Market Logistics Decisions

So far we have discussed about the structure and mechanism of channel network. Now we need to understand how actually the products reach from the manufacturer's factory to end-users. The process of delivering products to the marketing channels and customers is called physical distribution that starts with factory and ends with final customer. The well-designed physical distribution helps the manufacturers to supply their products on a timely basis and in a proper condition to the end users. The process of designing, implementing and monitoring physical distribution is called Market Logistics. This is somewhat larger in scope compared to physical distribution. Market logistics involves planning, implementing and controlling the physical flows of materials and final goods form points of origin to points of use to meet customer requirements at a profit.

The major market logistics decisions are:

- Establishing some promise to the market
- Considering competitors' standards
- Research of relative importance of various service outputs

Given the market logistics objectives, the company must design a system that will minimise the cost of achieving these objectives. Physical distribution managers attempt to reduce costs in all areas including transportation, order processing and warehousing. However reducing costs in one area may increase costs in another area, For instance, it is sometimes less expensive to lease warehouse facilities than to own them. However, leasing could increase the cost of transportation because products would in that case have to be transported form one factory to the leased warehouse instead of an on-site warehouse. Hence companies must make cost trade-offs in order to provide a specific level of service at the lowest possible cost. Many manufacturers develop partnership or alliances with organisations that specialise in some physical distribution activity

such as transportation or warehousing that can significantly improve the quality of consumer service and reduce cost as each organisation is concentrating on core competency.

By using a total cost approach, affirm views the physical distribution system as a whole and not as a series of unrelated activities. The firm tries to reduce the total distribution cost through an integrated approach to physical distribution. Each possible market logistics system will lead to the following cost:

$$M = T+FW+VW+S$$

Where,

M= Total market-logistics cost of proposed system

T= Total freight-cost of proposed system

FW= Total fixed warehouse cost of proposed system

VW=Total variable warehouse costs including inventory of proposed system

S=Total cost of lost sales due to average delivery delay under proposed system

Choosing a market-logistics system requires examining M associated with different proposed systems and selecting the system that minimises it, but meets its customer service objectives.

The market logistics decisions include:

1. Developing Customer Service Standards:

In accordance with the marketing concept, the design of a physical distribution system should have following steps:

- Articulating distribution objectives and specifying the minimum service level desired in product delivery
- Finding out what the customer wants in product delivery
- Finding out what competitors do

- Keeping the cost of the system as low as possible, without disturbing the guaranteed minimum service level
- Keeping the system sufficiently flexible

In order to do these, an organisation must develop a set of service specifications each of which is called customer service standard that identifies a specific and measurable goal appropriate to physical distribution. An example is Domino Pizza's standard of delivery within 30 minutes. These standards influence other physical distribution activities such as transportation and warehousing. Customer service standards should be communicated to both customers and employees and enforced by the management. Service standards are critical in attracting and maintaining satisfied customers and should therefore be tailored to customers' needs.

Customers may require many different services before, during and after an exchange.

- Before an exchange, a company needs to establish a good climate for service by offering fair prices and high-quality products. Additionally, a written statement that outlines the firm's service policy should be provided to customers.
- During the transaction of exchanges, the customers may desire reliable deliveries, sizable inventories, efficient order processing and availability of emergency shipments.
- After the transaction, the critical elements of customer service include installation, repairing, warranties, answering customer complaints and product packaging.

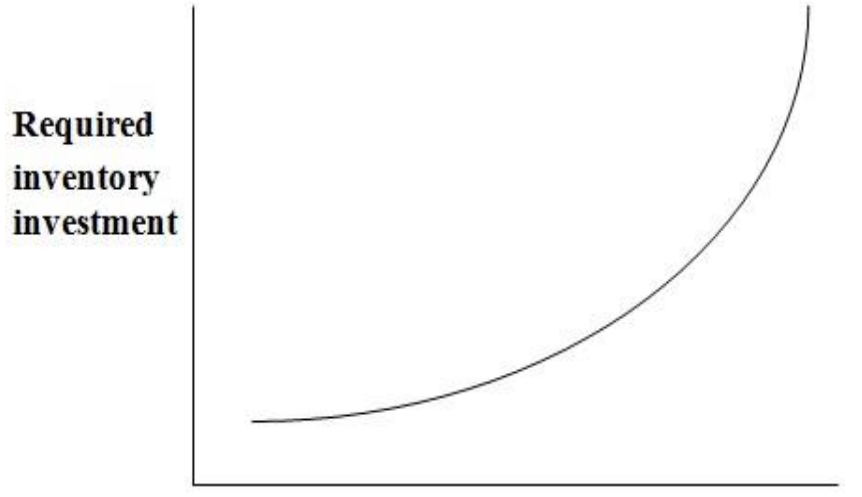
Christopher defined customer service as a system organised to provide a continuing link between the time when the order is placed and when the goods are received with the object of satisfying customer needs on a long-term basis. Since this definition omits pre-sales service, a broader perspective is offered by Blenel and Blender, who suggested 3 distribution missions:

- The first mission of service is to protect the company's customer base
- The second mission is to enhance the product's saleability
- The third mission from a marketing perspective is to generate profit

La Londe and Zinszer suggested a number of common elements of customer service from a logistics viewpoint:

- Speed of response i.e. time taken to deliver from receipt of order
- Consistency and reliability of delivery
- Stock availability
- Order size constraints
- Convenience of ordering system i.e. the degree of customer friendliness
- Flexibility of delivery times
- Invoicing procedures and reliability
- Claims and complaints procedures
- Order status information system
- Condition of goods on delivery
- Service and support

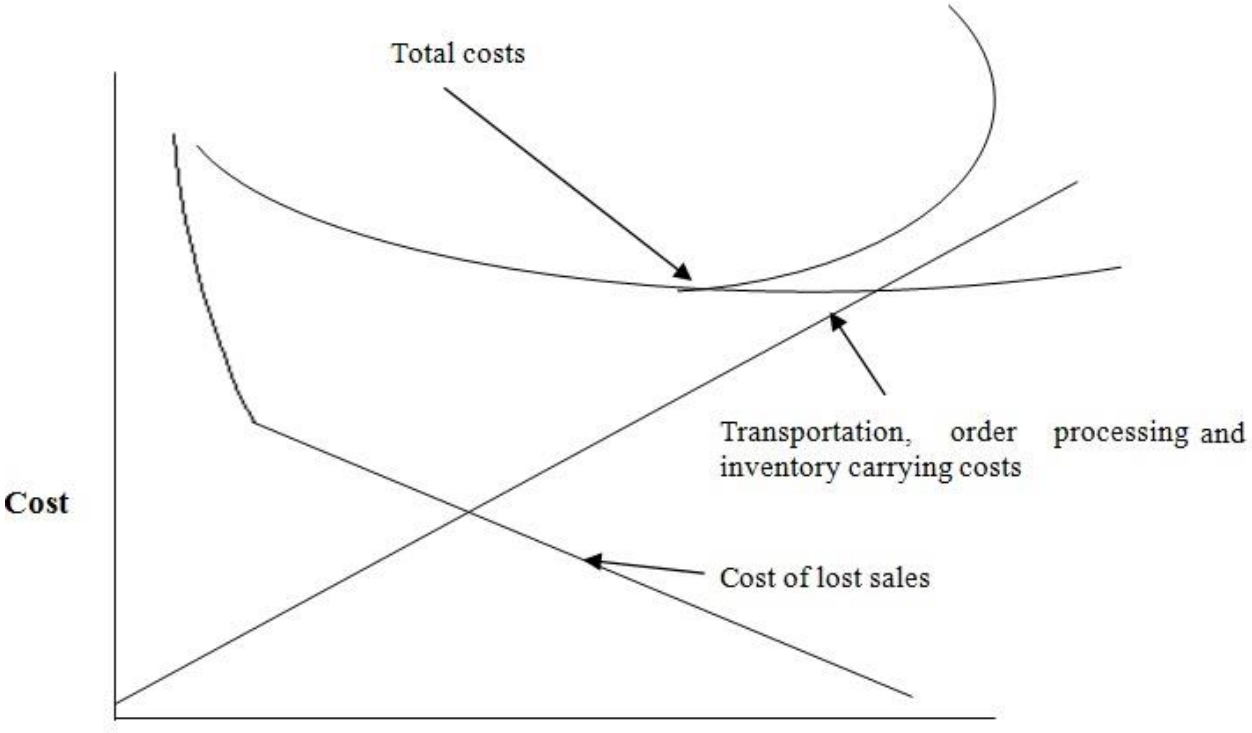
If we plot the required inventory investment needed to achieve different levels of service, it would look like below.



Source:
Wilson and Gilligan,
Strategic Marketing Management, pp.506

Required inventory investment

If the perspective is broadened to include the costs of quicker transpiration and faster order processing as well as inventory carrying costs, these will be seen to increase as the level of customer service increases. The loss of profit due to lost sales whether due to stock-outs, slow transportation, inefficient order processing reduces as the level of customer service increases. The total cost curve will thus be derived to identify the optimal level of customer service to offer i.e. at the lowest point of the total cost curve.



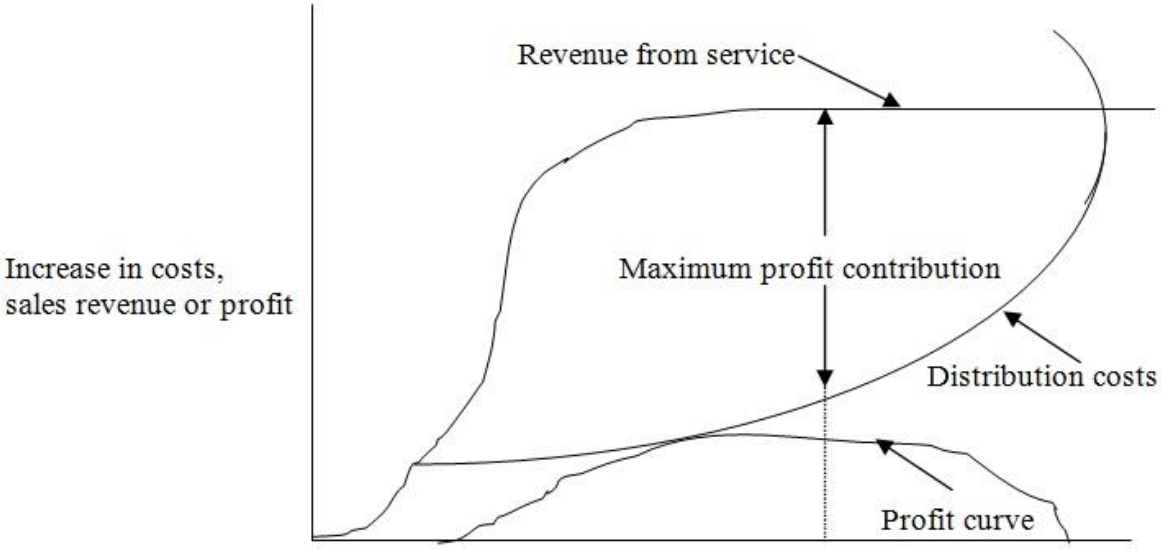
Source: Wilson and Gilligan, Strategic Marketing Management, pp.506

This approach is helpful to point, but it risks being introspective in linking service level purely to costs rather than to customers' requirements. Doyle gave the following steps of distribution planning.

1. Identify the dimensions of service that customers value
2. Weight the service dimensions by their relative importance

3. Obtain customers' evaluations of the enterprise and its competitors along the dimension specified in step 2
4. Estimate the effect on revenue of changes in the level of service
5. Estimate the costs of providing different service levels

If one pursues this approach, it is possible to compile the following graph.



Source: Wilson and Gilligan, Strategic Marketing Management, pp.507

2. Transportation:

Transportation confers 'time utility' and 'place utility' to the product. It determines the company's customer service and has also crucial bearing on the other elements of physical distribution and marketing. This answers the following questions:

- "How much should goods be shipped?"
- "When should goods be shipped?"
- "Where should goods be shipped?"
- "By what mode or combinations of modes, should goods be shipped?"

To take the above decisions, one needs to assess the following factors:

- The lead time for stock replenishment
- Sales expected in the territory in a particular span of time
- The normal cycle of inventory build-up at the warehouse or dealer points.

These choices will affect product-pricing, on-time delivery performance and the condition of the goods when they arrive, all of which affects customer satisfaction. The major tasks in transportation involve the following:

- Assessment of the transportation requirements
- Choosing the mix of transport modes
- Deciding the routing
- Development of operational plans
- Implementation of plans
- Control of transportation costs

Assessment of the Transportation Requirement

In the first place, a transport manager makes an assessment of the transportation requirements based on the sales forecast, sales plan and schedules. He also watches the actual sales performance vis-à-vis the forecast and updates the transportation.

Mix of Transport Modes

Depending on the product, the market and the cost factors, firms select the transport mode, or the combination/'mix' of modes. The name of the game is optimization. A number of considerations, as listed below, are involved in the determination of the optimal mix of modes:

- How do the different modes compare in 'speed' and 'costs'?
- What is the extent of 'user orientation' of the modes?
- What is the 'availability' of the modes? Is it adequate? Is it timely?

Deciding the routing

Routing has two dimensions:

- Systematic assignment of territories to each production/ supplies point
- The actual sequence in which a delivery vehicle should move and service the retail points

When a firm has more than one production location or supply point, it should clearly demarcate the marketing territory to be serviced by each location. Similarly, for each warehouse/stock point too, it should demarcate the territory. Transportation effectiveness depends very much on systematic assigning of territories to each source. When there is a strong need for drawing supplies from a source other than the designated one, it can be done, but only on the basis of strong justification.

Secondly, equal care should be taken in deciding the actual sequence a delivery vehicle should take in supplying stocks to the various retail points that come under its service territory. Intelligent routing, covering both the above aspects, is an integral part of effective transportation. Optimisation of transport lead, reduction of transport times and optimizations of costs are the objectives in effective routing.

Checklist for choosing transportation modes

1. Speed
2. Dependability
3. Capability
4. Availability
5. Cost

Developing Operational Plans

The transport manager must work out detailed operational plans from the overall transportation plan. Detailed plans/schedules must be developed for each product and each supply point/warehouse, month-by-month and week-by-week. The plans must indicate the made/combinations of modes. They must also be properly detailed with the warehouse plans. Once the plan in all its details is ready, the task becomes one of creating the required transportation capacity and securing the required linkage between transportation schedules and warehouse space procurement.

Implementation of Plans

The transportation job does not end with the preparation of plans, the determination of optimal modal mix, development of operational plans and putting in place the required service contracts. In fact, it begins there. The smooth movement of the product and efficient execution of the whole plan, with minimum deviation, is the real task. Many practical problems may crop up in the process. Sometimes, transport capabilities do not become available for executing the plan. Often, the rates overshoot the budgeted figures. Due to seasonal factors and pulls from competing products, which can afford to pay a higher rate, securing effective transport capacity becomes difficult. Factors like climate, road condition, labour situation, octroi rules and problems of interstate movement all affect the availability.

Controlling Transportation Costs

As mentioned earlier, transport cost is a major element of distribution costs in most businesses, and it has been increasing constantly in recent years. As such, it is essential that the transportation costs are controlled tightly. Also, this has to be done without sacrificing the minimum guaranteed distribution service level to the channel and consumers. Saving in transportation can be realised by: (a) optimising the mix of the transport modes, (b) reducing the transport lead and the lead-time through effective routing and other means, and (c) eliminating multiple and wasteful transfer, and handling of products. The transport controller has to have an overall appreciation of the whole range of physical distribution activities and the costs thereof. He cannot remain confined to the

narrow role of freight rate negotiator, or a transport liaison man. He has to view transport as a total back-up capability, supporting the marketing function and a source of competitive advantage for the firm in the marketplace.

In shipping goods to its warehouses, dealers and customers, the company can choose among 5 transportation modes viz. rail, air, truck, waterway and pipeline. Considering various criteria such as speed (to minimise transit time-the total time a carrier possesses goods), frequency, dependability, consistency of service, possibility of loss and damage, capability (the ability to move specific kinds of products), accessibility (the ability to move goods over a specific route), availability, traceability and cost, the company can choose the transport mode. There are some general rules of using various transportation modes.

- Railways*:* These are used to carry relatively low value, bulky items (like coal, sand, lumber, grain and steel) in large quantity for long distances. Railways serve a fairly large number of locations at a reasonable cost and delivery speed is generally adequate for the type of products that are transported
- Airways: This quickest and most expensive transportation mode is used especially for perishable products, overnight packages and emergency items.
- Trucking or motor vehicles: These are the most flexible transportation modes as they can go nearly anywhere at any time and are fast and dependable. They are generally used to transport smaller shipment of products like clothing, paper goods, livestock and food over relatively shorter distances. The major drawbacks to this transportation mode are that they are high in cost, low in fuel efficiency and vulnerable to losses and damages. Because of their flexibility, trucks are often used along with some other transportation modes like railways or waterways.
- Inland Waterways: These are the cheapest transportation modes that are used to transport low-value, bulky products like coal and grain in large volumes. They are fuel-efficient and involve low losses and damages. But the major drawbacks of waterways are that they are slow, less dependable and limited in the number of locations served. They often need to be supplemented with motor or rail transportation.

- Pipelines: These are specialised carriers most commonly used to transport petroleum products and chemicals. Pipelines are generally owned by the firm(s) shipping the products. The advantages are that they offer uninterrupted movement at a relatively low cost, dependable, fuel-efficient, and involve low losses and damages.

  For achieving efficiency, two or more transportation modes are combined with the help of containerisation that consists of putting the goods in boxes or trailers that are easy to transfer between two transportation modes. Various names are given for different combination of transportation modes.

  1. Piggyback: Use of rail and trucks
  2. Fishyback: Use of water and trucks
  3. Trainship: Use of rail and water
  4. Airtruck: Use of air and trucks

In deciding on transportation modes, shippers can choose various options.

Private carrier: In this case, the shippers own the trucks or air fleet.

Contract carrier: This is an independent organisation that sells transportation services to others on a contract basis.

Common carrier: This provides services between predetermined points on a scheduled basis and is available to all the shippers at standard rates.

3. Warehousing:

This answers the question "where should the stocks be located?" This becomes imperative as production and consumption cycles rarely match. The storage function helps to smooth discrepancies between production and quantities desired by the market. The decision must be taken judiciously on choosing the number of stocking locations. More stocking locations means quick delivery of goods to customers but at the expense of higher warehousing costs. Warehousing is the

major component of physical distribution. Warehousing comprises of two distinct and equally important parts:

- The physical job of creating and running the network of storage points
- The managerial task of controlling the inventory levels without sacrificing service levels

Warehousing is the first link in the physical distribution system. The functions of warehousing are:

- Receiving the goods
- Order taking
- Despatch
- Arranging for placement of products
- Providing storage facilities to store them
- Dividing them into smaller quantities and building up an assortment of products.

The two basic warehousing facilities available to channel members are *private and public facilities.*

- ***Private warehouses*** offer ample flexibility to meet special storage and handling needs, greater control over warehouse facility and its operations, more effective feedback, and lower cost per unit since it does not have to recover advertising and selling costs.
- ***Public warehouse*** facilities require no fixed investment by the firm, offer location flexibility and the ability to increase warehouse space to cover peak requirements, and can offer lower cost under certain circumstances as when it is necessary to store seasonal inventories.

Whether a channel member chooses to use a private or public warehousing operations in the physical distribution system, the questions of how many warehouses to establish and where they should be located must be answered. The determination of the number and location of warehouses is directly dependent on the customer service level set by the firm and the purpose the warehouses

are intended to serve. Considering all variables like location of consumer market, location of manufacturing plant etc., warehouses must be positioned so that they provide the desired level of service at the least distribution cost.

In case of designing a warehousing system one needs to consider the following questions:

- How many warehouses should we have?
- Where should we locate them?
- What should be the capacity or size of each of them?

When designing a warehouse a manager ought to keep in mind five elements that are interdependent and comprise:

- Land and building
- Management and staff
- Operating methods and procedures
- Equipment
- Computer and its software.

The factors affecting warehousing choices are:

- Product Type
- Transportation cost
- Markets
- Rent
- Labour Supply
- Taxes
- Geography

Salesmen and channels always plead for greater convenience in delivery and consequently more warehouses. But, maintaining a large network of warehouses is a costly proposition. Thus, there is an inherent tussle between cost and service in warehousing decisions. Attention is required to be paid to achieve cost-effective results through the efficient utilisation of space, labour (work study to be applied to goods received, stacking, materials handling, order assembly, outward loading, stock control activities) and equipment.

Warehousing to be tackled as part of the physical distribution system

While designing a warehousing system, the fact that warehousing is a part of the overall distribution job should be borne in mind. The warehousing design should fit smoothly into the overall distribution design, which includes physical distribution elements like transportation plus channel arrangements.

Warehousing, a partly fixed and partly adjustable entity

In most cases, it may be apt to view demand in a given territory as consisting of a constant component and a transient component, which is to be added to or subtracted from (mostly added to) the constant component. Past sale corresponds to the constant component. Changes occurring in demand in the current period correspond to the transient component. The transient component is related to change in market demand per se, or company demand (a company may lose or gain relative market share). Thus, in the nature of things, warehousing will have a constant component plus a variable component. And, there is some scope for adjustment in warehousing of products, depending on market behaviour/company's performance.

Warehousing job can be taken care of in different ways

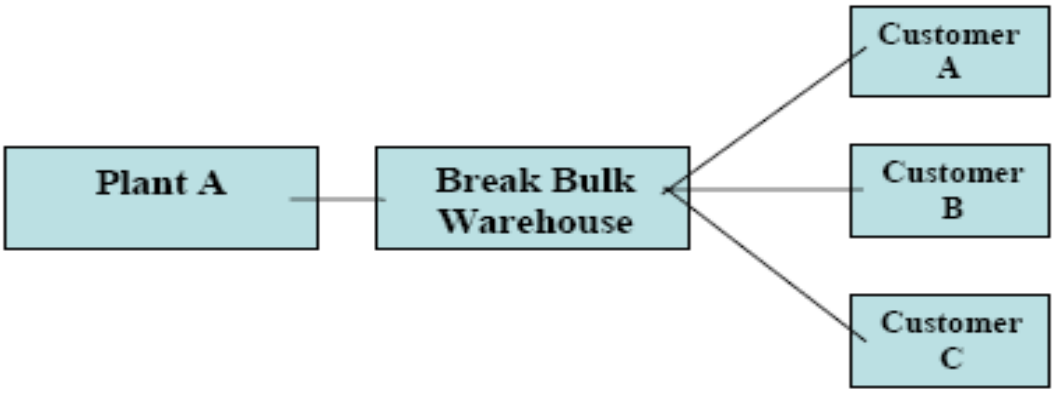
As regards the actual organising of the warehousing system, different alternatives can be considered by the firm.

- Hire warehousing service from public warehousing agencies
- Own the godowns and manage warehousing through company staff

- Entrust warehousing to C&F agents/stockists/distributors
- A combination of the above

Each alternative has its associated merits and drawbacks. Decisions have to be basically situation specific. FMCG (Fast Moving Consumer Goods) firms usually transfer a large part of the warehousing task to their C&F agents.

Break Bulk operation



Determining the number, location and size of warehouses

Determining the locations and capacities of the warehouses is the crux of the task since it influences the factors like firm's customer service level, its competitive advantage in distribution and its inventory cost structure. While one might point out that it is the inventory turnaround that primarily determines inventory costs, the fact remains that the costs are also influenced by the locations and spread of the inventories at how many places and in what sizes are stocks kept. Moreover, inventory turnaround itself is partly the outcome of the manner in which the inventory is spread.

Determining the number: The optimum number of warehouses will depend upon the nature of the product, the size and the geographical spread of the market to be serviced by each warehouse, the current and potential sales in the territory, the extent of seasonality of demand if applicable, the level of peak demand, the trade patterns, the number of distributors/retail outlets to be serviced by each warehouse, the acceptable order-execution time, the possible speed of replenishment of

stocks and the cost involved in operating warehouses. Future requirements and pattern of competition are also relevant factors in deciding the number and sizes of the warehouses.

Choosing the size: The decision on the size of the warehouses must be taken in alignment with the decision on their total number. After a firm assesses the sales potential in each warehouse territory, the question to be decided is: What is the optimum inventory holding needed for realising the sales projected for the territory?

Warehouse size and costs are inversely interrelated. So, as a general rule, small-sized warehouses are uneconomic compared to larger ones. At the same time, if the sales projected are small, warehouse size has to be small. Customer convenience and channel service will call for a large number of small-sized warehouses spread extensively all over the marketing territory. There will also be the additional consideration of future requirement. As a general rule it can be said that by reckoning the volume of sales and the desired market share in the area covered by the warehouse, and by applying the factors of transit time and peak season demand, the optimum warehouse capacity at a given location can be worked out.

Choosing the exact locations: Choosing the exact locations of the warehouses is as important as choosing their number and capacity. The locations must be suitable in terms of market factors and availability of transport facility. Rent rates, commercial suitability of the location, implications of local levies, etc., have also to be looked into. Above all, availability of suitable godown space has to be considered.

Improving Warehousing Effectiveness

Warehousing effectiveness can be improved by adopting scientific methods and by taking the support of IT. In the larger context, however, warehousing effectiveness depends squarely on right policies of physical distribution.

Scientific warehouse layout in itself facilitates warehousing effectiveness. The layout/design must be suitable for the product(s) concerned and the nature of storage and in-out operations. Warehousing effectiveness also improves when the handling and movement of items within the warehouse is minimized. This applies especially to large warehouses and products involving extensive storage, receiving and issue operations. Every time an item is moved within the

warehouse, it means an opportunity for damage to the item; and each lifting of the item fatigues the package.

Systematic stocking of items is another factor. If the items of high demand, with high frequency of in-out operations, are kept in the front and the relatively slower moving items in the rear, it will facilitate smooth operations and also help reduce the overall costs of warehousing. It is such matters of detail that make the real difference between poor and good warehousing.

Types of warehouses are:

- General Warehouse: Handles a variety of goods.
- Specific Warehouse: Handles a limited line of goods.
- Bonded Warehouse: Regulated by government laws insured against loss.
- Bulk Storage warehouse: Handles liquid goods such as petroleum, gas, and oil.
- Refrigerated Warehouse: Handles goods that must be kept in cool or frozen.
- Field Warehouse: This can be in owner's plant, which can be placed under lock, and key and buyer is denied access without receipt.

The importance of warehousing is described below:

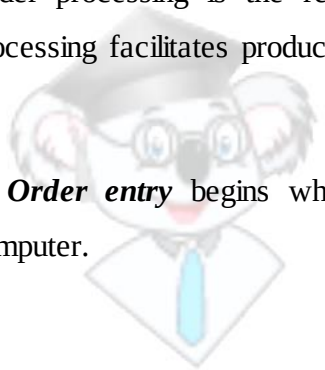
- Warehousing vests the product with time utility and place utility
- In some category of product warehousing vest with the form utility
- For products with high seasonality, storage is needed on a larger scale
- Storage reduces the need for instant transportation that is often difficult and costly
- Warehousing provides a competitive advantage, as with better storage, better servicing of the channel and consumer is possible
- It also helps in balancing demand and supply and in stabilising prices
- In some cases, storage acts as a stimulant of demand

4. Order processing management

This answers the question "how the orders should be handled?" This involves shortening order-to-remittance cycle i.e. the time elapsed between an order's receipt, delivery and payment. This cycle involves many steps such as order transmission by the salesperson. Order entry and customer credit check, inventory and production scheduling, order and invoice shipment and receipt of payment. The longer the cycle takes, the lower the customer satisfaction and hence the lower the company's profits.

The distribution process is activated by a customer order. The order cycle includes the time spent in processing the order as well as the time taken by the physical motion and therefore depends on the speed and efficiency of operations. Electronic systems are now available to reduce the time needed for the flow of information and communications.

Order processing is the receipt and transmission of sales order information. Efficient order processing facilitates product flow. There are three main tasks in order processing.



1. Order entry begins when customers or salespersons place orders by mail, telephone, or computer.

2. Order handling involves several tasks.

a. Transmission of orders to the warehouse

b. Verification of product availability

c. Checking of prices, terms, and customers' credit ratings

d. Instructions to the warehouse to fill the order

3. Order delivery involves following tasks.

a. The warehouse schedules pickup with an appropriate carrier.

b. Premium transportation is used if the customer is willing to pay for rush service.

c. The customer is billed; inventory records are adjusted; and the order is delivered.

Methods of order processing

1. Manual order processing suffices for a small volume of orders and is more flexible in special situations.

2. Electronic data interchange (EDI) integrates order processing with production, inventory, accounting, and transportation. EDI is an information system for the supply chain. Many companies are pushing their suppliers toward EDI to reduce distribution costs and cycle times. The Internet is another opportunity for EDI systems.

Staying ahead in the business by keeping your customers satisfied requires an effective order management system in place. Nothing pleases a customer more than receiving his order in the right condition and at the right time. However, it is quite difficult to manage the complexities involved. This calls for a redesign of existing systems to enable a better execution of the order management function. A customer oriented order management system calls for a fair understanding of customer requirements and an ability to deliver the promised goods. It should also provide customers with information about the status of their goods throughout the cycle. Process enablers and technology enablers that complement each other ably support an effective order management system. The process enablers support the order management system in the following ways:

- Executable orders: Manufacturers access real-time data viz. order requirements, manufacturing capabilities, transportation constraints, inventory positions and the like, to accept only those orders that can be fulfilled in time.
- Order fulfilment: The orders must be checked for correct specifications and processed in time to ensure a speedy delivery. This is made easy with order configuration tools and systems that understand the inherent constraints.
- Achieving economies: Costs need to be kept under control to ensure economies of scale. By order aggregation, you pile up similar requirements before production, whereas lean manufacturing helps cut costs by improving production process.

- Forecasting: You need to determine the supply and demand conditions to keep a record of the inventory levels to offer better service to your customers. With better forecasting techniques and lead-time management, you can avoid costly forecasting errors.

Technology enablers support order management by providing access to real time information across the supply chain with the help of analytical tools and integrated order placement and execution processes.

5. Inventory

This is the answer of the question "how much stock should be held?" Inventory cost increases at an increasing rate as the customer service level approaches 100%. Management would need to know by how much sales and profits would increase as a result of carrying larger inventories and promising faster order fulfilment times, then make a decision. Order or reorder point is the stock level when order should be placed. The management has to balance order-processing costs and inventory carrying costs. Order-processing costs for a manufacturer consist of setup costs and running costs) operating costs when production is running. If setup costs are low, the manufacturer can produce the item often and the average cost per item is stable and equal to the running costs. If setup costs are high, the manufacturer can reduce the average cost per unit by producing a long run and carrying more inventory.

The costs that can be associated with inventories that are too large are:

- Loss of return on the capital tied up in excess stocks
- Risks from obsolescence
- Storage costs
- Handling costs
- Clerical costs
- Insurance premiums

If the inventories are too low, production may be disrupted by short runs for urgently required items, and sales may be lost due to the lack of availability of goods when they are required. The costs that stem from low inventories include:

- The profit element in foregone sales
- Foregone purchase discounts
- Loss of customer goodwill
- Increased unit costs of purchasing and transportation
- Extra costs of uneconomic production runs

In formulating an inventory policy for finished goods, management must take into account the following points:

- Perishability of goods
- Demand pattern
- Length of product/order cycle
- Storage facilities including capacity
- Carrying costs
- Capital requirements
- Risks due to possible shortages/ price increases/ price reductions/ technological obsolescence/ change in tastes/ theft

Inventory management (stockholding)

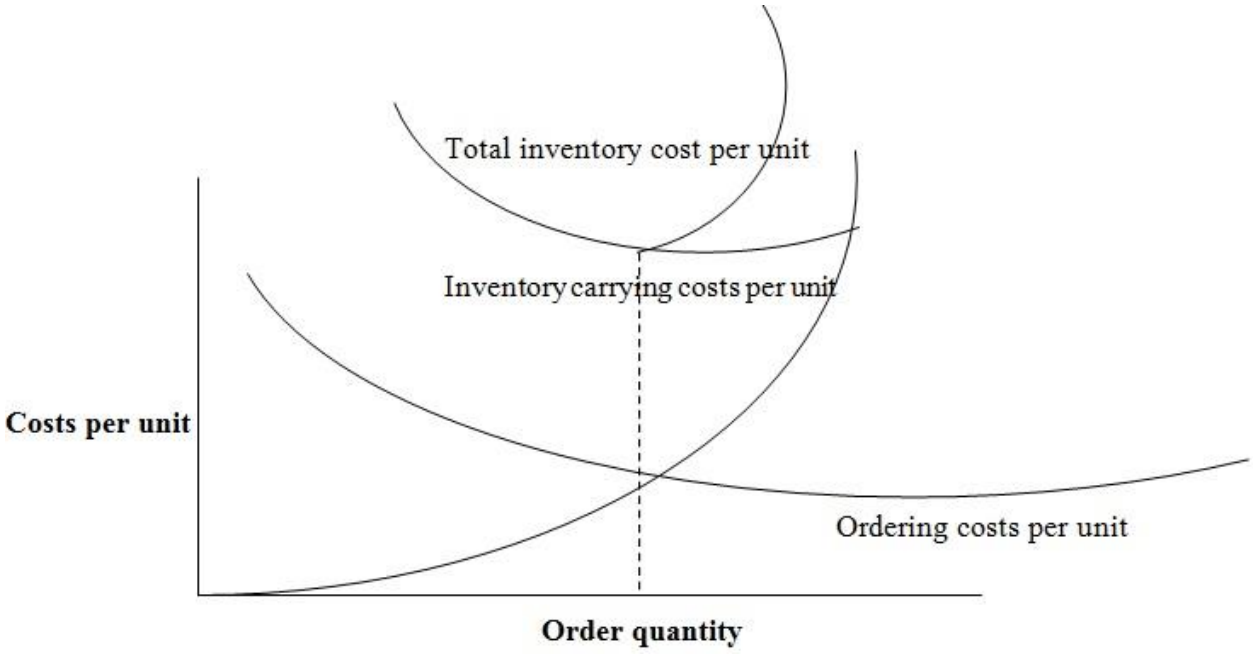
Inventory gives cover against what may happen tomorrow and is kept to increase profitability with the support of manufacturing and marketing. Manufacturing support comes through two types of inventory; that of the materials for production and that of spare and repair parts for maintaining

production equipment. Marketing support is provided through an inventory of the finished products and of spare and repair parts which support the products. Stocks are accumulated because supply and demand cannot be perfectly co-ordinated and because of the uncertainty of future demand and reliability of service. They ensure that raw materials, spare parts and finished goods are available when needed.

Inventories are kept because they act as a 'hedge' against such events as unexpected demand or machinery failure. They can assist production, transportation and purchasing economies. They also act as a 'hedge' against inflation, price or exchange rate fluctuations. In addition, inventories can enhance customer service levels by providing greater stock availability. .

Different types of cost need to be balanced when planning inventories, weighing the cost of holding stock and procurement against the cost of running out of stock which could result in stopping production and loss of business and goodwill Larger inventories reduce the possibility of this happening, but it means that more money is tied up in working capital. However, if quantity discounts are offered for large orders, then fewer orders being placed will reduce purchasing administrative costs.

The concept of economic order quantity (EOQ) assumes that total inventory costs are minimised at some definable purchase quantity. This method assumes that inventory costs are a function of the number of orders processed per unit of time and the costs of maintaining an inventory over and above the cost of items included in the inventory (e.g. warehousing). It takes no account of transportation costs (which may greatly increase for smaller shipments) or the effects of quantity discounts. These factors limit the usefulness of the EOQ concept in inventory management, but increasing use of business computing has allowed the operation of more sophisticated versions. Such models are beyond the limits of this discussion, but in order to give a general understanding of the principles there follows an example of the traditional EOQ method. The inventory cost is shown below.



EOQ can be calculated using the following formula:

EOQ = 2*A*S / I

Where:

A= annual usage (units)

S = ordering costs

I = inventory carrying cost as a percentage of inventory value

Example:

Annual usage = 2,000 units

Ordering costs = Rs.10/-

Inventory carrying cost = 15% (= 0.15)

Unit cost = Rs.1.50

EOQ = (2* 2000*1.50*10) / 0.15

= 60,000 / 0.15

= 9,000

The EOQ concept and its variations basically seek to define the most economical lot size, when considering the placement of an order. The order point method can be used to determine the ideal timing for placing an order. The relatively simple calculation uses the following equation:

OP = DL + SS

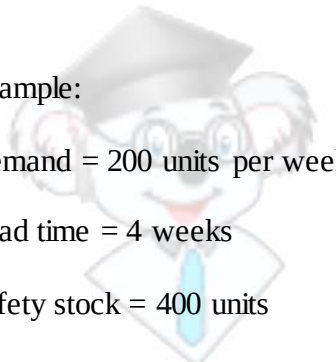
Where:

OP = Order point

D = Demand

L = Lead time

SS = Safety stock



Example:

Demand = 200 units per week

Lead time = 4 weeks

Safety stock = 400 units

OP = (200*4) + 400 = 800 + 400 = 1200 units

The causes of Inventory mismanagement

Some common causes of Inventory mismanagement are:

Forecast errors**:** Companies estimate demand for their product. This estimation decides the production cycle and therefore also the inventory. The inventory of raw materials and finished goods is maintained with the estimated demand in mind. Any errors in forecasting or changes in market environment which change the forecasting variables, can lead to inventory pile-up. Managers should therefore reduce the forecast variance by reducing the forecast time frame. However, they should take care that the time-horizon of the forecast takes into account the production lead-time.

Logistic constraints**:** The management policies and strategies will drive the logistics system and this in turn will direct the inventory management. Constraints in the logistics system like unreliable material supply; inadequate capacities and resource allocation may require the company to hold high levels of inventory. One important aspect to consider is the 'domino effect' that any potential change in logistic strategy can have on inventory management. For instance, a decision to close down a warehouse may mean that other warehouses in the region will have to carry more inventories. Any changes in the logistics strategy should also account for the effect on the inventory management.

Workflow barriers**:** Work-in-progress (WIP) cycle time means the time required for the WIP to become finished work. If at any stage of the manufacturing process the WIP cycle time is high, it will mean that inventory should be held at higher-than-standard levels. Inventory requirements will be higher if the activity time for activities like handling, expediting, inspection and rework are high. If the process time is compressed, the firm will be more market-responsive and therefore can hold reduced inventory levels.

Value of inventory**:** Traditionally, inventory is valued on the basis of costs of acquisition and / or on the significance of the material in the production process. Analysts argue that such methods will not provide the actual picture. They suggest an alternative method, where the value of inventory is measured based on the value-addition it ultimately delivers to the consumer.

Limitations of traditional inventory management

Limitations of traditional inventory management practices include**:**

- Deficient definitions**:** Any channel strategy has to revolve around the ultimate objective of satisfying a customer. The issue that arises here is inadequacy in defining the customer service. Since it is a highly individual concept and cannot really be measured, evaluation of performance is a concern.

- Unreliable delivery schedules**:** Inventory-in-transit can lead to confusion in the ranks of both manufacturers and the distributors. While the stock has already left the manufacturer's warehouses, any disturbance in-transit can throw the distributors completely off-schedule.
- Information systems**:** Most of the manufacturers and channel partners use information systems to streamline their operations. However, these information systems operate in isolation without any integration between themselves. This leads to duplication and redundancy in work. The manufacturer will have to retrieve information manually and compare it with information from partners. If databases at each stage of the supply chain carry the same information, information systems become redundant.
- Simplistic policies**:** Most inventory policies are centred on the quantity of usage of goods stocked. However, they do not always consider the unpredictability surrounding the usage. Once they are also considered, the stocking policies will be more flexible resulting in minimal stock-outs and inventory pile-ups.
- Impact of uncertainties**:** Most policies are formulated under a set of assumptions about the future. Ideally, the potential variations from the projections should be predicted and accommodated in the planning. When they are not, the impact of these uncertainties will bear heavy on the inventory management. The problem is more complex when the schedules of suppliers, distributors and other external channel members are considered. Integrating all these is a difficult task.
- Organisational bottlenecks**:** In case of business units and other profit centres, the internal suppliers have their own goals to achieve, which derails the pursuit of synergy. Inter-departmental and other bureaucratic issues have often been the cause of many pitfalls.
- The metrics**:** Supply chains today have morphed into complex and confusing structures. Measuring performance of even internal partners can at times be difficult; therefore evaluating the supply chain can be a cumbersome task.

Causes for Inventory Pile-up

Inventory pile-up can be caused by many factors. Broadly, these factors can be classified into two types:

A. Location clogs: The causes of location clogs are

- *Manufacturer:* A manufacturer holds inventory to support orders generated by the channel members. If his production cycle time, lead time for assembly, set up time and / or minimum batch quantity is high, he has to maintain huge inventory.
- *Distributors and Warehouses*: Here inventory is accumulated to send to the retailer for sale. For direct marketers however, this can be the biggest investment on inventory. Accuracy in sales forecasting in case of direct marketers, and reliable and regular order processing by the retailers and direct marketers can reduce the problem.
- *Retailer:* At the retail level, the cost of stocking inventory is expensive. This is compounded by the fact that the products arrive at the retailer incurring all the logistics costs for transit. Here, inventory occupies space, is susceptible to damage and is carried in expensive containers. Poor forecasting, poor inventory planning, less capacity and lack of proper replenishment policies can lead to inventory pile-up.

B. Issue clogs: The causes of issue clogs are

- Inventory can pile up at the retailer or / and manufacturer front, if the storage capacity is limited at the distribution centres and warehouses.
- Forecasting inaccuracies at the retail sales level can lead to stocking of slow-moving SKUs blocking out the fast-moving and fresh products.
- When promotions are run, retailers order additional products anticipating an increase in demand. If the sales do not meet expectations, inventory costs shoot up.

- Irregular ordering by retailers can leave manufacturers in a perpetual state of confusion forcing them to hold huge inventories.

If stock information is not available or inaccurate, it becomes difficult to plan the inventory.

Elements of inventory costs include:

- Interest on capital tied up in the inventory
- Warehouse rent
- Staff salaries
- Insurance
- Rates and taxes
- Stationery
- Postage and communication charges
- Administrative overheads
- Costs of handling, unloading and stacking
- Loss due to damage and deterioration while on storage
- Cost of order processing/record keeping/accounting

Inventories may be held in the material management cycle to supply the production function or in the distribution function to meet customer demand. Inventory control in the latter is crucial to efficient physical distribution. Inventory represents the largest single investment for manufacturers of packaged consumer goods, amounting up to a third of their asset investment. High inventory levels are necessary in competitive conditions where the market segments are diverse in nature and customers are used to obtaining goods quickly.

The objective of inventory control is to minimize total inventory costs subject to demand and service level constraints. The main costs are due to holding inventory, ordering and the risks of stock outs. The system has to figure out how much to re-order, when to re-order and how to control stock outs at the minimum cost.

There are a number of inventory control systems available, depending on the type of business. Distribution Requirements Planning (DRP) systems deal with connecting the production process

with the other inventory levels further down the channel. They operate on the assumption that they are managing inventories intended to resupply other inventories.

An accurate forecast of future demand is obviously essential for any inventory control system, Lack of such a forecast or inaccuracies can wreak havoc throughout the physical distribution channels. Unpredicted increases also cause stock outs and loss of orders in the future. Every firm and every channel member has to balance the costs of holding higher inventory levels against the costs of stock outs.

Channel Motivation

The Vision, Mission and Objectives

Channel objectives determine channel strategy. Making a major change in an established channel structure is difficult and often risky. Therefore it is desirable to set up the objectives properly in the first place. They should be dictated by the service level output, which is desired by the ultimate consumer, and the global vision and mission of the company in terms of long term return on investment, market share, absolute level of profits to be achieved and sales growth.

The specific objectives of any channel, apart from the global aspirations of the company, should be firmly based on the service outputs demanded by its customers. Different levels of these outputs may be required in different segments of the market and these needs to be determined. The use of multiple channels catering for different segments of the market is common in marketing today.

Once the service levels are decided upon, then the market coverage has to be determined. This in turn determines the support, which can be expected from the channel in the event of different coverage strategies. Here the company should also decide whether it would own the entire channel or parts of it and what the costs of full and part ownership are going to be in terms of possible consequences.

Three choices are possible: intensive, selective or exclusive distribution. It is worth mentioning in this context that they are all possible in case of vertical or non-vertical integration although the

costs may be prohibitive in case of full ownership of a channel specializing in intensive distribution.

Intensive distribution is generally used for products which are frequently bought and which need to be easily available, like newspapers and sweets. Selective distribution is usual for products which buyers like to choose with some effort, e.g. clothing. This type of distribution can range from expensive items, which are almost exclusive, to items like cosmetics, which are almost intensively distributed. Exclusive distribution implies a mutually dependent relationship between seller and re-seller and is used for large or expensive items such as farm machinery or very expensive clothes or jewellery.

It is appropriate to check and verify that the strategy adopted is in line with current circumstances when considering how to motivate a channel member. The channel structure and the type of distribution are also interdependent to some degree. A 'long' channel structure, which possesses many intermediate wholesalers, allows for greater spread and therefore more intensive distribution. Conversely, a 'short' structure has more direct channels and tends towards exclusive distribution.

It is obvious that the more intensive the distribution, the greater the sales in the short term. However, over a long term, adverse effects such as lower margins appear, followed by unwillingness on the part of the distributors to sell the product, consequent necessity of an increase in promotional efforts by the manufacturer and deterioration of the service levels. As a business executive once remarked 'you can take fifty years to build a brand and you can ruin it in three years through careless distribution'.

However, intensive distribution is successfully followed in the case of innumerable products through a well-formulated marketing programme, which fulfils the requirements of distributors and consumers alike. The various factors should be carefully considered before deciding on a distribution strategy, in particular the relation between the products marketed and the last selling point for them.

Motivational Tools and Control Areas

The following means of persuasion are available to channel members to influence the decision-making or behaviour of others.

1. Rewards: If A possesses some resource, which B wishes to obtain, and B believes this can be obtained through confirming to A's wishes, this amounts to reward power. Specific rewards to channel members could include wider margins, granting of exclusive territories and various promotional allowances.

2. Coercion: This exists if B believes that A will punish anyone who does not conform to A's wishes. Coercion amounts to negative sanctions or punishment including reductions in margins, withdrawals of rewards granted earlier and slowing down of shipments. This brings fewer results over the long term than other tools and should therefore be considered as a last resort.

3. Expertise: This occurs when B perceives A to possess some special knowledge which would help B. Small retailers often rely heavily on their wholesalers for expert advice. However, once transferred, expertise is considerably reduced in power. If a business wishes to retain expertise over a long term, the following options are open to it:

(a) It can ration its advice to small portions and keep back sufficient vital knowledge so that the others remain dependent upon it. This could be detrimental to efficient working of the channel, as every member should work up to its capacity for the channel to function successfully. A member starved of vital information cannot do so.

(b) A better though somewhat expensive option is to collect accurate information regarding market trends, threats and opportunities, and other ongoing matters which individual channel members would find difficult to obtain themselves. The benefits of this option can be high in terms of channel goal achievements.

(c) Another way is for channel members to invest in specialized transaction expertise, which is difficult to transfer to other products or services and so hinders the members from leaving the channel.

(d) The ability of a channel member to acquire information, which is necessary for another channel member to function efficiently, confers power on the acquirer. For example, retailers hold a privileged position with respect to manufacturers because of their close customer contacts.

4. Identification: This occurs when B identifies with A or desires to do so. For example, given equal returns from two different dealerships, one may well choose that which one would like to

identify with, perhaps the marc prestigious one. Here the company reputation or image confers an advantage on the business.

5. Legitimacy: Results from B feeling that A has the right to exercise power over them. This would be the case between workers and their supervisor, for example. In a channel relationship, such a power may be assigned to the largest firm. Or the retailers and industrial suppliers may believe that they have the power since they are in contract with the end-users and the others are not. However, the amount of power thus exerted is usually small.

6. Promotions: Trade promotions also act as a major motivator for the channels of distribution. It persuades the retailer or wholesaler to carry the brand. The retailer or wholesaler carry more units than the normal amount. It induces retailers to promote the brand by featuring, display and price reductions.

In real life situations, all these powers are used simultaneously in most situations. Sometimes, the use of one power may enhance another power base; or the opposite may happen. Environmental conditions and the effect of such a use of power on them must also be considered in this situation. The norms of the channel systems also prohibit the use of some of these powers.

The degree of success that a channel member will have in influencing the behaviour of other channel members will depend on its leadership behaviour. When the channel members have common goals, the use of information exchange and/or recommendations will probably produce positive results. In other situations, promises, threats, legalistic strategies and requests are used with varying success.

An international business manufacturing paints, which is based in Italy, has the policy of treating its agents like its own employees. They are required to submit progress reports every month just like the company sales force. All these reports are fed into a computer and analyzed. The company management keeps an eye on the stocks bought by key customers and the price they paid. Any falling off in an agent's performance results in rapid identification of the problem and support provided by a senior staff member on the spot.

Focusing channels onto specific products and target markets – motivation of channel principals and sales force.

Ensure that the traditional distributor attitude and priorities are recognized by you and dealt with. Distributors:

- Always feel that a high price is charged by the manufacturer
- Think that manufacturer's mark-up is high
- Think that the manufacturer does not invest in the market
- Avoid the traditional manufacturer attitude.

The manufacturer

- Is interested in volume sales
- Is interested in profits
- Wants distributors to make stock investment

For mutual benefits the relationship should produce acceptable profit margins to the distributor and acceptable volume and rate of growth to the manufacturer, at optimum profit margins.

The manufacturer's 'link person' must try and assist the distributor in upgrading their entire operation. They allow the distributors to consult financial director; let individual interested distributors have the use of the director's time for a day or two, run seminars on relevant subjects, e.g. 'modern warehousing'. A distributor should be able to call on the manufacturer's experience when trying to solve any problem relative to their business.

Control systems

First and foremost, a system to establish an annual campaign plan must be introduced. This campaign plan should cover, as a minimum,

- The common goals to be achieved in the first year at least;
- What this would mean realistically in terms of the quarterly volumes of sales to the channel's customers and shipments from the manufacturer;

- The recommended price at which the product would be marketed;
- The price/discounts/terms of trading at which the manufacturer will supply the product;
- What this would mean in terms of market share;
- Levels of sales and supporting staff resources to be deployed;
- A schedule of training to be provided by the manufacturer;
- Promotional materials, campaigns, etc., to be undertaken by the manufacturer and the channel;
- Specific actions to be taken concerning inventory/logistics, etc.;
- Key event/action review calendar.

Secondly, regular monitoring and review sessions must be held to ensure that the performance is on course and that if needed corrective actions are taken on time.

Motivation of the distributor

The link person or manager can do the following to motivate a distributor:

1. Attempt to categorise and understand the distributors' motives in terms of Maslow's hierarchy of needs: security, social needs, esteem, and self-fulfilment.

2. Discover their wants as well as their needs; this will help your dealings with them.

3. Remember that monetary rewards serve many needs and are therefore the best rewards.

4. Bear in mind, however, that recognition, praise, promotion and successful achievement of a task can also be effective motivations and are sometimes more needed than money.

5. If people know that good work will earn a reward, this makes the reward more effective. The expectation should be clearly set out on a payment by-results basis, with an appropriate bonus or commission scheme. Achievable targets and standards should be set. Praise should be bestowed when deserved at not too frequent intervals. The rewards and efforts required should be clarified. The penalties also should be stated, if targets are underachieved or if substandard results are recorded.

6. Paraphrasing what Douglas McGregor said in another context, conditions should be such that the members of the channel system should best achieve their own expectations by working for the success of the channel system as a whole. It is necessary to identify the needs of the members so that appropriate rewards can be devised and to agree targets and standards with all the members.

7. People can be motivated by the work itself if their needs for achievement and responsibility are thereby satisfied. This can result from:

- Giving people more responsibility where called for and more scope for variations in methods and speed of work
- Giving groups a unit of work to perform, thus reducing specialization and increasing the sense of achievement and responsibility and the expertise
- Relaxing overhead controls while setting targets and/or standards to make members accountable
- Making available the necessary information so that members can monitor their own performance
- Encouraging the channel members to join in planning and innovation

8. Try to make sure that the group pressure is working for you by involving the members of the channel in decisions, which affect them.

The link person's role can be likened to that of a master of ceremonies, who initiates the use of the available motivational tools, the link persons have to be self-motivated and display enthusiasm for their company, its products and its distributors. It is important that they appear self-confident. Their leadership, management skills and bond-building activities will then be able to play the necessary part in motivating the distributor principal and the sales force.

Managing and Motivating Your Agents and Distributors

This process calls for an understanding of the relationship, mutual SWOTs, mutuality of benefits and a commitment to working together for common goals.

- A creation of the right environment - nature, scope and style of operation
- Realistic objective setting, review & control
- Joint development of campaigns

Dealer Motivation

The firm should constantly motivate its dealers lists the elements of dealer motivation. Elements of Dealer Motivation

- The trade margin
- Special incentives
- Harmonious relations
- Effective communication

Trade Margin, a Major Motivator

An attractive trade margin is no doubt a key element in dealer motivation. After all, the primary objective of any dealer is to earn an attractive return on his investment. We have discussed the issue of trade margin in detail in the earlier paragraphs.

Motivational Elements Other than Trade Margin

Trade margin though important, is not everything in dealer motivation. The firm can use several other elements in enthusing its dealers.

Dealer Incentives

Besides an attractive trade margin, the firm should provide some special incentives to the dealer so as to win him over and sustain his loyalty to the firm/brand. Sustaining dealer loyalty is the sure route for obtaining optimal retail thrust for the product/brand. Special incentives like quantity rebates, off-season rebates, gifts, cash incentives, etc., can be used for motivating dealers.

With increased competition, companies are now increasingly realising the role of such incentives. One measure that seems to be catching the fancy of companies is fully-paid vacations for dealers. Companies are also hosting lavish dealer meets at exotic places. For instance, ITC has been taking out whole groups of its dealers on a safari to Kenya. Godrej-GE last year flew over 40 of its best dealers to the US and Videocon sent around 650 of its best dealers to Europe. Even companies, which were giving cash or gold sovereigns as incentives earlier, now seem to have realised the potential of travel abroad as an incentive. The tours are considerably expensive, since the companies try to ensure that they become unforgettable outings for the dealers. The companies concerned seem to spend on an average more than Rs 40,000 per head on dealer holidays. Godrej-GE, which is one of the big spenders on dealer incentive tours, has an annual budget of around Rs 4 crore for this purpose. As the demand for such tours has been going up, some travel houses have started special divisions for corporate dealer incentive tours.

Harmonious Relations and Cooperative Endeavour

Harmonious dealer relations are another important element in dealer motivation. Frequent visits to dealers' shops by the field sales force of the company/stockists help harmonious dealer relations. Dealer meets too facilitate this process. They help to exchange ideas and to generally bring the dealers closer to the company.

Dealers need understanding and support. They are happy to receive sales ideas from the salesmen and executives of the firm. Likewise, helpful and prompt attention to dealer complaints, associating the dealers in various campaigns such as service campaign, promotion-campaign, etc., will cement relations with the dealers. It will also add to the success of the campaign. The firm can even persuade dealers to share the expenditure on service, publicity and sales promotion. Dealer

cooperated service and publicity campaigns not only reduce the financial strain of the firm, but also are more effective than stand-alone campaigns by the firm. The willing involvement of the dealers in the campaigns does the trick.

Effective Communication

Maintaining effective communication with the dealers is another element of dealer motivation. It is, in fact, a part of maintaining harmonious relations. Effective communication often gives a sense of participation to the dealers. Company newsletters and direct mailing can be used for effective communication with the dealers. Periodical dealer meetings/conventions also help build good communication. They help the firm understand the views of the dealers. In addition, they act as a morale booster.

Risk Management

Good management is all about anticipating events and planning for action before the events happen. This is where understanding the sorts of risks, which are likely to arise, is very important. The risks may be of one or more of the following types:

1. The usual product risks, political risks, economic risks, etc. that exist in any international marketing operation - these are not being explored here.

2. A chosen channel member may turn out to be a misfit. This is where careful planning and selection of the right partners is vital. A good channel member of yesterday may not be a good channel member tomorrow. A mutual understanding of the roles of the channel members and their responsibilities to each other is a must.

3. At least one channel member is not pulling their weight. The performance expectations must be made clear right from the start. Mutual monitoring of performance is vital to the continuing success of the 'venture'. Mutual reliance must be recognized. All campaign planning must be undertaken jointly so that no motivation is lost due to inadequate planning.

4. Breakdown of the 'relationship' - where independent members form a significant part of the channel, the relationships are based on individuals, their interpersonal behaviour, trust, mutual understanding of a set of common objectives and other objectives based on the needs of the parties concerned. 'Mutuality' of interest must be maintained to avoid the risk of damaging the position of the two parties.

In all these cases, rapid contingency planning is crucial to safeguard the company's position.