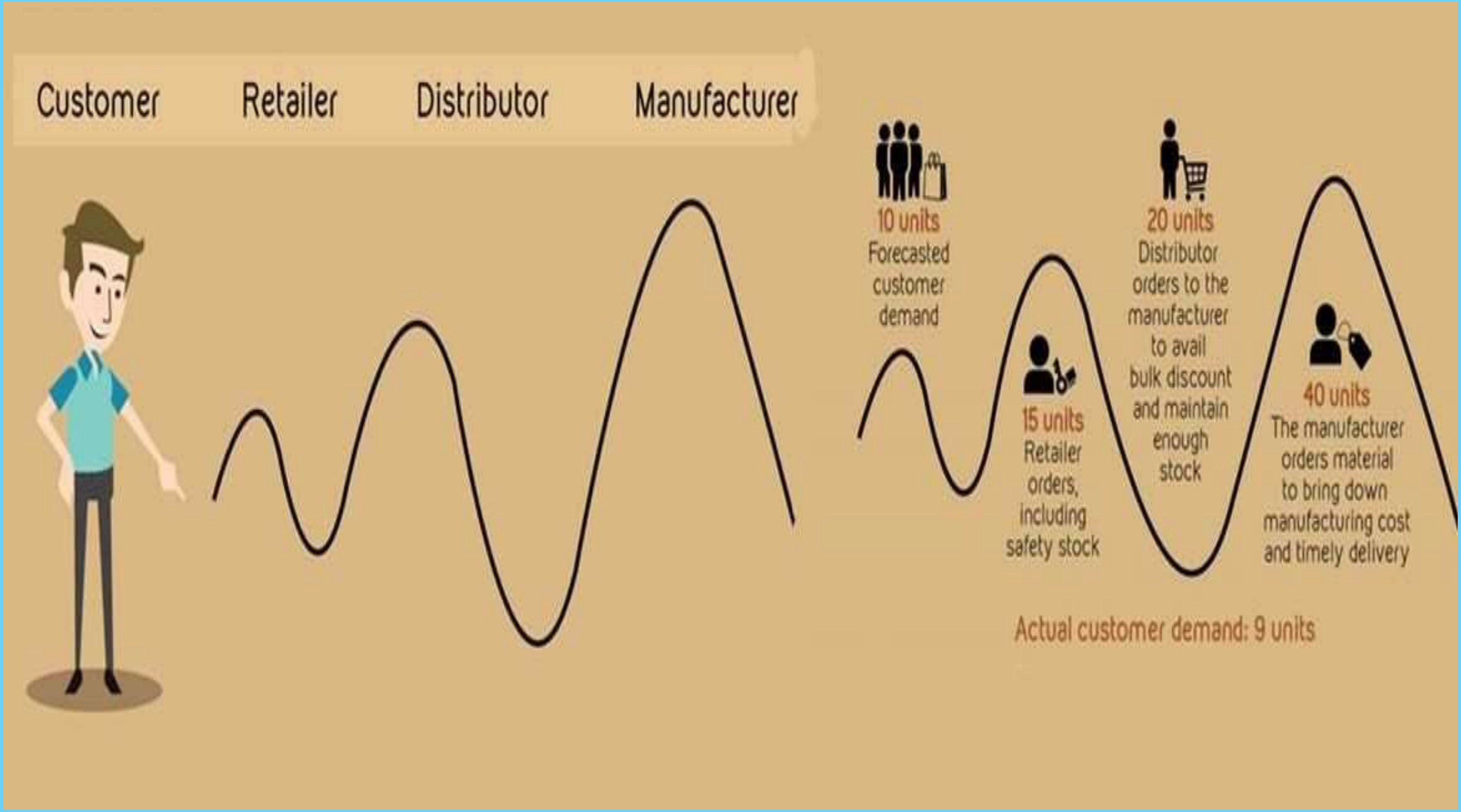
Labor cost for shipping and receiving:

Labor costs increase when there is a lack of coordination in the supply chain. This is because it becomes more difficult to ship and receive products accurately. Additionally, suppliers are not always available when orders change, which means that the stages of the supply chain have to either hire excess labor or be prepared to vary labor capacity in order to meet customer demand.

Level of Product Availability

The lack of coordination between different members of the supply chain hurts product availability and results in more stockouts. This increases the likelihood that retailers will run out of stock, and as a result, the supply chain will lose sales.

BULLWHIP EFFECT



SYMPTOMS OF BULLWHIP

Some symptoms of Bullwhip are:

- Excessive inventory
- Poor product forecast
- Insufficient capacities
- Long backlogs
- Uncertain Product planning

EXAMPLE:
P&G PROCTER & GAMBLE (P&G) EXAMINED ORDER PATTERNS FOR PAMPERS.

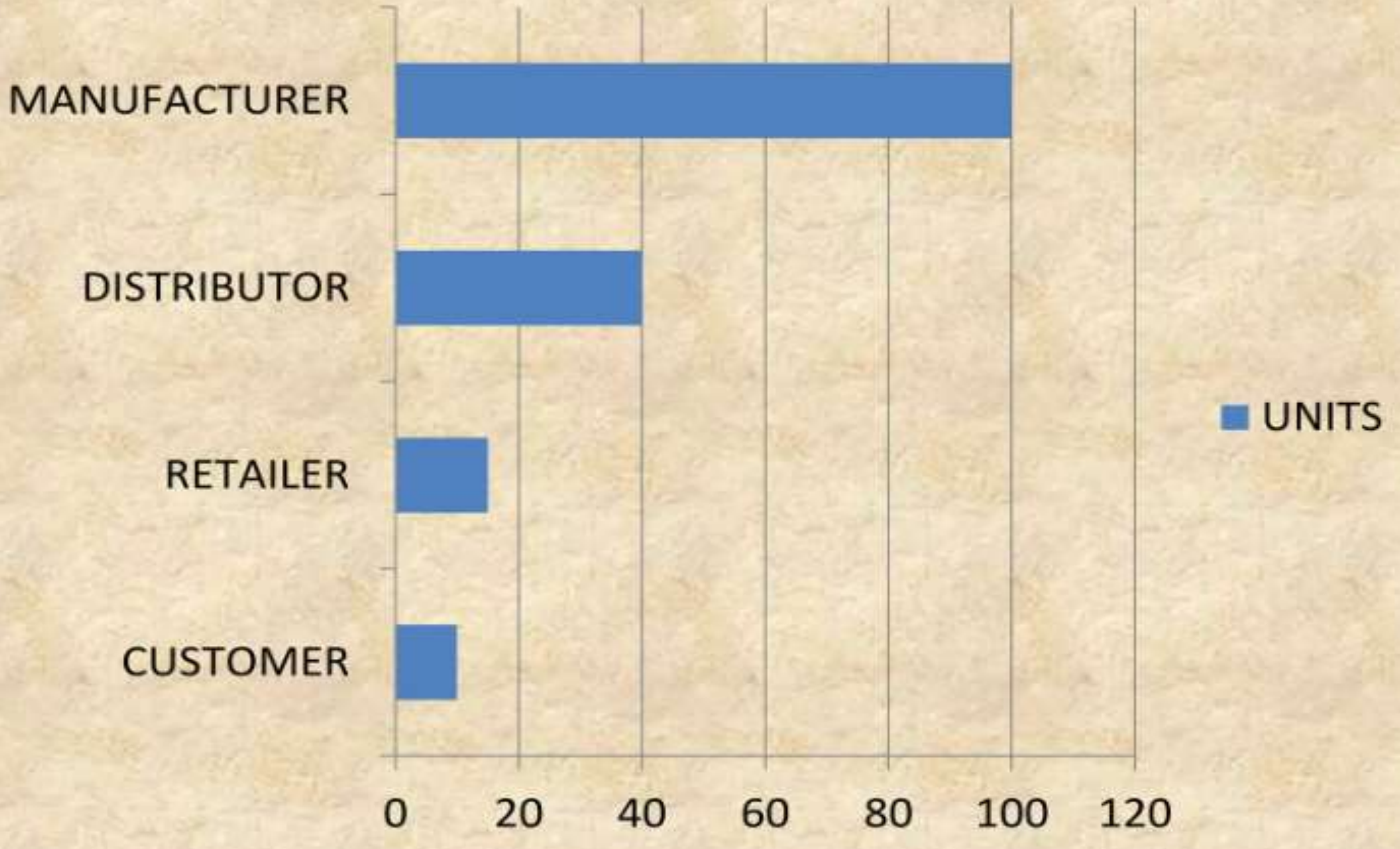
❖*I*ts sales at retail stores were fluctuating, but the variability was not excessive.

❖For the distributors' orders, P&G was surprised by the greater degree of variability.

❖When they looked at P&G's orders of materials to their suppliers, such as 3M, the swings were even greater.

❖While babies consumed diapers at a steady rate, the demand order variability in the supply chain was amplified as we move up the supply chain. P&G called this phenomenon the "bullwhip" effect.

BULLWHIP EFFECT EXAMPLE



BULLWHIP EFFECT EXAMPLE

In the above example, the actual demand for customer is 10 units, the retailer then orders 15 units from the distributor , an extra 5 units in order to ensure they don't run out of stock. Then the supplier orders 40 units from manufacturer so that to buy in bulk to ensure enough stock to provide timely shipment of goods to retailer The manufacturer then receives the order and it orders from their supplier in bulk i.e. 100 units to ensure economy of sale in production to meet demand. Now 100 units have produced to meet demand of 10 units which means the retailer has to increase demand by dropping prices or finding more customers that causes bullwhip effect.

GENERAL TECHNIQUES FOR OVER-COMING THE BULLWHIP EFFECT

Electronic linkages

Information sharing

Better forecasts

Real-time updates

Lower costs of procurement

More frequent deliveries

Use of cheap electronic procurement

Consolidation of loads through 3rd party logistics

Stable prices

Eg, Everyday Low Pricing (EDLP)

CAUSES OF BULLWHIP EFFECT

- Demand Forecasting
- Order Batching
- Price Fluctuations
- Rationing and Shortage Game

CAUSES OF BULLWHIP EFFECT

•**Demand Forecasting:** Forecasts in any organization are often inaccurate and change according to demand patterns. The estimated approximation of demand flows down the supply chain as orders are placed for suppliers. When the gap between forecast and actual situation is large, it results either in product short fall or excess inventory.

•**Order Batching**: Instead of making frequent orders, most companies place orders weekly, monthly or bimonthly. Generally retailers resort to order batching in order to reduce ordering costs, to take advantage of transportation economies.

•**Price Fluctuations**: Most transactions between manufacturers and suppliers are made in a forward buying arrangement because of attractive price offers.

•**Rationing and Shortage Game**: The bullwhip effect is also seen when a manufacturer rations out his product to customers in situations when product demand exceeds supply. When this happens, the manufacture may divide the number of items available among all the customers, as they are unable to meet their full demand. In such situation, customers place inflated orders in the hope of obtaining more of the product. Suppliers will then have no accurate idea about true demand for the product.

BULLWHIP EFFECT IMPACT

•Any irregular customer demand pattern may devastate the supply chain management and the brand image. Likewise, the whiplash effect greatly impacts the various facets of the product and the company's business. Let us look at some impacts of these effects:

•The manufacturer produces excessive stock.

•Shortage of stock occurs due to the effect of irregular demand.

•Disruption of the **supply chain** takes place.

•The storage cost of a warehouse increases.

•Shipment delays may happen.

- Transportation costs increases.
- Products may get spoilt.
- Customers opt for other brands.
- Refunds and cancellation of orders increases.
- Brand image may suffer.
- Revenue loss can also occur due to the above factors.

DOCUMENTATION

Export documentation is commonly considered to be the most complex and difficult part of overseas marketing. Documentation is as much of an important activity as the conclusion of an export order and its fulfillment.

Why is documentation needed in export business?

The answer to this question lies in the nature of the business relations between the exporter and the importer, who are operating from two countries. If one is doing domestic business, one knows or can easily know the commercial practices, which bind the buyer and the seller. Similarly, the possibility of business disputes is reduced since both the buyer and the seller know or can easily know laws governing contracts. However, when the buyer and the seller are operating in two countries, the commercial practices and legal systems are different. Thus, for ensuring that the respective interests of the buyer and the seller are protected, certain documentary formalities become essential.

Similarly, every country has its own laws governing imports and exports. Consequently, the exporter has to comply with laws in his country through documentary formalities. At the same time, he has to send some documents to the importer, which will enable him to take possession of the goods after getting permission from the concerned government department (i.e. the customs authorities).

There is yet another reason for documentation in export trade. Such documentation is linked with the claim of export incentives given by almost all countries world over. Since most of these incentives are to be claimed after shipment, the exporter has to give documentary proof of the fact of shipment. Documentation formalities are necessary to enable the importer to get the contracted goods and the exporter to get sale value as well as to secure export incentives. In other words, export documents are needed to comply with commercial, legal and incentive requirements.

STANDARDIZED DOCUMENT

The standard documents are the

1. **Invoice (Commercial Invoice, Proforma Invoice)**
2. **Packing list**
3. **Certificate of Origin**
4. **Bill of Loading**
5. **Shipping Order Notes**
6. **Mate's Receipt**
7. **Shipping Bill**
8. **Port Trust Document**
9. **Marine Insurance**
10. **Declaration Form**
11. **Marine Insurance Certificate**
12. **Airway Bill**
13. **Post Parcel Receipt**
14. **Bill of Exchange**
15. **Bill of Entry**

Each of these documents can be reproduced from the same master by using the relevant mask. Reproduced signatures on individual documents may in deep present some problem. Until an agreement is reached among all concerned as to their acceptability it would be necessary to mask the signature column also on the master and to sign the individual documents manually. Besides, as all the copies of the reproduced documents, particularly where the spirit duplicator is used, will have the same impression, it will be difficult to distinguish the original from the copies of the document. This is however, not a serious problem and can be solved by a universal understanding that unless 'Copy' is marked, the document will be treated as original. It is no doubt convenient to give the dates on the documents in the numeric way. In doing so, however, the exporter should ensure that such dates would be interpreted abroad in the same way as they interpret them.

SHIPMENT	**TRANSPORT DOCUMENTS**	**APPROVING THAT THE GOODS**
	Bills of Lading	shipped on time, in good condition and delivered to the carrier for transportation as indicated in the letter of credit
	Air Waybill	
	Road Transport Document	
	Rail Transport Documents	
	Cargo Receipt	
INSURANCE	**INSURANCE DOCUMENTS**	**APPROVING THAT THE GOODS**
	Insurance Policy	are insured with an appropriate cargo insurance as per letter of credit terms and insurance premium has been paid by the exporter
	Insurance Certificate	
	Open Cover	
COMMERCIAL CONDITIONS	**COMMERCIAL DOCUMENTS**	**APPROVING THAT THE GOODS**
	Commercial Invoice	are shipped according to commercial terms of the letter of credit such as value of goods, origin of gooods, quality of goods, weight of goods and packing of goods etc.
	Packing List	
	Inspection Certificate	

FUNCTIONS AND TYPES OF TRANSPORT DOCUMENTATION

When items are transported either domestically or internationally the delivery must be accompanied by the relevant documentation. The amount of documentation varies depending if the shipment is in the country or out of the country.

As far as interstate transportation of goods, there are three documents that are of greatest importance; the bill of lading, freight bill, and the Free On Board (FOB) terms of sale

1. BILL OF LADING

The bill of lading is the most important document that is used in transporting goods. The legal definition of a bill of lading is a contract for the carriage of goods and a document of title to them. It provides any and all information that the carrier will need to transport the items.

It contains the shipment origin and the contract terms for the transportation and is required by a carrier before the shipment is taken.

The bill of lading should include the name and address of the consignor and consignee, and often it will have the routing instructions for the carrier. It will contain a description of the goods to be transported, the quantity for each of the commodities, and the commodity class and rate

Master Bill Page 2

SHIPPING LINE

BILL OF LADING FOR OCEAN TRANSPORT OR MULTIMODAL TRANSPORT

SCAC SLINE

B/L No. 865058542

Bill of Lading

Shipper	Booking No.
SAFRES Lines 123, NVOCC Lane Dubai, UAE	865058542
	Export references / Svc Contract SAFRES-001
	Onward inland routing (Not part of Carriage as defined in clause 1. For account and risk of Merchant)

Consignee (negotiable only if consigned "to order", "to order of" a named Person or "to order of bearer")	Notify Party (see clause 22)
Agent of SAFRES Line Local Borough, New York, USA	Same as Consignee

Vessel (see clause 1 + 19)	Voyage No.	Place of Receipt. Applicable only when document used as Multimodal Transport B/L. (see clause 1)
Maersk Discovery	001	
Port of Loading	**Port of Discharge**	**Place of Delivery. Applicable only when document used as Multimodal Transport B/L. (see clause 1)**
Jebel Ali, UAE	New York, USA	

PARTICULARS FURNISHED BY SHIPPER

Kind of Packages; Description of goods; Marks and Numbers; Container No./Seal No.		Weight	Measurement
1x20' GP Container STC 20 bags of Horse Manure	SAFU123456-7/7654	20 Tons	20 CBM

THE BILL OF LADING CONTRACT HAS NINE TERMS;

1. **Common Carrier Liability** – the carrier is liable for loss and damage of the goods being transported, except if the goods were improperly packed by the shipper or if the goods themselves would be liable to a normal loss like through evaporation. The carrier is not liable for acts of God, public enemy or public authority.
2. **Delay in Transit** – the carrier cannot be held liable if the loss or damage is due to a delay in the transportation of the goods.
3. **Freight Not Accepted** – if the goods are not accepted within the time allocated, the carrier can store the goods at a cost to the owner.

4. Extraordinary Value – the carrier is not liable and does not have to carry items of extraordinary value that are not on the rated in the published classifications or tariffs unless a special agreement with the shipper has been negotiated.

5. Explosives – the carrier has to be given full written disclosure when they are shipping dangerous material, otherwise they are not liable for any losses.

6. Recourse – the carrier cannot make additional charges to the shipper after making a delivery.

7. Substitute Bill of Lading – if the bill of lading is a substitute or exchange for another bill of lading then the current bill of lading has to include all the clauses from previous documents.

8. Alterations – the carrier must note any changes or additions to ensure that they can be enforceable.

9. Claims – this clause specifies the details on how to file a claim against the shipper and the time period after delivery in which the claim will be accepted

2. FREIGHT BILL

- **The freight bill is the carriers invoice to the shipper for all the charges that the carrier has incurred. The carrier's freight bill will include the details of the shipment, the items being shipped, the consignee, the origin, and destination, as well as total weight and total charges.**
- **Some carriers can ask for prepayment from the shipper if the value of the items being shipped is less than the total expected freight charges. If the charges are not prepaid then the carrier can present a freight bill on collect. This implies that the carrier will present the freight bill on the day of delivery**

3. FOB (FREE ON BOARD)

- FOB Terms of Sale Free on Board (FOB) terms of sales documents which party will be liable for the transportation costs, which party is in control of the movement of the goods, and when the title passes to the buyer.
- If the FOB terms of sale indicate that it is FOB Delivered then this implies that the shipper will be responsible for all of the carrier's costs.
- If the terms of sale show FOB Origin, then this means that the buyer will take the title for the goods when they are shipped and they will incur all the transportation costs