Master of Business Administration (MBA)

ASSIGNMENT
For
July 2022 and January 2023 sessions

MMPO-005: Logistics and Supply Chain Management

(Last date of submission for July 2022 session is 31st October, 2022 and for January 2023 session is 30th April, 2023)

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ASSIGNMENT

Course Code	**:**	**MMPO-005**
Course Title	**:**	**Logistics and Supply Chain Management**
Assignment Code	**:**	**MMPO-005/TMA/JULY/2022**
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Note: Attempt all the questions and submit to the Coordinator of your study centre. **Last date of submission for July 2022 session is 31st October, 2022 and for January 2023 session is 30th April, 2023.**

1. "Physical distribution management (PDM) is a critical area of overall supply chain management". Comment on the statement. Also, explain the various components of physical distribution management.
2. "Technology advancements in electronic data interchange (EDI), the Internet, and the World Wide Web (WWW) have led to the rise of SC design and management as prominent operational paradigms". Explain, in view of the statement, the impact of information technology on supply chain management (SCM).
3. "Benchmarking provides the basis for meeting and exceeding stakeholder expectations". Explain the importance of benchmarking and what are the challenges faced while implementing the benchmarking.
4. "The healthcare industry is revolutionized by the use of the power of computing and the Internet". Comment on the statement.
5. Comment on the statement: - "Reverse logistics is a part of the closed-loop supply chain".

MMPO 05- Logistics and Supply Chain Management

Q1 "Physical distribution management (PDM) is a critical area of overall supply chain management". Comment on the statement. Also, explain the various components of physical distribution management?

ANS- Inventory hides problems and inefficiencies." Explain- There are many decisions that must be taken, when a company organizes a channel or network of intermediaries, who take responsibility for the management of goods as they move from the producer to the consumer. Each channel member must be carefully selected and the company must decide what type of relationship it seeks with each of its intermediate partners. Having established such a network, the organisation must next consider how these goods can be efficiently transferred, in the physical sense, from the place of manufacture to the place of consumption. Physical distribution management (PDM) is concerned with ensuring the product is in the right place at the right time. It is now recognised that PDM is a critical area of overall supply chain management. Business logistical techniques can be applied to PDM so that costs and customer satisfaction are optimised. There is little point in making large savings in the cost of distribution if in the long run, sales are lost because of customer dissatisfaction. Similarly, it does not make economic sense to provide a level of service that is not required by the customer but leads to an erosion of profits. This cost/service balance is a basic dilemma that physical distribution managers face

The reason for the growing importance of PDM is the increasingly demanding nature of the business environment. In the past it was not uncommon for companies to hold large inventories of raw materials and components. Although industries and individual firms differ widely in their stockholding policies, nowadays, stock levels are kept to a minimum wherever possible. Holding stock is wasting working capital for it is not earning money for the company. To think of the logistical process merely in terms of transportation is much too narrow a view. Physical distribution management (PDM) is concerned with the flow of goods from the receipt of an order until the goods are delivered to the customer. In addition to transportation, PDM involves close liaison with production planning, purchasing, order processing, material control and warehousing. All these areas must be managed so that they interact efficiently with each other to provide the level of service that the customer demands and at a cost that the company can afford

Various components of physical distribution management

There are four principal components of PDM namely; Order processing, Stock levels or inventory, Warehousing and Transportation

Order processing

Order processing is the first of the four stages in the logistical process. The efficiency of order processing has a direct effect on lead times. Orders are received from the sales team through the sales department. Many companies establish regular supply routes that remain relatively stable over a period of time ensuring that the supplier performs satisfactorily. Very often contracts are drawn up and repeat orders (forming part of the initial contract) are made at regular intervals during the contract period. Taken to its logical conclusion this effectively does away with ordering and leads to what is called 'partnership sourcing'. This is an agreement between the buyer and seller to supply a particular product or commodity as and when required without the necessity of negotiating a new contract every time an order is placed. Order-processing systems should function quickly and accurately. Other departments in the company need to know as quickly as possible that an order has been placed and the customer must have rapid confirmation of the order's receipt and the precise delivery time. Even before products are manufactured and sold the level of office efficiency is a major contributor to a company's image. Incorrect 'paperwork' and slow reactions by the sales office are often the unrecognised source of ill will between buyers and sellers. When buyers review their suppliers, efficiency of order processing is an important factor in their evaluation. A good computer system for order processing allows stock levels and delivery schedules to be automatically updated so management can rapidly obtain an accurate view of the sales position. Accuracy is an important

objective of order processing, as are procedures that are designed to shorten the order processing cycle

Inventory

Inventory, or stock management, is a critical area of PDM because stock levels have a direct effect on levels of service and customer satisfaction. The optimum stock level is a function of the type of market in which the company operates. Few companies can say that they never run out of stock, but if stock-outs happen regularly then market share will be lost to more efficient competitors. The key lies in ascertaining the re-order point. Carrying stock at levels below the re-order point might ultimately mean a stock-out, whereas too high stock levels are unnecessary and expensive to maintain. Stocks represent opportunity costs that occur because of constant competition for the company's limited resources. If the company's marketing strategy requires that high stock levels be maintained, this should be justified by a profit contribution that will exceed the extra stock carrying costs.

Warehousing

Many companies function adequately with their own on-site warehouses from where goods are dispatched direct to customers. When a firm markets goods that are ordered regularly, but in small quantities, it becomes more logical to locate warehouses strategically around the country. Transportation can be carried out in bulk from the place of manufacture to respective warehouses where stocks wait ready for further distribution to the customers. This system is used by large retail chains, except that the warehouses and transportation are owned and operated for them by logistics experts. Levels of service will of course increase when number of warehouse locations increases, but cost will increase accordingly. Again, an optimum strategy must be established that reflects the desired level of service.

Transportation

Transportation usually represents the bulk of distribution cost. It is usually easy to calculate because it can be related directly to weight or numbers of units. Costs must be carefully controlled through the mode of transport selected amongst alternatives, and these must be constantly reviewed. The patterns of retailing that have developed, and the pressure caused by low stock holding and short lead times, have made road transport indispensable. When the volume of goods being transported reaches a certain level some companies purchase their own vehicles, rather than using the services of haulage contractors. However, some large retail chains have now entrusted all their warehousing and transport to specialist logistics companies. For some types of goods, transport by rail still has advantages. When lead-time is a less critical element of marketing effort, or when lowering transport costs is a major objective, this mode of transport becomes viable. Similarly, when goods are hazardous or bulky in relation to value, and produced in large volumes then rail transport is advantageous. Rail transport is also suitable for light goods that require speedy delivery (e.g. letter and parcel post). Except where goods are highly perishable or valuable in relation to their weight, air transport is not usually an attractive transport alternative. For long-distance overseas routes air transport is popular. Here, it has the advantage of quick delivery compared to sea transport, and without the cost of bulky and expensive packaging needed for sea transportation, as well as higher insurance costs

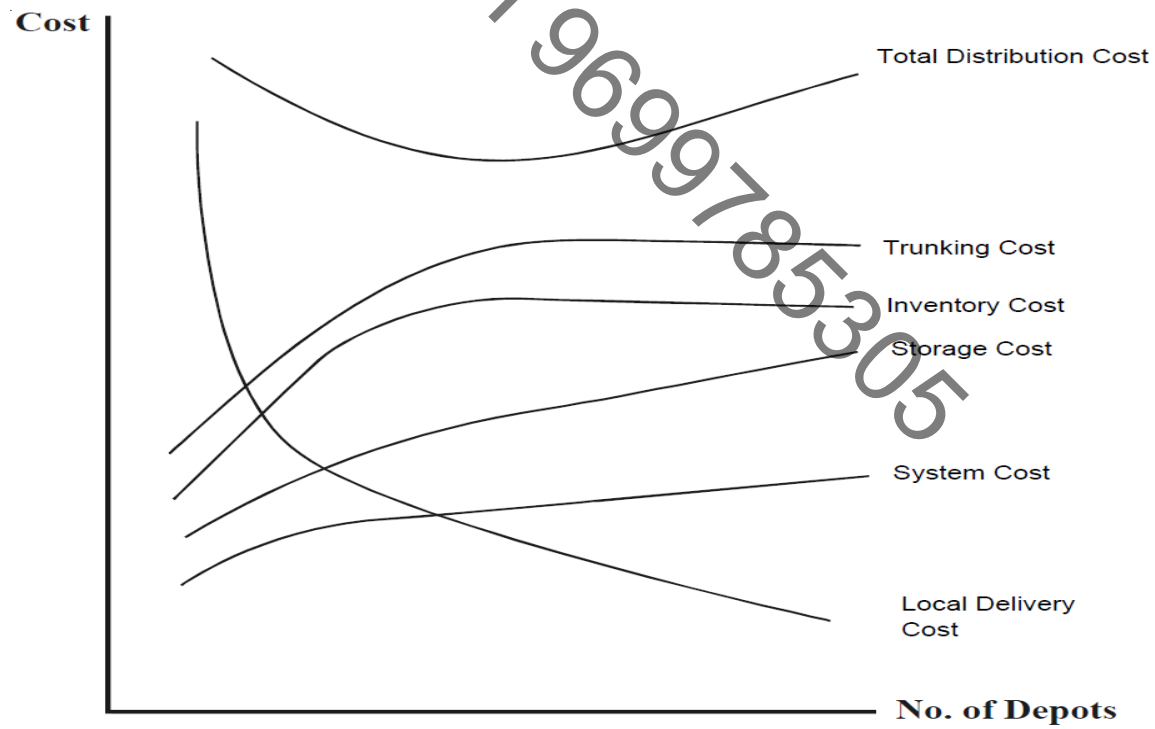
The chosen transportation mode should adequately protect goods from damage in transit (a factor just mentioned makes air freight popular over longer routes as less packaging is needed than for long sea voyages). Not only do damaged goods erode profits, but frequent claims increase insurance premiums and inconvenience to customers, endangering future business.

PDM has been neglected in the past; this function has been late in adopting an integrated approach towards it activities. Managers have now become more conscious of the potential of PDM, and recognize that logistical systems should be designed with the total function in mind. A fragmented or disjointed approach to PDM is a principal cause of failure to provide satisfactory service, and causes excessive costs. PDM is concerned with ensuring that the individual efforts that go to make up the distributive function are optimised so that a common objective is realised. This is called the 'systems

approach' to distribution management and a major feature of PDM is that these functions be integrated. To plan an efficient logistics structure it is necessary to be aware of the interaction between the different distribution costs and how they vary with respect to the different depot alternatives (number, size, type and location).

Figure demonstrates how the individual distribution and logistics cost elements can build up the total logistics cost.

- **Storage Cost:** Storage cost will increase as the number of depots will increase because there will be a need for more stock coverage, more storage space, more management etc.
- **Delivery cost:** This will concern with the secondary transportation cost i.e. cost of delivery from the depot to the consumer. The greater the number of depots, the lesser is the secondary mileage and the delivery cost.
- **Trunking Cost:** This is the primary transport cost in the supply of products in bulk to the depots from the central finished good warehouses or production points. As the number of depots increases this cost will also increases.
- **Inventory Cost:** The main elements of inventory holding costs are:
- **Capital Cost:** The cost of physical stock. This is the financing charge, which is the current cost of capital to a company.
- **Service Cost:** That is stock management and insurance cost
- **Risk Cost:** Which occur through pilferage, deterioration of stock, damage and stock obsolescence.
- **System Cost:** These costs represent a variety of information or communication requirements ranging from the order processing to load assembly lists.



The top line on the graph shows the overall distribution cost in relation to the number of depots in the network. The minimum point on this curve represents the lowest cost solution. The result will depend on a number of factors –product type, geographical area of demand, service level requirements etc.

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A customer is served by: (1) identifying an existing or potential need of the customer, giving concrete expression and shape to the need through advertising, designing the product and pricing it; (2) manufacturing the product; and (3) making the product available to the customer at the right place and time, by a proper arrangement of the movements and local storages of the product. Physical Distribution Management function (also called Logistics) is concerned with item. In some cases, it also includes the movement of raw materials from the supply source to the manufacturing facility.

PDM is the function that helps in a big way, to provide the time and place utility to the customer. Thus, marketing functions and PDM function are closely related to one another. PDM has to provide the desired level of product availability to the customer at lowest cost. In fact, PDM is efficient management of materials, their movement. storage and control outside the manufacturing plant which activity concerns the marketing objectives of meeting customer demand.

The major job elements or decisions made in PDM are:

1. Optimal location and arrangement of fixed storage facilities such as the warehouses, depots, or supply centers so as to provide the customer/s with the desired product/s. Typical questions to be answered are: How many depots/supply centers? Of what sizes? Where should they be located?

2. How should different customers be supplied from the different depots/supply centers?

3. Inventory Control Systems and policies in these depots/ supply centers.

4. Optimal management of the transport/ shipment of the product/s. Typical questions to be asked are:

Which mode of transport?

* Railways? Truck? Air? Water?

* What quantity and mix if the above?

* Which routes to be chosen for the shipment?

* What is to the frequency of transport?

* What packaging to use in order to prevent damage during transportation?

All above decisions are to be taken so that the desired level of service to the customers is provided at the lowest total cost. The expression for the total cost of a distribution system may be written as:

TDC = TFC + TVC + SFC + SVC + IC + PC

where

TDC: Total distribution cost

TFC: Fixed costs of transportation

TVC: Variable costs of transportation

SFC: Fixed costs of supply centers

SVC: Variable costs of supply centers

IC: Inventory related costs

PC: Packaging costs

PDM function has to be viewed in its totality. For instance, if speedy transport is used at higher costs, one may be able to manage with less number of distribution points or depots. If the transport is slow, then one would need more number of depots. If transport is fast, the lead times are small, and consequently the inventory carrying costs are low. In short each component of PDM interacts with another.

However, in what follows, analytical techniques will be presented independently for the following major areas of PDM:

1. Warehouse/Distribution center location

2. Allocation of warehouse capacities to customers' demands

3. Vehicle route scheduling

Once again it may be emphasized that all the components of Physical Distribution System interact with another. As long as the reader is aware of this, the independent presentation of the above mentioned areas of decision making in PDM will help in understanding the implications of each one of them thoroughly.

Optimal Location of Warehouse:

There are analytical methods available for deciding upon warehouse location, with the objective of minimizing cost. This 'cost' depends upon the distance between the warehouse and the customers (being supplied by the warehouse) as also in the frequency or the number of loads carried to the customers. The warehouse location problems could be modeled an analogue to a situation where a number of strings are tied to a number of rings and different weights are attached to the strings. These are all placed on a table in which a number of holes are drilled and strings passed through these holes. The holes correspond to customers; location and the weights correspond to the number of loads carried to the customers (or the weight age given to each customer). Due to different weights the ring will experience pulls in different directions and will stabilize at one point. This is the point of minimum potential energy which is analogous to optimal depot location.

2. "Technology advancements in electronic data interchange (EDI), the Internet, and the World Wide Web (WWW) have led to the rise of SC design and management as prominent operational paradigms". Explain, in view of the statement, the impact of information technology on supply chain management (SCM).

Ans :- Supply chain management (SCM) has been noted as an increasingly important management field to help enterprises improve supply chain operations. SCM involves the flows of material, information, and finance in a network consisting of suppliers, manufacturers, distributors, and customers. In the past decade, we have witnessed a shift in interorganizational relationships away from traditional market-based arm"s-length relationships to strategic partnership-like relationships (Bensaou 1997; Scott 2000). In fact, both the academic literature and the practitioner literature have noted that business competitions in a number of industries are no longer between individual firms, but rather between supply chains. One of the fundamental reasons that cause the paradigm shift in supply chain (SC) relationships is the advent of a knowledge-intensive economy. The value of most products and services in a knowledge-intensive economy depends primarily on the development of knowledge-based intangibles, like technological knowhow, product design, marketing, preferences of customers, and understanding of valueadded networks. As new product development becomes more complex and market environments become more dynamic and competitive, it is likely that the knowledge and information needed to deliver value to the end customers are no longer confined in a single firm.

Many innovations on technology-based approaches are well suited to the enhancement of supply chain management, including Just-in-Time, Quick Response, Efficient Consumer Response, and Continuous Replenishment – all rely heavily on the information made available through the latest technological advances. In the development and maintenance of the supply chain's information systems, both hardware and software must be addressed. Hardware includes computers, input/output devices, and storage media. Software includes all of the system and application programs used for processing transactions, management control, decision-making, and strategic planning. A few examples of software titles that address some aspect of supply chain management are presented below:

1) Base Rate, Carrier Select, and Match Pay (Version 2.0) developed by Distribution Sciences, Inc., with which users can compute freight costs, compare transportation mode rates, analyze cost and service effectiveness of carriers, and audit and pay freight bills;

2) A new software program developed by Ross Systems, Inc., called Supply Chain Planning is an integrated suite of constraint-based planning tools that provide demand, replenishment, and manufacturing tools for accurate planning and scheduling of those activities. This software provides an end-to-end enterprise-resource planning solution incorporating the most advanced supply chain planning capabilities available.

3) A technology partnership between Procter & Gamble Distributing Co. and Sabre Decision Technologies resulted in a software system called Transportation Network optimization, which allows shippers to give bidding, in twin streamlining the bidding and award process.

4) Logistility Planning Solutions was recently introduced to provide a program capable of managing the entire supply chain from demand to supply by synchronizing customer demand and supply constraints through the provision of Internet enabled communications about forecasts, inventory, and replenishments for all members of the chain.

Several technologies have gained popularity recently, due to their ability to facilitate the flow of information across the supply chain. Electronic commerce, Electronic Data Interchange, Bar coding and Scanning, Data Warehouse, Internet, Intranet/Extranet, World wide Web, Decision Support systems are a relatively

Recent phenomenon for supply chain management applications. These are discussed in the following sections.

Electronic Commerce

Electronic Commerce is the term used to describe the wide range of tools and techniques utilized to conduct business in a paperless environment. Electronic commerce therefore includes electronic data interchange (EDI), e-mail, electronic founds transfers, electronic publishing, image processing, electronic bulletin boards, shared databases, and magnetic/optical data capture (such as bar coding), the Internet, and Web sites. Electronic commerce is having a significant effect on how organizations conduct business. Companies are able to automate the process of moving documents electronically between suppliers and customers in such a manner that the entire process is handled electronically; no paperwork is involved. With the rise of the Internet and the ability to transfer information cheaply and effectively over the whole world, electronic commerce is becoming a major focus for many organizations and represents a significant opportunity for integrated supply chain management efforts.

Electronic Data Interchange

Electronic data interchange, commonly referred to "EDI", is the computer to computer interchange of business documents and/or information between trading partners in standard data format. Where, trading partners means, cooperation between companies is required to get the EDI systems running properly. Computer-to-computer and standard data format mean information must be precisely formated so that a computer can process the information without human assistance. EDI replaces the traditional forms of mail, courier, or fax. It is being utilized to link supply chain members together in terms of order processing, production, inventory, accounting, and transportation. It allows members of the supply chain to reduce paperworks and share information on invoices, orders, payments, inquiries, and scheduling among all channel members. The benefits of EDI are numerous: quick access to information, better customer service, reduced paperwork, better communications, increased productivity, improved tracing and expediting, cost efficiency, competitive advantage, and improved billing.

EDI improves productivity through faster information transmission as well as reduced information entry redundancy. Accuracy is improved by reducing the number of times an individual is involved in data entry. The use of EDI results in reduced costs on several levels, including:

1) Reduced labour and material cost associated with printing, mailing, and handling paper-based transactions;
2) Reduced telephone and fax transmissions; and
3) Reduced clerical costs.

EDI is also tremendously beneficial in counteracting the bull whip effect described earlier in this unit. Through the use of EDI, supply chain partners can overcome the distortions and exaggerations in supply and demand information by using technology to facilitate real-time sharing of actual demand and supply information. Although about 20 percent of all retailer orders for consumer products were placed via EDI in 1990, that percentage had grown to well over 60 percent by the end of 1995. Clearly, firms are realizing that the use of EDI to facilitate information sharing throughout the supply chain is beneficial.

In general, EDI is used for communication of business information such as purchase orders, invoices, bills of lading, shipping instructions, production sequences, inventory or order status, fund remittances, and point-of-sale information (in the case of retailers

EDI cuts down time delays, labor costs, errors, inventory and uncertainty. Business with EDI reduces the paper work, which is about 4 to 7% of the value of the goods traded. The EDI activities are the following:

1) Sales return could be analyzed and fed into the ordering process;
2) Orders could be raised to reflect both demand and known stock availability;
3) Instruction could be sent to distributors in parallel with the orders to ensure fast delivery;
4) Carriage by road, rail, sea, or air could be booked simultaneously;
5) Customs clearance documents could be available in advance of goods arriving, avoiding hold ups;
6) Payment instructions could be issued to banks to ensure prompt payment.

Internet

In terms of advancement in technology and communications capabilities, perhaps the most influential development over the past decade has been the adaptation of the Internet from strictly government and research applications into the areas of commerce and mass communications. At the most basic level, a network of networks, the Internet provides instant and global access to an amazing number of organizations, individuals, and information sources. Through systems like the popular World Wide Web (the web), Internet users are able to conduct organized searches on specific topics as well as browse various web sites to discover the vast resources available to them through their computer. The Internet offers tremendous potential for supply chain members to share information in a timely and cost-effective manner, with relative case. Many organizations are now exploring the numerous opportunities provided by the Internet. For example, the Internet provides opportunities for the development of EDI systems. It also provides an incredible source of information about potential suppliers of products and services. A few examples of the type of information available on the Internet are provided under the World Wide Web heading. Although the potential benefits of supply chain applications on the Internet are substantial, as with any emergent technology, certain issues must be resolved. A key Internet concern is the issue of privacy, the level of security for information. Privacy of information transmitted on the Internet is an issue for all users, particularly in the use of credit-card members and other sensitive information. For supply chain members already struggling with the challenge of freely sharing information, these issues only add to their concerns.

These issues may soon be resolved. Currently, web software called 'merchant' server is in advanced stages of development. Although present applications are being developed to assist with consumer transactions, such as providing secure conduits for payment information and transactions, other applications are not far behind. One approach for such security problems is the development of the supply chain's own Internet.

World wide Web

The World Wide Web is the Internet system for hypertext linking of multimedia documents, allowing users to move from one Internet site to another and to inspect the information available without having to use complicated commands and protocols. The implications of the Web for business applications are obvious and farreaching. Web-based technology and tools have been developed in virtually every industry and forms of commerce. Supply chain functions are no exception. For instance, Enterprise Transportation management was recently launched by Metasys Inc. through the Oracle Web Applications Server; this system deploys a variety of critical information about transportation and distribution applications throughout the supply chain. Further, the system can be accessed with any Javaenabled browser. Access may be controlled through a corporate network, via the Internet or an Intranet Web site. The number of Web sites relevant to supply chain management is growing at a rapid pace. From specific sites providing information about the capabilities and fees of potential supply chain partners to educational sites developed primarily on reference tools, the number of sites and variety of information available on the Web is impressive. Examples of the Web sites available include the following:

1--- www.con-waynow.com provides information about the expedited motorcarrier arm of Con-Way Transportation Services, providing information about the company's services, market coverage, and truck fleets, as well as direct e-mail links to Con-Way NOW's sales, operations, and human resources departments.

2--www.gebn.bus.msu.edu provides access to Global Procurement and Supply Chain Benchmarking Initiative home page. The Global Procurement and Supply Chain Benchmarking Initiative is a third-party procurement and supply chain benchmarking effort housed in The Eli Board Graduate School of Management at Michigan State University. The primary mission of this group is to collect and disseminate information concerning the best procurement and supply chain strategies, practices, and processes being employed by companies across a wide range of industries worldwide.

3-- www.supply-chain.com developed by the Supply Chain Council provides a valuable reference source introducing shippers to the Council's mission and supply-chain reference model, a leading edge benchmarking tool being developed for specific supply chain applications.

Most of the supply chain related professional societies have highly informative home pages. These Web sites typically provide information about the organization's objectives, educational and training opportunities, educational products, reference libraries, job placement services, discussion forums, conferences, and membership requirements.

The information systems and the technologies utilized in these systems represent one of the fundamental elements that "link" the organizations of a supply chain. The range of technologies available to support supply chain management efforts is vast and ever changing. Unfortunately, there is not a single "right" IT solution to supply chain management. Organizations need to explore various options to arrive at a solution that provides the functionality required for their specific supply chain management initiative. Towards this end, benchmarking integrated supply chain efforts to identify "best practices" is essential. Supply Chain Management initiatives are unlikely to succeed without the appropriate information systems and the technology required to support them. These important decisions should be made by a cross-functional, inter organizational management group that can afford to manage the constraints related to the time and resources required to develop a supply chain information systems strategy. The team should implement the strategy, and ever see its ongoing performance

Companies that opt to participate in supply chain management initiatives accept a specific role to enact. They have a mutual feeling that they, along with all other supply chain participants, will be better off because of this

collaborative effort. The fundamental issue here is power. The last two decades have seen the shifting of power from manufacturers to retailers.

When we talk about information access for the supply chain, retailers have an essential designation. They emerge to the position of prominence with the help of technologies. The advancement of inter organizational information system for the supply chain has three distinct benefits. These are −

Cost reduction − The advancement of technology has further led to ready availability of all the products with different offers and discounts. This leads to reduction of costs of products.

Productivity − The growth of information technology has improved productivity because of inventions of new tools and software. That makes productivity much easier and less time consuming.

Improvement and product/market strategies − Recent years have seen a huge growth in not only the technologies but the market itself. New strategies are made to allure customers and new ideas are being experimented for improving the product.

It would be appropriate to say that information technology is a vital organ of supply chain management. With the advancement of technologies, new products are being introduced within fraction of seconds increasing their demand in the market. Let us study the role of information technology in supply chain management briefly.

The software as well as the hardware part needs to be considered in the advancement and maintenance of supply chain information systems. The hardware part comprises computer's input/output devices like the screen, printer, mouse and storage media. The software part comprises the entire system and application program used for processing transactions management control, decision-making and strategic planning.

Here we will be discussing the role of some critical hardware and software devices in SCM. These are briefed below −

Electronic Commerce

Electronic commerce involves the broad range of tools and techniques used to conduct business in a paperless environment. Hence it comprises electronic data interchange, e-mail, electronic fund transfers, electronic publishing, image processing, electronic bulletin boards, shared databases and magnetic/optical data capture.

Electronic Data Interchange

Electronic Data Interchange (EDI) involves the swapping of business documents in a standard format from computer-to-computer. It presents the capability as well as the practice of exchanging information between two companies electronically rather than the traditional form of mail, courier, & fax.

The major advantages of EDI are as follows −

Instant processing of information Improvised customer service Limited paper work High productivity Advanced tracing and expediting Cost efficiency Competitive benefit Advanced billing

Barcode Scanning

We can see the application of barcode scanners in the checkout counters of super market. This code states the name of product along with its manufacturer. Some other practical applications of barcode scanners are tracking the moving items like elements in PC assembly operations and automobiles in assembly plants.

3. "Benchmarking provides the basis for meeting and exceeding stakeholder expectations".

Explain the importance of benchmarking and what are the challenges faced while implementing the benchmarking.

Ans :- Benchmarking your business operations with defined metrics can help track progress and reach goals faster. Here are the benefits of benchmarking.

Businesses can use benchmarking in their operations to measure themselves against internal or external standards.

Benchmarking can be used to measure internal progress, performance against competitors and how your processes rank against world-class organizations.

The process of benchmarking involves identifying key metrics, assessing where you currently are, determining where you want to be and creating an action plan to achieve and measure your goals.

This article is for business owners that want to implement a benchmarking system to track operational progress and development.

In every industry, there are certain standards that employees and consumer come to expect from any company worth their salt. How do you know if your business is meeting those standards? The answer is benchmarking.

While every business is unique and no two companies will follow the exact same path to success, benchmarking gives you a solid starting point for measuring your operations. By analyzing your competitors and comparing your processes and offerings to theirs, you'll be better able to keep up with industry trends and meet the demands of the modern market.

"It's highly important for leaders … to know what the industry is offering, what's changing and the new systems and technologies they need to adopt to stay on top of the game," said Sahin Boydas, founder and CEO of RemoteTeam.com. "Leaders who operate without monitoring benchmarks end up being left behind — there's always a price to pay for ignoring what's happening in your business environment."

Benchmarking in business means measuring your company's quality, performance and growth by analyzing the processes and procedures of others. If you believe there's something that can be improved within your organization, you can see how your business stacks up against the "standard" and plan out a path for betterment, whether that means cutting costs, boosting efficiency and productivity, or growing revenue.

The ultimate goal of benchmarking is continuous improvement, something all businesses should aim for. Comparing your business to others can help you generate ideas that you can adopt to get ahead.

4. "The healthcare industry is revolutionized by the use of the power of computing and the Internet". Comment on the statement.

Ans :- When healthcare first became digitized, computers were used in the healthcare system predominantly for administrative uses. However, in recent years, computers have become more common place across a wide variety of medical facilities for a range of different applications from laboratories to operating rooms to medical computer carts in every ward, and the technology continues to advance rapidly. Read on to learn more about how computers have revolutionized medical care.

Improved Doctor and Patient Interaction

The medical field is highly regulated and deals with immense amounts of sensitive data. However, over the last two decades, the healthcare industry has increasingly opted to digitize patient records and data, which as completely changed the way that doctors and patients interact.

Previously sensitive data was not readily available to patients and lag times in paper processing meant that test results or diagnostics could take weeks before being received by the doctor. New medical social networks and portals allow patients immediate remote access to necessary information and allow doctors to connect with other medical staff and patients improving communication within the healthcare system.

Better Workflow

Information is a pervasive part of the healthcare system. Nurses and doctors spend a significant amount of their shift completing paperwork which leaves less time for important face-to-face patient interaction.

New computing technologies, such as the use of a medical computer cart, can improve workflow by allowing nurses to make real-time patient information updates, and help to eliminate personal errors in record keeping. With all patient data digitized and accessible to medical staff via computers on mobile medical carts rather than constantly stopping at stationary workstations, doctors and nurses can now accomplish more within each shift.

Better Diagnostics

Diagnostics has always been an area in the healthcare system that suffers from errors and delays. It used to take weeks to receive test results due to slow lab processing, but with the use of a computer to do the majority of the heavy lifting, doctors and patients can now receive results within a fraction of the time.

Computers control or are integrated into nearly all medical machinery and equipment including MRI, CT scanners and ultrasounds. This not only allows diagnostic testing to be more accurate by removing error, but it also offers faster and more effective patient monitoring leading to more accurate diagnoses.

More Collaborative Healthcare

Collaborative work is one of the keys to a productive healthcare system. Fast computer processing times, mobile medical carts and social media networks allow doctors, patients and medical staff to collaborate more than ever.

Remote access to records and remote monitoring allow patients more autonomy when it comes to their medical care. This patient-empowered approach is one of the most recent developments in healthcare reform and has been shown to improve patient health outcomes and quality of care.

More Efficient Experimentation

Computers expedite the experimentation process and help to create new medical technologies, pharmaceuticals and advance medical discoveries. This is particularly important concerning disease outbreaks, highly communicable disease and in an area that receives a lot of medical interest such as cancer.

Faster experimentation means that vaccines for deadly outbreaks can be developed before the disease has a chance to spread and potentially decimate populations. It also allows doctors to keep up with continually mutating strains of viruses such as influenza.

5. Comment on the statement: - "Reverse logistics is a part of the closed-loop supply chain".

Ans :- The closed-loop supply chain (CLSC) is comprised of two distinct cycles: forward logistics and reverse logistics. The forward logistics process creates and delivers a new product, while reverse logistics comes into play after the item has served its purpose. Reverse logistics can entail repairing, reselling, or breaking down products for reuse and recycling, all with an eye to a chain that maintains and recovers value for low impact and minimal waste.

The fundamentals of a CLSC can be broken down into seven basic steps.

Step 1: Production

A new service, or product, comes to life via the design and manufacturing process. While the specifics vary dramatically from industry to industry, this process incorporates the usual steps of a traditional supply chain.

Step 2: Distribution

The product makes its way to retail shelves, distributors, and the broader market.

Step 3: Sales

The product finds its way to the end customer. While this is the final step in a traditional supply chain, it's merely the end of the first phase of a CLSC.

Step 4: Repair

The first aspect of the reverse logistics flow considers defective products. Instead of being written off as waste, defects are processed by a returns division. This team collects, repairs, and returns products to the user once they've been brought to working order.

Step 5: Reuse

Perhaps a defective product cannot be readily repaired and returned. In this case, a processor sends the item directly back to the distributor for reuse or recycling. The product is remanufactured, and retailers replace the item and ship it to the user without missing a beat — or generating waste.

Step 6: Recycle

Recycling is a key part of the closed-loop model. Defective products, returned products, or even products that have reached the end of their lifecycle go through the returns processor for recycling. The parts and materials then go right back through the production process to create new items.

Step 7: Dispose

As a company adapts to a closed-loop model, more and more material is absorbed throughout the process, and less finds its way to landfills. Product performance is tracked, analyzed, and improved, and the company saves on costs in addition to minimizing impact.

Business Benefits

The closed-loop supply chain offers serious benefits for both the environment and the consumer, but it can also give a serious boost to any business that incorporates these efficiency-enhancing processes. Here's how:

Sourcing value increases with savings from the reduction of direct costs and the sale of recovered outputs. This value increase not only incorporates the secondary sale of recovered products but also the minimized need for new materials and inputs.

Environmental compliance helps ensure good standing with customers and partners while easily meeting all relevant regulations. It also saves money through maximized energy efficiency and material usage.

The added level of customer service with effective return handling, repair, and easy recycling improves satisfaction and loyalty. It also adds significant brand values.

Invaluable data can be acquired by charting the entirety of a product's life cycle, leading to major design improvements and innovations.