WAVOO WAJEEHA WOMEN'S COLLEGE OF ARTS AND SCIENCE,KAYALPATNAM

COMMERCE DEPARTMENT

ADD-ON COURSE

SUPPLY CHAIN MANAGEMENT

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Module -I

1.1INTRODUCTION

Supply chain management (SCM) is the discipline that manages the flow of supplies through all of the stages of a production cycle. SCM applies to any organization that executes projects, produces goods or provides services, as those activities require a supply chain to maintain a steady flow of resources.

Supply Chain Management can be defined as the management of flow of products and services, which begins from the origin of products and ends at the product's consumption. It also comprises movement and storage of raw materials that are involved in work in progress, inventory and fully furnished goods

DEFINITION

The Council of Supply Chain Management Professionals (CSCMP) defines SMC as follows:

"Supply chain management encompasses the planning and management of all activities involved in sourcing and procurement, conversion, and all logistics management activities. Importantly, it also includes coordination and collaboration with channel partners, which can be suppliers, intermediaries, third party service providers, and customers. In essence, supply chain management integrates supply and demand management within and across companies."

1.2FOUR FUNDAMENTALS OF SCM

1. SCM Objectives

Firstly, the objectives of SCM are to meet or exceed the required or demanded customer service level in targeted markets/segments and to optimise total supply chain investment and cost. This service/cost approach has long been regarded as central to supply chain management. This approach requires companies to have a clear understanding of both issues. Customer service requirements, dictated by the market place, "sets the spec" for the supply chain. Achieving this level of service at the optimal cost focuses attention on the elimination of "non value adding activities" (NVAs) throughout the supply chain.

2. SCM Philosophy

Secondly, every product or service is delivered to the final consumer (the only source of "real" money in the chain) through a series of often complex movements between

companies which comprise the complete chain. Inefficiency anywhere in the chain will result in the chain as a whole failing to achieve its true competitive potential. The representation in Figure 1 (below) of a "macro" supply chain shows materials flowing from the raw material source through the various stages in the chain to the final consumer. Money then flows back down the chain. The point is that every link matters and that value is added, and profit generated, at each link along the way.

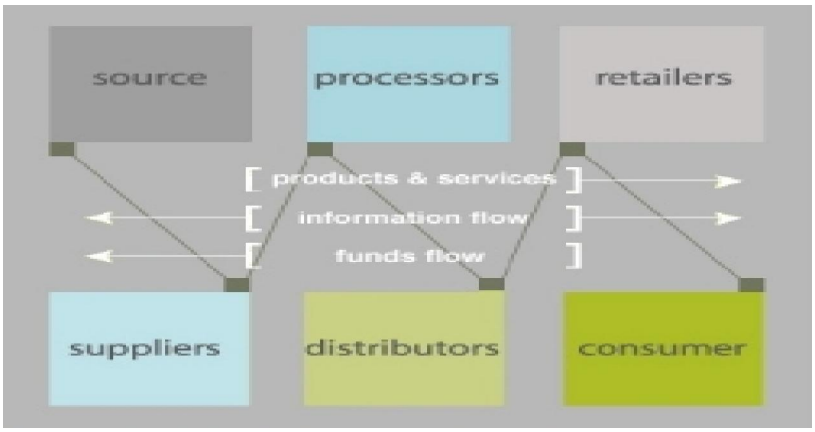

Figure 1 - The External Supply Chain

Most businesses can be described in terms of the five functions: buy; make; store; move; and, sell. This is known as the "micro" or internal supply chain as shown in Figure 2.

Figure 2 - The Internal Supply Chain

Traditionally these functions have been managed in isolation, often working at cross purposes. SCM means thinking beyond the established boundaries, strengthening the linkages between the functions, and finding ways for them to pull together. A recognition that the whole is greater than the sum of the parts calls for more effective integration between purchasing and procurement (buy), production planning and control (make), warehouse management (store), transport management (move) and customer relationship management (sell), as illustrated in Figure 3.

Figure 3 - Integrating the Internal Supply Chain

3. Managing the Flows

For a supply chain to achieve its maximum level of effectiveness and efficiency, material flows, money flows and information flows throughout the entire chain must be managed in an integrated and holistic manner, driven by the overall service and cost objectives. The view of a macro chain shown in Figure 1 (above) indicates the way in which material, money (funds) and information flow between the companies which participate in the chain. Similar logic can be applied to the functions which comprise the micro chain. It can be argued that managing the information flows is the most critical of these activities. This is because the flow or movement of materials or money is usually triggered by an associated information movement. Effective management of material and financial flows is, therefore, predicated upon the effective management of the related information flows. For this reason, information and communications technology (ICT) is becoming an increasingly important SCM enabler.

4. Supply Chain Relationships

Finally, this holistic approach requires a reappraisal of the way in which both internal and external customer/supplier relationships are created and managed.

1.3THE IMPORTANCE OF SUPPLY CHAIN MANAGEMENT

1.Boost Customer Service

- Customers expect the correct product assortment and quantity to be delivered.
- Customers expect products to be available at the right location.
- Right Delivery Time – Customers expect products to be delivered on time
- Right After Sale Support – Customers expect products to be serviced quickly

2.Reduce Operating Costs

- **Decreases Purchasing Cost** – Retailers depend on supply chains to quickly deliver expensive products to avoid holding costly inventories in stores any longer than necessary.

- **Decreases Production Cost** – Manufacturers depend on supply chains to reliably deliver materials to assembly plants to avoid material shortages that would shutdown production. For example, an unexpected parts shipment

- **Decreases Total Supply Chain Cost** – Manufacturers and retailers depend on supply chain managers to design networks that meet customer service goals at the least total cost. Efficient supply chains enable a firm to be more competitive in the market place.

3.Improve Financial Position

- **Increases Profit Leverage** – Firms value supply chain managers because they help control and reduce supply chain costs. This can result in dramatic increases in firm profits. For instance, U.S. consumers eat 2.7 billion packages of cereal annually, so decreasing U.S. cereal supply chain costs just one cent per cereal box would result in $13 million dollars saved industry-wide as 13 billion boxes of cereal flowed through the improved supply chain over a five year period.

- **Decreases Fixed Assets** – Firms value supply chain managers because they decrease the use of large fixed assets such as plants, warehouses and transportation vehicles in the supply chain. If supply chain experts can redesign the network to properly serve U.S. customers from six warehouses rather than ten, the firm will avoid building four very expensive buildings.

- **Increases Cash Flow** – Firms value supply chain managers because they speed up product flows to customers. For example, if a firm can make and deliver a product to a customer in 10 days rather than 70 days, it can invoice the customer 60 days sooner.

4.Societal Roles of SCM

- **SCM Helps Sustains Human Life** – Humans depend on supply chains to deliver basic necessities such as food and water. Any breakdown of these delivery pipelines quickly threatens human life.

- **SCM Improves Human Healthcare** – Humans depend on supply chains to deliver medicines and healthcare. During a medical emergency, supply chain performance can be the difference between life and death.

- **SCM Protects Humans from Climate Extremes** – Humans depend on an energy supply chain to deliver electrical energy to homes and businesses for light, heat, refrigeration and air conditioning. Logistical failure (a power blackout) can quickly result in a threat to human life

5.Improve Quality of Life

- **Foundation for Economic Growth** – Societies with a highly developed supply chain infrastructure (modern interstate highway system, vast railroad network, numerous modern ports and airports) are able to exchange many goods between businesses and consumers quickly and at low cost. As a result, the economy grows.

In fact, the one thing that most poor nations have in common is no or a very poorly developed supply chain infrastructure.

- **Job Creation** – Supply chain professionals design and operate all of the supply chains in a society and manage transportation, warehousing, inventory management, packaging and logistics information. As a result, there are many jobs in the supply chain field.
- **Opportunity to Decrease Pollution** – Supply chain activities require packaging and product transportation. As a by-product of these activities, some unwanted environmental pollutants such as cardboard waste and carbon dioxide fuel emissions are generated.
- **Opportunity to Decrease Energy Use** – Supply chain activities involve both human and product transportation. As a by-product of these activities, scarce energy is depleted. Protect Cultural Freedom and Development
- **Protects Delivery of Necessities** – Citizens of a country depend on supply chain managers to design and operate food, medicine and water supply chains that protect products from tampering.

1.4 PROS OF SUPPLY CHAIN MANAGEMENT

- Develops better customer relationship and service.
- Creates better delivery mechanisms for products and services in demand with minimum delay.
- Improvises productivity and business functions.
- Minimizes warehouse and transportation costs.
- Minimizes direct and indirect costs.
- Assists in achieving shipping of right products to the right place at the right time.
- Enhances inventory management, supporting the successful execution of just-in-time stock models.
- Assists companies in adapting to the challenges of globalization, economic upheaval, expanding consumer expectations, and related differences.
- Assists companies in minimizing waste, driving out costs, and achieving efficiencies throughout the supply chain process.

Cons of Supply Chain Management :

- ✓ Competitors can copy the supply chain management strategy.
- ✓ Sometimes different functions of supply chain mangement is difficult to manage.
- ✓ Supply chain management process can be expensive to implement.

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MODULE -2

2.1. OBJECTIVES OF SCM

To maximize overall value generated

The higher the SCM profitability, the higher is the success for supply chain. The Supply chain profitability is the difference between the amount paid by the customer to purchase a product and the cost incurred by an organization to produce and supply the product to the customer.

Cost quality improvement

This is another essential objective of SCM. It looks to achieve cost quality balance and optimization.

Sources of Cost and Revenue

Customer is the only source of revenue. Therefore there should be appropriate management of the flow of information, product or funds. It is a key to the success of supply chain.

Shortening the time to order

SCM aims to reduce the time required for ordering and fulfilling the same.

Delivery optimization

The SCM aims to meet the demands of the customer for guaranteed delivery of high quality and low cost with less lead time.

Demand fulfilment

Managing the demand and supply is a key yet challenging task for a company or management personnel. Its objective is to fulfil customer demand through efficient resources.

Flexibility

SCM aims for flexibility. A Well managed supply chain provides flexible planning and better control mechanism.

Better Distribution

SCM aims to ensure improved distribution. It can maximize the distribution side efficiency. Marketer or distributor can achieve optimized level distribution by using all resources that are available properly.

Cost Reduction

It's another objective of SCM to reduce the system wide cost of a company to meet service level requirement.

2.2 COMPONENTS OF SCM

Five components of supply chain management systems:

Planning

Plan and manage all resources required to meet customer demand for a company's product or service. When the supply chain is established, determine metrics to measure whether the supply chain is efficient, effective, delivers value to customers and meets company goals.

Sourcing

Choose suppliers to provide the goods and services needed to create the product. Then, establish processes to monitor and manage supplier relationships. Key processes include: ordering, receiving, managing inventory and authorizing supplier payments.

Manufacturing

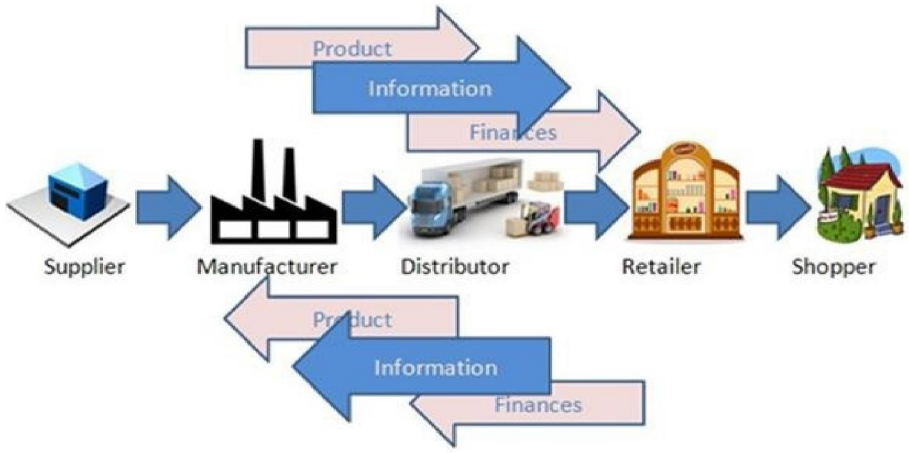
Organize the activities required to accept raw materials, manufacture the product, test for quality, package for shipping and schedule for delivery.

Delivery and Logistics

Coordinate customer orders, schedule deliveries, dispatch loads, invoice customers and receive payments.

Returning

Create a network or process to take back defective, excess or unwanted products.



2.3 DECISION-PHASES OF SCM

The supply chain is changing gradually. As there are ever growing demand of customers. Customers taste and preferences are changing day by day. To keep with customers, marketers need to change their marketing activities. Moreover, The higher satisfaction of customers can give only through effective supply chain decision.

Present marketers are investing their time more on the supply chain decision phases. As a result, Successfully supply chain management requires many decision phases. This decision includes information, funds, and products.

Each decision is useful to bring supply chain surpluses. These decisions fall into three categories.

1.Supply Chain Strategy

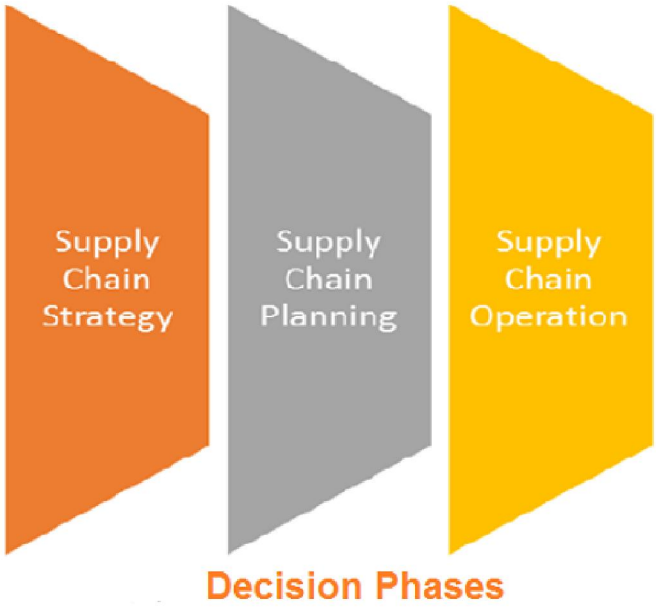
In this phase, decision is taken by the management mostly. The decision to be made considers the sections like long term prediction and involves price of goods that are very expensive if it goes wrong. It is very important to study the market conditions at this stage.

These decisions consider the prevailing and future conditions of the market. They comprise the structural layout of supply chain. After the layout is prepared, the tasks and duties of each is laid out.

All the strategic decisions are taken by the higher authority or the senior management. These decisions include deciding manufacturing the material, factory location, which should be easy for transporters to load material and to dispatch at their mentioned location, location of warehouses for storage of completed product or goods and many more.

2.Supply Chain Planning

Supply chain planning should be done according to the demand and supply view. In order to understand customers' demands, a market research should be done. The second thing to consider is awareness and updated information about the competitors and strategies used by them to satisfy their customer demands and requirements. As we know, different markets have different demands and should be dealt with a different approach.



This phase includes it all, starting from predicting the market demand to which market will be provided the finished goods to which plant is planned in this stage. All the participants or employees involved with the company should make efforts to make the entire process as flexible as they can. A supply chain design phase is considered successful if it performs well in short-term planning.

3.Supply Chain Operations

The third and last decision phase consists of the various functional decisions that are to be made instantly within minutes, hours or days. The objective behind this decisional phase is minimizing uncertainty and performance optimization. Starting from handling the customer order to supplying the customer with that product, everything is included in this phase.

For example, imagine a customer demanding an item manufactured by your company. Initially, the marketing department is responsible for taking the order and forwarding it to production department and inventory department. The production department then responds to the customer demand by sending the demanded item to the warehouse through a proper medium and the distributor sends it to the customer within a time frame. All the departments engaged in this process need to work with an aim of improving the performance and minimizing uncertainty.

That's why the present marketers are investing their time more on the supply chain decision phases. As a result, Successfully supply chain management requires many decision phases. This decision includes information, funds, and products.

Each decision is useful to bring supply chain surpluses. These decisions fall into three categories. However, These decisions are depending on the frequency of each decision and time frame. As a result, each category of decisions must consider uncertainty over the decision horizon.

2.4SUPPLY CHAIN DRIVERS

Five supply chain drivers are as follows;

Five supply chain drivers, Production, Inventory, Location, Transportation, and Information, influence the performance of the supply chain. Companies can develop and manage these drivers to emphasize the ideal balance between responsiveness and efficiency, depending on your business and financial requirements.

Responsiveness to customer demands and expectations drives continuous innovation in products and how customers are served. Prioritizing responsiveness enables companies to accommodate unexpected fluctuations in the market and changes in customer preferences successfully.

1. PRODUCTION

To achieve a responsive supply chain, ensure your factories have excess capacity and use flexible manufacturing techniques to produce a wide range of items. Flexibility allows production to pivot to meet fluctuations in consumer demand quickly. Additionally, having multiple, smaller production facilities close to distribution centers and customer hubs increases consumer demand responsiveness by decreasing delivery time.

2. INVENTORY

When it comes to inventory as a driver, optimizing responsiveness often dictates stocking higher product levels and at more warehouse locations. Efficient inventory allows for unexpected fluctuations in demand that can be met promptly. However, this approach incurs higher storage costs and must be weighed against the benefit of widespread availability.

Efficiency in inventory management calls for reducing inventory levels of all items, especially those that do not sell frequently. Also, stocking inventory in only a few central distribution centers achieves economies of scale and cost savings.

3.LOCATION

Prioritizing responsiveness for the location driver often involves maximizing convenience by establishing many locations near customer groups. For example, fast-food chains use location to be very responsive to their customers by opening many stores in high-volume markets. Many sites allow them to respond quickly to consumer demand but increase operating costs by operating many stores.

4.TRANSPORTATION

Faster modes of transportation, such as air freight–while often more expensive–allow for shorter delivery times and greater response flexibility. FedEx and UPS are two companies that provide high levels of responsiveness in last-mile delivery by using transportation to deliver products often within 48 hours.

5.INFORMATION

Information's power as a driver is growing as the technology for collecting and sharing information becomes more widespread, easier to use, and more affordable. Software with analytics uses internal and external data to make decisions that enhance the performance of supply chain drivers. Your supply chain should collect and share accurate and timely data generated by the previous four drivers in operation for ultimate effectiveness.

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MODULE - III

3.1Outsourcing

1. Outsourcing is a business practice in which services or job functions are farmed out to a third party. Outsourcing corporate operations are also called outsourcing procurement or outsourcing of business processes.

2.Outsourcing may involve using a large third-party provider, such as a company such as IBM to manage IT services.Companies outsource primarily not only to cut costs but also to improve efficiencies, gain speed required to succeed in business.outsourcing to a third party, the business can focus on the best core activities and gain a competitive edge in the marketplace.

3.One of the main reasons for outsourcing may be expanding the business for a temporary period which demands more staff or resources. So, if a company does not wish to recruit more staff as it may not be required in future once that particular job is done, then the decision would very obviously be to arrange for outsourcing the activity to third-party services.

4. They often outsource the functions of customer service and call service. Many forms of jobs may also be outsourced, including production procedures, human resources activities, and financial functions such as bookkeeping and payroll processing. Companies may outsource whole departments, such as their entire IT department, or even parts of a specific department.

5.Companies may choose to outsource services onshore (within their own country), nearshore (to a neighboring country), or offshore (to a more distant country). Nearshore and offshore outsourcing have traditionally been pursued to save costs.

6.For a company to successfully outsource obligations, it is necessary to concentrate as much on the logistics as the business relationship. Outsourcing is more about maintaining the relationship than Service Level Agreements (SLAs), and is a collaboration, not a purchase project. Maintaining and securing a trusted relationship is essential to outsourcing efforts and is more complex than setting levels and relationships in service.

7.Business process outsourcing (BPO) is an outsourcing of a specific business process task, such as payroll. BPO is often divided into two categories: back-office BPO, which includes internal business functions such as billing or purchasing, and front-office BPO, which includes customer-related services such as marketing or tech support.

3.2TYPES OF OUTSOURCING:

1. **Offshore Outsourcing** (getting service in other country, like India by a US Company)

2. **Business Process Outsourcing (o**utsourcing of entire process like tax management, insurance claims, human resources and contact centres.

3. **Value-added Outsourcing** (Two partners with complementary strengths combine to achieve what is impossible alone)

4. **Equity Holding** (Client and supplier buying each other's equity or both creating a new entity)

5. **Multi-sourcing** (**One client** uses a single contract for **several suppliers)**

6**. Co-Sourcing** (one outsourcer to **take the entire system** rather than taking just a process away from the client)

3.3 ADVANTAGES OF OUTSOURCING

1.Overall Cost Advantage: It eludes the need to hire individuals in□house; hence **recruitment and operational costs can be minimized to** a great extent. It reduces the cost and also saves time and efforting on training cost.

2. Entrepreneurship, Employment, and Exports: Outsourcing **stimulates** Entrepreneurship, Employment, and Exports in the country from where outsourcing is done. Look at the example of India. After the initial success of call centres, there was a sudden emergence of many small scales and medium scale BPo and KPO companies.

3.Low Manpower Cost: The manpower cost is much lower than that of the host country. This is exactly the case with India. We have a very large educated workforce. And this causes the labour cost in our country to be much lower.

4.Access to Professional, Expert and High□quality Services: Mostly, the tasks are given to people who are skilled in that particular field. This provides us with a better level of service and fewer chances of errors or misjudgment.

5.Emphasis on Core Process Rather than the Supporting Ones: With its help, companies can focus on their core areas which lead to better profits and increase the quality of their product. They simply outsource ancillary services.

6.Investment Requirements are Reduced: The organization can save on investing in the latest technology, software, and infrastructure and let the outsourcing partner handle the entire infrastructure.

7.Increased Efficiency and Productivity: There is an increased efficiency and productivity in the non – core areas of an organization**.**

8.Knowledge Sharing: Outsourcing enables the organizations to share knowledge and best practices with each other. It helps develop both the companies and also boosts goodwill in the industry.

DISADVANTAGES OF OUTSOURCING

1.Lack of Customer Focus: An outsourced vendor may be catering to the needs of multiple organizations at a time. In such situations, vendors may lack complete focus on an individual organization's tasks. And the reputation of the organization may suffer as a result.

2.A Threat to Security and Confidentiality: The inside news of the organization may be leaked to the third party, so there are security issues. The leak of sensitive information may result in losses to the company and also be an advantage to competitors**.**

3.Dissatisfactory Services: Some of the common problem areas with outsourcing include stretched delivery time and sub□standard quality.

4.Ethical Issues: The major ethical issue is taking away employment opportunities from one's own country. Instead of creating employment and wealth in the origin country it gets outsourced to another country. In recent times this has been viewed by many as unethical and even unpatriotic**.**

3.4 MAKE-OR-BUY DECISION

1.A make-or-buy decision is an act of choosing between manufacturing a product in-house or purchasing it from an external supplier. A make-or-buy decision compares the costs and benefits associated with producing a necessary good or service internally to the costs and benefits involved in hiring an outside supplier for the resources.

2.Tocompare costs accurately, a company must consider all aspects regarding the acquisition and storage of the items versus creating the items in-house, which may require the purchase of new equipment, as well as storage costs.

3.Regarding in-house production, a business must include expensesrelated to the purchase and maintenance of any production equipment and the cost of production materials. Costs to make the product can include the additional labor required to produce the items, which

takes the form of wages and benefits, storage requirements within the facility, holding costs overall.

4.Buy costs related to purchasing the products from an outside source must include the price of the good itself, any shipping or importing fees, and applicable sales tax charges.

5.It based on cost-benefit analysis. decision can be made using quantitative or qualitative research and most of the time, the results of quantitative analysis (cost-benefit analysis) are enough to decide to make the product in-house or buy (outsource) from outside suppliers.

6.Under quantitative analysis, businesses consider all the costs associated with producing the product.These costs include buying and maintaining equipment, cost of the premises (lease, etc.), raw material cost, conversion cost, cost of fuel and electricity, labor cost, warehousing or storage cost, shipping cost, and the cost of capital. The benefits include higher margins from in-house production.

7.Thecost associated with outsourced production includes the product and service, transportation, warehousing, and storage and labor costs for managing the logistics.

8.The decision becomes a little straightforward if the company does not have an idle capacity to produce the product or service. In this case, the management can opt to hire an outside supplier.

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MODULE - IV

4.1Sourcing business model

1.Transaction-based models

Most companies use transaction-based business models when outsourcing. Transactional contracts are structured where the supplier gets paid by the transaction – typically with a pre-defined rate for each transaction, or unit of service. For example, a third-party logistics service provider would get paid monthly for the number of pallets stored, the number of units picked, and the number of orders shipped. A call centre service provider would get paid a price per call or a price per minute.

2.Outcome-based business models

An outcome-based business model pays a service provider for the realisation of a defined set of business outcomes, business results, or achievement of agreed on key performance indicators. Outcome-based business models have gained in popularity in the last few years. A well-structured outcome-based agreement compensates a service provider's higher risk with a higher reward.

3.**Investment-based model (insource)**

Companies that struggle to meet complex business requirements using conventional transaction-based or outcome-based approaches typically invest to develop capabilities themselves (or insource). In such cases, many companies have chosen to adopt what is commonly referred to as a "shared services" structure which is the establishment of an internal organisationmodelled on an arms-length outsourcing arrangement. Using this approach, processes are typically centralised into a shared service organisation and departments are cross-charged for the services used.

4.2SUPPLIER SELECTION

1.Assessment (and development of strategy)

The first stage of outsourcing, and very often the most difficult. The buying company conducts a thorough assessment of their sourcing needs.

2. Proposal (and selection of a service provider)

To get information from providers, the buying company will create and send at least one of the following documents to the external market:

- **Request for Information (RFI)** – its purpose is to determine which of the providers is able to deliver the required services. The document includes details related to providers' capabilities.

- **Request for Proposal (RFP)** – it is helpful in determining the bidding process and the terms of the contract.

- **Request for Quotes (RFQ)** – it enables a company to gain insight into the cost of services.

3. Due Diligence

This is the process of gathering and evaluating information about each other's capabilities to form a structured relationship.

4. Contract procurement

Both parties formalize their business relationship by means of a written agreement. The companies will negotiate the specific terms of their relationship and will then sign a contract, typically one of the following: period

- **Master Services Agreement (MSA)** – one of the most typical types of contractual agreements, used in relationships where one company has to work on a project or projects with another company. It usually covers areas such as intellectual property, confidentiality, terms of payment, responsibilities, warranties and work standards.

- **Service Level Agreement (SLA)** –a critical component of any outsourcing and technology vendor contract. It lists and clarifies expectations pertaining to service type and quality.

- **Non-Disclosure Agreement (NDA),** also known as a Confidentiality Agreement (CA) – in general, these are agreements that protect sensitive information. Cases in which confidential information might be protected through an NDA can include business models, plans for a new tool or software product, information about clients etc.

5. Implementation

After the contract is signed, the two companies will begin transitioning resources and responsibilities from the business to the outsourcing company. This represents the official launch of the project.

6. Managing / delivery

This stage is typically the longest because it involves managing the business and maintaining a working relationship throughout the contract.

7. End of the contract / transfer

At the last stage of outsourcing, repatriation involves the transfer of resources and responsibilities back to the original companies. Usually, cooperation between companies in the area of outsourcing lasts longer than one project**.** After the first project is completed, the outsourced teams start the next projects.

4.3SUPPLIER DEVELOPMENT

Supplier development is the process of working with certain suppliers on a one-to-one basis to improve their performance for the benefit of the buying organisation**.**

Supplier development is a business strategy that encourages working closely with diverse suppliers to help boost performance as well as drive continued growth. It involves embracing the expertise of the supplier and aligning it with the goals of the purchasing organization.

1. Encourage Collaboration between Individual Suppliers

Small, diverse suppliers often lack the resources, skills, or experience to meet complex or demanding business needs. Supplier development programs can encourage small suppliers to work together to offer solutions that they would otherwise be unable to provide alone.

2. Drive Innovation

Encouraging diverse suppliers to work together to develop unique solutions can lead to out-of-the-box thinking and increase innovation. This can result in the development of products and services not currently available on the market.

3. Create Stronger Long-term Supplier Relationships

Supplier development requires trust and collaboration. These elements encourage companies to foster long-term relationships with their suppliers, helping them gain the economic and business resources they need for continued growth and success. This can eventually nurture a healthier and more beneficial partnership for both parties.

4. Resolve Performance and Quality Issues

One on one interaction with various suppliers offers opportunities for improvement on both sides. For example, the supplier can highlight ways in which the customer can provide support, such as improved communication of requirements or access to specification documents. Conversely, the customer can also highlight areas where the supplier's service can be improved.

5. Enhanced Customer Satisfaction

While supplier development is aimed at improving the performance of the supplier to the benefit of the purchasing company, personal relationships with the supplier can also have a positive impact on the end customer. Stronger customer-supplier relations can lead to better communication, greater efficiencies, and, ultimately, higher-quality end products.

4.4IMPLEMENTING SUPPLIER DEVELOPMENT PROGRAM

1) Full transparency between organization and supplier

2) Improved collaboration between organization and supplier

3) Streamlined and reduced sourcing activities and lead times

4) Improved quality, manufacturability, and reliability for new designs

5) Increased supplier responsiveness

6) Increased customer satisfaction

7) Increased awareness of supplier diversity

8) Increased visibility of full supply base to procurement, quality, and even management departments.

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MODULE - V

5.1STRATEGIC SOURCING

Strategic sourcing is a procurement process that connects data collection, spend analysis, market research, negotiation, and contracting. It stops short of the actual purchase of and payment for goods and services.

Strategic sourcing can be customized to meet a customer's specific needs, but its main goal is to leverage a single, integrated system to enhance profitability.

Strategic sourcing best practices include: digitizing documents, participating in a digital business network, and automating workflows.

1. **Data collection and spend analysis**: Spend analysis concentrates supplier data into one source, letting organizations know exactly what's being spent where and presenting the opportunity to streamline vendors.

2. **Supplier discovery**: Sourcing becomes a strategic advantage when organizations can access supplier data through a digital business network, allowing them to request RFPs and have suppliers compete for their business.

3. **Negotiations and contracting**: Automated tools can speed workflows, simplify the digital signature process, and create an electronic repository of contracts where organizations can set renewal alerts.

4. **Implementation and optimization**: When sourcing is automated and digitized, organizations can move faster, build in feedback loops for continual optimization, and constantly evaluate suppliers to make sure they're getting the best sourcing agreements possible.

5.2BENEFITS OF A SOURCING STRATEGY

1.Improved Cost Saving

Having a formally adopted and well-defined sourcing strategy can save organizations money in several ways. First, you can identify select suppliers that offer maximum value. Next, you can negotiate lower unit prices against high-volume purchases. And finally, the

procurement is carried out against external factors, such as market conditions, which maximize profits and offer you a competitive edge.

2.Risk Mitigation and Minimization

Strategic sourcing follows a cost-focused approach to offset potential risks. By analyzing the total spending and value delivered by suppliers, businesses can carry out quality, financial, supply, and customer support risk assessment. Upon identifying these potential risks, one can have a strategy to mitigate and minimize these. Fostering close relations with your suppliers can also keep you a step ahead of possible disruptors in your supply chain.

3.Better Alignment of Business Objectives and Sourcing Processes

Naturally, the sourcing activities must fall in line with the business objectives. Procurement strategic sourcing revolves around the alignment of business objectives and sourcing processes. As a result, organizations will deliver improved performances and greater efficiencies, along with minimal risks.

4.Optimization and Recognition of Ideal Suppliers

Apart from focusing on the cost of procurement, strategic sourcing also highlights analyzing the suppliers and their core capabilities to profile them. Through this process, organizations can recognize the suppliers that are best suited for their requirements for the highest value addition or creation at the lowest cost.

5.Stronger Supplier Relationships

When organizations invest in building stronger ties with their suppliers, they lay the foundation for trust. By involving the suppliers in sourcing decisions and making them feel valued, businesses would be motivating suppliers to deliver as per the organization's objectives. Read more about stronger Supplier Relationship Management.

5.3 STRATEGIC SOURCING PROCESS STEPS

The strategic sourcing process has many variations, but is most commonly broken into seven steps popularized by consulting firm A.T. Kearney. These include the following:

1. Analyze product categories used by the business, spending patterns, and the processes and departments involved.

2. Develop a sourcing strategy based on business goals.

3. Analyze the supplier market and create a supplier portfolio.

4. Define request for proposal criteria and templates.

5. Negotiate with and select suppliers.

6. Integrate suppliers into existing processes, onboarding any new vendors or outsourcing providers.

7. Track performance metrics and optimize the sourcing plan, as needed.

5.4WORLD WIDE SOURCING

1.Global sourcing refers to buying the raw materials, components, or services from companies outside the home country.

2.The process of sourcing products or services is the first step in the supply chain. It's about finding the balance between the quality of products and raw materials you need and the affordability. The less you spend, the more you'll make.

3.Global sourcing is a procurement strategy in which a business buys goods and services from international markets across geopolitical boundaries to save money by using cheap raw materials or skilled labor from low-cost countries

4.For example, Starbucks buys its coffee from locations like Colombia and Guatemala. The advantages of global sourcing are quality and lower cost.

5.When making global-sourcing decisions, firms face a choice of whether to sole-source (i.e., use one supplier exclusively) or to multisource (i.e., use multiple suppliers). The advantage of sole-sourcing is that the company will often get a lower price by giving all of its volume to one supplier.

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MODULE -VI

6.1IMPORTANCE OF SUPPLY CHAIN NETWORK

1.Supply Chain Network Design (SNDC) also known as 'strategic supply chain planning' is the process for building and modelling the supply chain to understand the costs and time to bring goods and services to market within an organisations available resources.

2.The primary purpose of a supply chain network design is to assess company policies and programs and to meet targets to accomplish long□term strategic objectives, and most business units or functional areas within a company are impacted by a network design project.

3.Supply chain networks enhance Services towards consumers. It ensures consumers receive their expected product and in the anticipated quantity. It makes available consumer goods at a precise time and at the exact location.

4.SCND covers all the movements and storage of raw materials, work-in-process inventory and finished goods from the point-of-origin to the point-of-consumption. It covers the planning, implementation and control of supply chain operations.

5.It is important to recognize that a company's network determines its supply chain efficiency and customer satisfaction.

6.Designing an optimal supply chain network means the network must be able to meet the long□term strategic objectives of the company.

7.Most business units or functional areas within a company are impacted by a network design project.

8.A supply chain is a network between a company and its suppliers to produce and distribute a specific product to the final buyer. This network includes different activities, people, entities, information, and resources.

6.2DISTRIBUTION NETWORK DESIGN

1.In a supply chain, a distribution network is an interconnected group of storage facilities and transportation systems that receive inventories of goods and then deliver them to customers.

2.Distribution networks come at the post-manufacturing part of a supply chain.

3.Distribution network designs specify the locations of warehouses and how much product is allocated to each facility. A chemical company typically manufactures product in large plants to lower production costs by exploiting economies of scale. Product is shipped to numerous customer locations.

4.It is an intermediate point to get products from the manufacturer to the end customer, either directly or through a retail network.

5.A fast and reliable distribution network is essential in today's instant gratification society of consumers.

6.3 DISTRIBUTION STRATEGIES

1.Intensive distribution strategy

The intensive distribution strategy makes a product available at every outlet plausible. The primary objective of intensive distribution is to reach as much of the market as possible.

Businesses that engage in mass marketing may prefer the intensive distribution method. Both fast moving consumer goods and consumer durable products are great candidates for intensive distribution.

2. Exclusive Distribution

Certain companies chose to work with a sole exclusive distributor concerning their products reaching end customers. Exclusive distribution is useful for companies that deal with high value goods and have an excellent brand reputation.

Exclusive distribution is preferable for businesses that customers are willing to travel to and have a high emotional investment in the product. For example,jewellary,household appliances

3. Selective Distribution

The selective distribution strategy is an ideal choice for businesses that are looking for a middle point between intensive and exclusive distribution strategies.

4. Direct Distribution

Direct distribution occurs when a business sends an item directly to an end customer. Alternatively, direct distribution can refer to a very short supply chain process.

Direct distribution can be much more cost efficient and less time consuming than indirect distribution methods.

5. Indirect Distribution

Instead of a product going directly from a supplier to an end customer, indirect distribution occurs when a product travels between multiple providers. As a result, indirect distribution methods generally result in a longer supply chain.

6.4Distribution center location

1.The distribution center is defined as a specialized place in a building or a warehouse which is stocked with the goods or products that are to be distributed to the resellers or the wholesalers or in some cases directly to the end customers.

2.Distributioncenters are considered as the foundation for supply network because a single location is allowed to have a huge stock of multiple products.

3.Distributioncenters are warehouses that have larger space than other warehouses. These centers enable faster movement of goods of large quantities within a short period. Goods are procured from multiple suppliers and are quickly transferred to various customers.

4.Thesecenters are an important part of the supply chain, as they provide fast and reliable movement of goods. Most of these centers have computerized control leading to higher efficiency. To increase efficiency and lower delivery time, you will often find these centers close to transportation centers.

5.In the case of perishable products, goods are stored in the center for less than a day, as they enter early morning and are distributed to customers by evening.

6.The distribution center is often accompanied by air conditioning or refrigeration system, depending on the nature of the product, to preserve the stocked goods.

7.In some organizations, a single facility is used to operate as both direct to customer as well as to distribution system. The primary objective of the distribution center is that it supplies to multiple resellers around the location of the distribution center.

8.The primary difference between a warehouse and distribution center is in the time of storage and operation. In the case of the distribution center, the turnover is faster, that is the time between receiving, and shipping of goods is less, but in the case of the warehouse, the time is longer.

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MODULE -VII

7.1Risk Pooling

Dealing with supply chain risk is a vital part of operations management; retailers and other businesses that successfully mitigate and manage these risks will achieve a more efficient operation in the long run.

Risk Pooling involves using centralized inventory instead of. decentralized inventory to take advantage of the fact that if. demand is higher than average at some retailers, it is likely to be. lower than average at others. This reduction in variability**.**

Organizations tend to suffer from bloated inventories. One reason for this excessive investment is that it can be difficult to forecast the amount of raw materials inventory that should be kept on hand. Available balances can vary considerably, depending on the outside demand for the products of which they are a part.

BENEFITS OF RISK POOLING IN SUPPLY CHAIN

The potential benefits of risk pooling, as well as the potential disadvantages, all depend on your business model.

- Shorter, or at least more consistent, lead times.
- Increased agility to respond to demand fluctuations.
- Inventory is being held closer to customers.
- A leaner supply chain, leading to operational cost reductions.
- Reduced carbon emissions, resulting to a greener supply chain.
- Better economies of scale across your procurement, production, and selling processes.
- Reduced transportation costs.
- Reduced warehousing costs.
- The ability to offer a more diverse product range to your customers.

DISADVANTAGES OF RISK POOLING

- Higher stock and storage costs during slow sales periods.
- Longer waits for products to be delivered.
- Reduced customer service performance.
- Higher processing and transaction costs, and potential for negative cash flow during slow sales periods.
- Lower product variety and quality.
- Reduced revenues and profits.

7.2 AGILE SUPPLY CHAIN

1. An Agile supply chain can be defined as one that is flexible and adjustable to meet unexpected needs. Companies have the ability to respond quickly, adapt to their environment, It is particularly important is in the supply chain, or the way products are produced and delivered.

2.An agile supply chain is focused on speed, cost efficiency, responsiveness, flexibility, and productivity in the production and delivery of goods.It rely on real-time data to help make decisions in day-to-day operations, as well as projected data in supply forecasts.Agility reflects the ability of an organisations supply chain to react to consumer demand, market changes and volatility and the shortening lifespan of a product range.

3. It creates a more robust process that saves businesses and consumers money, eliminates waste of excess inventory, foresees potential shortages. agile supply chain basically refers to the use of responsiveness, competency, flexibility, and quickness to manage how well a supply chain entity operates on a daily basis. It allows supply chain partners to work together to produce the amount of product that is needed daily, not based on quarterly, monthly, or yearly forecasts.

4.Agility in the supply chain is focusing on avoiding potential shortages and eliminating excessively stocked inventory. In a sense, overstocking inventory was a typical response to the lean concept. Since the lean concept focuses on making processes more effective and efficient, many supply chain entities often ended up with a huge stock of merchandise. Unfortunately, changes in the economic market, consumer demand, and the growing customization of goods have led to lost costs as inventory was incapable or became unwanted over time.

5. Fallacy in the lean supply chain rests on the fact that this information that has garnered from that lean supply chain is not used to make a predictive, quantitative analysis of what will be needed in the future. As a result, the supply chain often has overstocking issues and is incapable of delivering a near-perfect degree of visibility.

Additionally, the agile supply chain is able to adapt to rapidly changing environments, such as the economy, customization, trends, and customer demands, among many other factors. By making a supply chain able to respond to such issues immediately, supply chain entities can successfully arrive and present itself throughout the course of manufacturing, shipping, and the reverse logistics supply chain.

6.Agile supply enables a company to:

- Rationalise inventory
- Reduce costs
- predictable supply chain
- meet unpredictable customer demand
- It have the capacity to produce a broad product range with a fast time
- Reducing costs supports the increase in profit margins.

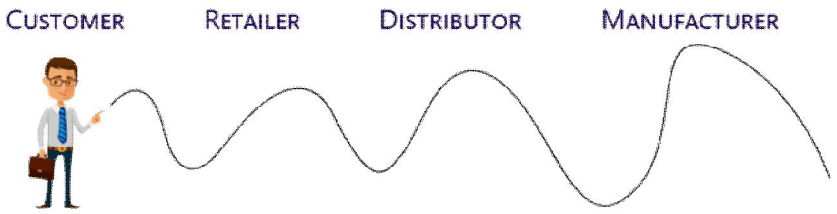
7.3BULLWHIP EFFECT

The bullwhip effect is a supply chain phenomenon describing how small fluctuations in demand at the retail level can cause progressively larger fluctuations in demand at the wholesale, distributor, manufacturer and raw material supplier levels.

In supply chain management, customers, suppliers, manufacturers and salespeople all have only partial understanding of demand and direct control over only part of the supply chain, but each influences the entire chain with their forecasting inaccuracies (ordering too much or too little). A change in any link along the supply chain can have a profound effect on the rest of the supply chain. Given that, there are many contributors and causes of the bullwhip effect in supply chain management.

EXAMPLE The bullwhip effect often occurs when retailers become highly reactive to demand, and in turn, amplify expectations around it, which causes a domino effect along the supply chain. Suppose, for example, a retailer typically keeps 100 six-packs of one soda brand in stock. If it normally sells 20 six-packs a day, it would order that replacement amount from the distributor. But one day, the retailer sells 70 six-packs and assumes customers will start buying more product, and responds by ordering 100 six-packs to meet this higher forecasted demand.

The distributor may then respond by ordering double, or 200 six-packs, from the manufacturer to ensure they do not run out. The manufacturer then produces 250 six-packs to be on the safe side. In the end, the increased demand has been amplified up the supply chain from to 100 six-packs at the customer level to 250 at the manufacturer.



Companies must forecast customer demand based on insufficient information, and try to predict how much product customers will actually want while accounting for the complex factors that enable that amount to be delivered correctly and on time. At every stage of the supply chain there are possible fluctuations and disruptions are made.

Changes in customer demand directly influence all the other factors along the chain, including inventory. However, the bullwhip effect can occur even in relatively stable markets where the demand is essentially constant.

The bullwhip effect can be costly to all the organizations in the supply chain. Excess inventory can result in waste, while insufficient inventory can lead to reduced lead time, poor customer experience and lost business.

Most businesses use safety stock (reserve inventory) as a buffer against demand fluctuations. However, safety stock is not a solution to the bullwhip effect, but it provides enough product to fill orders until more arrives from suppliers.

A wide range of software helps enable more accurate demand forecasts and visibility. Each company will need to decide on the right push-pull approach to its strategy, where a push

approach is used for stable products and a pull approach is used for those with more erratic demand.

7.4REVERSE SUPPLY CHAIN

1.It's the series of activities required to retrieve a used product from a customer and either dispose of it or reuse it. And for a growing number of manufacturers, in industries ranging from carpets to computers, reverse supply chains are becoming an essential part of business.

2.Whether a company is establishing a reverse supply chain by choice or necessity, it will face many challenges. It will have to educate customers and establish new points of contact with them, decide which activities to outsource and which to do itself, and in general figure out how to keep costs to a minimum while discovering innovative ways to recover.

3.Forward logistics are used to manage the forward movement of goods as they transition from raw materials to end-consumers. In many cases, forward logistics includes product development, material sourcing, manufacturing, transportation to distribution centers, and final-mile delivery to a consumer.

4.Reverse logistics refer to moving products and materials back into the supply chain post-delivery. Often, reverse logistics are associated with returns and recalls, but they can also include recycling programs, product disposal, and asset recovery. From a business perspective, reverse logistics require managing stock levels as products are returned and managing the disposition of returned products.

EXAMPLE-When consumers return to a store to buy the latest model, Apple offers consumers discounts on a new product if they turn in their old product. Apple then collects the old models and brings the products back to their factories.

From an ecological standpoint, reverse logistics offers a path to reducing the environmental footprint of business. Examples include:

- Refurbishing damaged items so they can be resold
- Recycling parts to create new products
- Dispositioning of unsold product from brick-and-mortar stores
- Returning packaging materials and pallets to the manufacturer for reuse on inbound logistics

1.Returns

Returns are typically the first step in the reverse logistics flow. Customers return products for a number of reasons. An item may be defective, damaged, seasonal, fails to meet expectations, or simply represents excess inventory.

Whatever the reason, the key to handling returns efficiently is having processes in place for receiving, inspecting and testing products, along with return material authorization (RMA) verification and tracking systems.

2.Recalls

Another way parts and products are returned is through recalls. A critical reverse logistics category, recalls are more complex than basic returns because they typically involve a product defect or potential hazard and may be subject to government regulations, reporting requirements. The key is to have processes in place to receive, replace, resell or reclaim failed parts/products – and whenever possible salvage revenues and turn a potentially negative customer experience into a positive one that builds brand trust.

3. Repair (Also Refurbishment, Re-Use, Or Re-Manufacturing)

Not all products that are returned go directly to landfills. If the faults are not too severe, manufacturers identify the failure and repair, refurbish or re-manufacture the product to like-new condition and return it to stock. Alternately, at end of life, manufacturers may harvest various functional components for re-use.

These practices are becoming more common as manufacturers recognize the value of re-using materials from returned goods

4.Repackaging (for restock or resale in secondary channels)

There are two scenarios where returned parts and products might be re-manufactured. Most products are returned because customers are dissatisfied with them not because there's something wrong with them. When testing reveals "no trouble found," these products are typically repackaged and returned to inventory as quickly as possible. Alternately, parts/products with minor flaws may be repaired, reconditioned and repackaged for resale.

5. Recycling, disposal, and disposition

The focus on recycling returned or end-of-life parts, components and products is driving more sustainable practices in every industry. When products reach the ends of their useful lives and must be scrapped, electronic manufacturers are increasingly finding safe, cost-effective and environmentally friendly ways to dispose of them. That might mean engaging third-party recycling companies to collect/reclaim waste and dispose of assets for them.

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MODULE - VIII

8.1SUPPLY CHAIN MAPPING

Supply chain mapping (SCM) is the process of documenting information across companies, suppliers, and individuals who are involved in the company's supply chain, to create a global map of their supply network. For example, the exact source of materials and all shipments used will be mapped.

The supply chain map is then used in order to identify opportunities and mitigate risk in the company's supply chain.Supply chain mapping give strategies in place to rapidly react when there are supply chain problems like a supplier faces a shortage, an order gets lost in the system, there's a surge in demand or something even more unexpected happens.

Create supply chain transparency and visibility**.**Investors and consumers expect a business to know how and where their products are made.Identify and understand inherent risks within the supply chain and protect operations and reputation against them.

Make informed business decisions and prevents risks. Using insight about their supply chains, businesses can prevent and reduce risk, build long-term supplier partnerships, up skill, and support suppliers.

Take action to remediate issues and protect workers. Having more information about suppliers and workers allows a business to understand the human rights and environmental impacts their decisions may have throughout their supply chain.

8.2 IT in supply chain

In modern management, information has become a central feature of management planning and control. Computers and information technology have been used to support logistics and supply chain management for many years.

Nowadays, information technology is viewed as a key factor that will affect the growth and development of logistics and supply chain management.

The role that IT plays in supply chain management or SCM is so important. IT provides the tools which can pick up relevant information, break it down for proper analysis and execute it for optimum performance of the supply chain.

Data is pivotal to the execution of the supply chain, primarily because it provides the base on which the supply chain managers can take decisions.

Real-time or almost real-time information is the key to proper supply chain management. With information about the various stages of the supply chain, decision-makers can plan, manage, and adjust processes to achieve goals in procurement, inventory, manufacturing, etc.

1. Effective Information Management

Effective information management can help ensure that a firm meets the logistical needs of its customers.

Firms need to place priorities on logistical elements such as on-time delivery, stockout levels, order status, shipment tracking and expediting, order convenience, order completeness, creation of customer pick up, and backhaul opportunities and product substitution.

2.Competitive Advantages

Computer-based decision support systems (DSS) support the executive decision-making process in logistics and supply chain management.

3. Helps in Decisions Support Systems

Companies need better information on their customers (such as customer service and sales forecasting), information on their suppliers. (such as production planning and sourcing and purchasing).

4. Digital Order Processing System

The order processing system is the nerve center of the logistics and supply chain system.A customer order provides the communication message to set the logistics process in motion.

The cost and efficiency of the entire communication can result in loss of customers or excessive transportation, inventory, and warehousing costs together with possible manufacturing inefficiencies caused by frequent changes in the production line.

5. Computerization of Firm Activities

Leading-edge organizations are utilizing computers extensively to support logistics activities.Computers are used in order entry, order processing, finished goods inventory control, performance measurement, freight audit/payment, and warehousing

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