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FUNCTIONS OF SUPPLY CHAIN MANAGEMENT AND PROCUREMENT

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ABSTRACT

Using a network of facilities, supply chain management creates raw materials, transforms them into intermediate products, and then turns those into finished items, which are then distributed to clients. Different actors play different roles in supply chain management depending on the sector and the organisation. Supply Chain Management has thus emerged as a crucial topic for manufacturers, experts, and researchers. It is believed that the full structure of the supply chain must be properly understood in order to manage the supply chain effectively.

Keywords – Supply chain Management, Manufacturers, distribution, clients and Warehouse Management.

1. INTRODUCTION

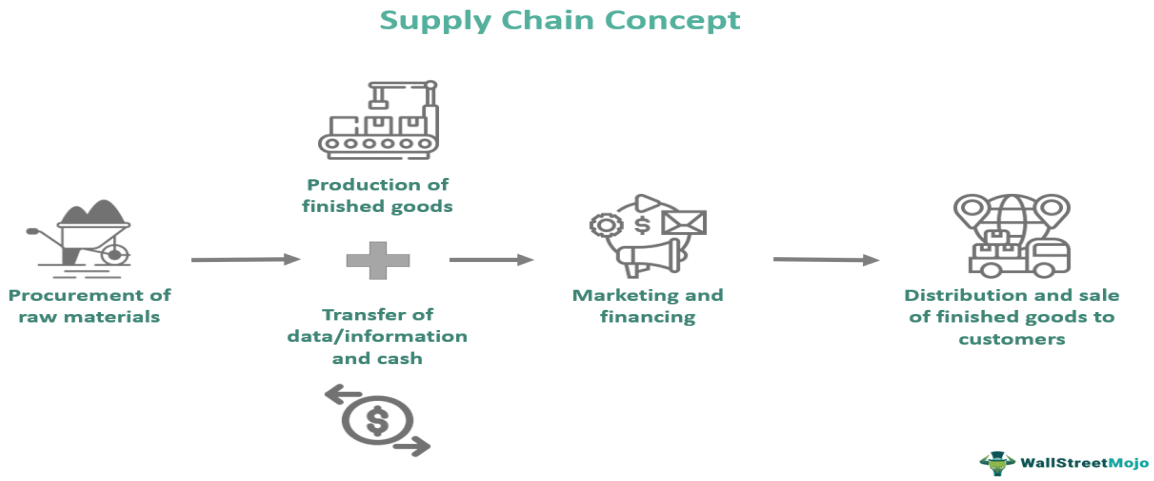
When it comes to operation management, supply chain management is extremely important. The customer must get the raw materials from the manufacturing facility at the proper time, location, and amount. Supply Chain therefore takes care of everything from the start. A component of supply chain management is logistics management. The TPVC (transit Planning and Vehicle Scheduling) department manages the vehicle's safe transit.

To ensure that no space is wasted or overloading occurs, a suitable vehicle must be used for optimum space optimisation.For instance, if a distributor needs 10 tonnes and the warehouse manager schedules a vehicle with a 15-ton capacity, there would likely be space waste Organisations use a variety of business improvement strategies to enhance their operations.In their research and practice, manufacturers and researchers have identified a variety of issues with supply chain operations.

2. SUPPLY CHAIN MANAGEMENT.

A network of facilities known as supply chain management deals with the production of raw materials and the subsequent transformation of those raw materials into completed goods. Additionally, it involves numerous procedures such as product distribution, operations, purchasing, and integration. The warehouse is where the manufactured goods are initially delivered, and inventory control is engaged here. According to client demand, the product inventory is held and afterwards distributed to distributors and retailers.

Inbound logistics refers to the products moving from the manufacturing facility to the warehouse, while outbound logistics refers to the products moving from the warehouse to the distributor or the store. The concept, principles, nature, and development are defined in these works.To maximise customer satisfaction and gain an advantage over rivals, supply chain management involves managing the material, financial, human, and information resources inside and throughout the entire supply chain.



2.1 WAREHOUSE MANAGEMENT SOLUTION.

Make the most of the storage area: Lean concepts place a strong emphasis on lowering process waste and boosting productivity. Layout should be optimised to cut down on pointless steps and expedite the procedure. This can be accomplished by structuring the products to reduce the need for unnecessary transportation and using vertical storage solutions, like pallet rails.

Implement an inventory management system. By monitoring inventory levels and avoiding waste brought on by overstocking or stockouts, an inventory management system can help you optimise your warehouse operations.

Use of efficient technologies: Technology can speed up operations by automating manual tasks and reducing the amount of time needed to complete them. Utilising a barcode scanner can speed up processing and aid short stacking time.

Implement a cross-dock system so that we may do other things besides storing things in the warehouse. This can also reduce the long-term storage and minimize the time goods spend in the warehouse.

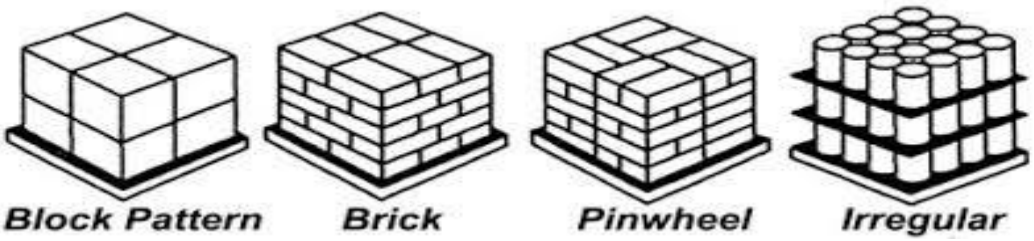
Data analytics use: Data analytics can be used to analyse warehouse performance and pinpoint areas for development. Businesses can utilise analytics to check inventory levels, spot inefficiencies, and improve warehouse layouts and workflows.

Equipment upkeep: Keeping the warehouse's machinery, including forklifts, conveyors, and shelving units, in good functioning order. In fact, doing so can speed up loading and unloading

2.2 STACK HEIGHT IN A WAREHOUSE.

Space optimisation: The number of products or pallets piled vertically on top of one another is referred to as the stack height. Warehouses can effectively employ the limited vertical space by maximising the stack height. This is especially important for warehouses with little available floor space since it increases storage capacity without increasing the facility's overall size.

Storage Capacity: Within the same warehouse space, a higher stack height enables more storage. You can store more things in less space by stacking them vertically, allowing the warehouse to hold more inventory. Businesses that deal with huge amounts of commodities or have seasonal demand changes would particularly benefit from this.



2.3 TRANSPORTATION PLANNING AND VEHICLE SCHEDULING

One of the most crucial aspects of the supply chain that a warehouse manager should manage is this one; scheduling the type of truck or vehicle that will be used should be planned in advance. The following list includes various vehicle types along with their corresponding volumes. To plan and optimise shipments for orders (sales orders, purchase orders, refunds, and stock transport orders) and deliveries, use transportation planning/vehicle scheduling (TP/VS). To accomplish this, you assign the orders and deliveries that you intend to ship to certain vehicles.

Processes including cross-docking, incoming delivery, and outbound delivery are all supported by TP/VS.

A few examples include TATA ACE, CEDH-TATA 407, CEDH BOLERO, CEDH-FTL, CEDH-TATA 709 CEDH FTL, etc. The recommended volume ranges from 3 to 30 metres.

Therefore, choosing the appropriate vehicle in accordance with the Delivery Order (DO) IS crucial for correctly optimising the use of space and carrying out activities without difficulty.For instance, if the DO is 30 m3, and we schedule a truck that is 25 m3, there would be an instance of overloading, which could damage the CFC and ultimately result in a loss for the company.In order to avoid such delays in the transportation and delivery of the products to the distributors and retailers, the key area of concentration will be on properly optimising the vehicle resources.

2.4. IMPROVING THE WAREHOUSE EFFICIENCY.

Batch picking might be used. This can effectively cut down on time.Dynamic slotting is the process of continually improving product placement inside a warehouse depending on a variety of variables, including product features, demand trends, and operational effectiveness. Simple ways to maintain this include filling the prominent bin adjacent to the shipping dock with whatever product is expected to move the most units during the coming week.

Gold Zone management: Keeping the most in-demand product in a distinct area close to the dock so that the warehouse manager can quickly gather the items. This will help you save lots of time. The warehouse manager can anticipate when the most expensive parts will be needed.Picking efficiency is increased by pick path sequencing. It automatically creates a picklist so that the picker can follow it without having to go back or make any crisscross movements. He will carry out what is specified in the pick list. In fact, this will save a tonne of time during the warehouse's pick times. He won't perform any backtracking actions, which will improve picking effectiveness.

It takes time for the supervisor to look and search for the bar code number. Therefore, when the items are prepared to be loaded onto the truck, a scanner is needed—implementation of WMS. Software for tracking can be used. The optimum approach in this scenario is RFID. Supply chain management, access control, vehicle tracking, textile monitoring, inventory tracking, real-time location systems, and event tracking are just a few of the many uses of RFID technology.

2.5. LOGISTICS MANAGEMENT.

The effective transfer or shifting of goods from one location to another while maintaining the lowest possible transportation costs. Under inbound logistics, commodities are moved from the manufacturing facility to the warehouse. Inventory management requires the warehouse manager to assess the products that are being added to the stock. The Warehouse Manager manages the Delivery Order (DO) in accordance with client demand. Outgoing finished goods are the focus of outbound logistics. For businesses that buy finished goods from vendors. Outbound logistics fulfils direct-to-customer orders and dispenses the goods to retail establishments.

The most crucial aspect of operations and supply chain management is logistics; if the logistics manager is unable to deliver the product on schedule, the company will suffer severe losses. A competitive advantage can be gained by using effective logistics management, which guarantees efficient movement across the supply chain. The logistics manager's primary responsibility is to ensure that the product moves through the warehouse smoothly with a less-than-ideal transportation cost.

SCM is applicable to the planning phase as well as the exchange and management of capital that takes place across the supply chain. The proper thing is created by a coordinated network of people, organisations, resources, and technologies. The most crucial factor was how best to do the same thing. Using the same strategies as those used when performing the same, is the best approach to go.

3. PROCUREMENT CATEGORIES

- Procurement categories are divided into three generic categories, plus two special relationships as follows:
- Major (high risk) complexity procurements, the purchase of something which does not exist, tailored to the project's unique specification. These would be considered critical sub-projects.
- Minor (low-risk) complexity procurements, will often represent large monetary values, but the commodities exist and will conform to the seller's existing product specification.
- (Note: Minor product tailoring such as unique name tags or special colour schemes would not add risks to the procurement, and thus would not change their classification. However, major alterations to a seller's existing product, perhaps requiring a product redesign and perhaps new product testing, would likely place them into a Category (1) procurement).
- Routine buys of COTS (Commercial Off-The-Shelf) commodities or purchased services.
- Special procurements: done under corporate teaming arrangements.

4. PROCUREMENT OBJECTIVES

Support Organizational Goals and Objectives: Develop integrated purchasing strategies that support organizational strategies.

For example: Monitoring supply markets and trends and interpreting the impact of these trends on company strategies

Identifying the critical materials and services required to support company Procurement Objectives strategies in key performance areas, particularly during new product development

supporting the organization's need for a diverse and globally competitive supply base Support Operational Requirements Understand business requirements i.e. requirements of each functional group within the organization - internal customers (Engineering, R&D, IT, distribution etc.) Buy products and services at the right price, from the right source, the right specification, in the right quantity, for delivery at the right time to the right internal customer

Develop Strong Relationships with Other Functional Groups.

5. SUPPLIER SELECTION AND EVALUATION.

- One of the most important processes performed in organisations today is the evaluation, selection and continuous measurement of suppliers
- Supplier selection and evaluation involves stating the organisation's needs and then determining how well potential suppliers can fulfill these needs Supplier Selection & Evaluation

- Involves multiple criteria which can vary both in number and importance depending on the situation.
- The supplier selection process includes both qualitative and quantitative factors ∗ Business practices, philosophies and changing market needs influence the criteria for supplier selection and evaluation.

The most effective way of doing the same is that we don't do it every time as the eats

5.1 Procurement Power Play: Unleashing the Potential of Effective Procurement Management

We all know something about purchasing, everyone buys stuff for their personal use, this article tells about how professionals buy things in the business world. it tells about the fundamentals of purchasing and also explains why purchasing is important and the principles and procedures of the purchasing function. It tells about basic tools a buyer uses to manage company costs.

PURCHASING

Purchasing is the process of selecting a supplier, negotiating contract terms and managing that supplier's performance in completing the terms of a contract.

STRATEGIC PROCUREMENT:

A proactive strategic procurement operation can give the organisation it represents a competitive advantage by reducing waste in the value chain. Purchasing strategies, however, cannot be developed in isolation; they need to be integrated with corporate strategy to succeed. The involvement of purchasing is at strategic, tactical and operational levels.

Strategic level	Tactical level	Operational level
Purchasing research Long-range planning Predicting availability Policy determination - single sourcing - reciprocal trading - Ethics - Post-tender negotiation etc.	Buying methods Negotiation Budgeting Interface development Staff development Contracting Cost reduction techniques etc.	Expediting records and systems maintenance Invoice clearance Requisition handling Enquiries/quotations Price determination Returns etc…

1. THE FUNCTION OF PURCHASING

a) The purchasing process:

Purchasing is important because purchasing impact cost, which is more than half the amount in making a product is attributed to the company's suppliers, who provide raw materials, components, and assemblies to your factory, selecting the best supplier clearly has an influence on costs, both directly by purchasing price and indirectly through the efficient way the supplier completes the contract .in addition to the impact on company costs.

- Purchasing builds relationships with suppliers to help the company improve its reputation for high quality, for on-time delivery and for innovative products.
- Purchasing affects your reputation and competitive advantage in the marketplace.

Purchasing needs four things to be successful:

- Highly qualified employees
- Formal organisational structure that supports efficient operating and effective communication
- Information Technology for co-ordinating planning and execution activities of purchasing
- Effective system to manage performance OF suppliers.

One more thing to consider is it is very important for purchasing to closely manage your supplier relationships while also becoming more integrated with customers. The key to achieving this is a strong linkage with all the other groups and departments like production, marketing, and logistics within the organisation.

b) Purchasing order:

Once the buyer and supplier reach the agreement, The basic terms of that agreement are spelt out in the purchase order so there are no misunderstandings.

The purchasing order confirms the price and number of items, establishes delivery dates, drives relationships and Sets expectations. With the purchase order, the company can buy many different types of goods and services. The purchasing orders are Long-term agreements for capital equipment and blanket purchase orders for large orders.

To ensure proper purchase order quantity and to remove complexities, the trend today is to automate the purchase order as much as possible, today purchasing departments have increased their use of electronic data exchange with suppliers, online ordering and cloud-based ordering systems. Automation is needed for the effectiveness and efficiency of purchasing order procedures.

C. The Purchasing Policies.

POLICIES: Establish the rules that guide an organisation and determine the standard operating procedure.

Purchasing policies: define the responsibilities of the purchasing department, guide the conduct of purchasing personnel, and identify appropriate buyer-seller relationships like

Ethical conduct (well-written policy)

Supplier code of conduct

Environment responsibility

Regulating compliance

Relationship management

D. The Purchasing Orders.

- The purchase should comply with the overall business strategy
- How does a company control cost
- What is their position on risk Are they growing globally or are they a local company

The corporate strategies define the structure and strategies of the purchase function

The purchasing is of three types:

- Centralised purchasing-most decisions are made at the corporate level
- Decentralised purchasing department responsible for their own purchase.
- Hybrid purchasing organisation

2. MANAGING SUPPLIERS

A. Supplier evaluation and selection:

Five-step process to select a supplier

- Recognise the need
- Understand the requirements of customers
- Determine the right strategies
- Identify potential suppliers
- Send a request for a quote

Supplier evaluation criteria:

Production capability, production capacity, financial stability, technical ability

Skill level of company managers

B. Supplier quality management:

A good supplier satisfies the expectations of the final client, which is why it is important to pay attention to supplier quality. For most businesses, suppliers like assembly companies account for more than half of their cost of goods sold.

to guarantee ongoing quality improvement, which is a crucial component of total quality management. Effective total quality management, which is more of a culture than a project, requires all employees to exhibit quality conduct in all facets of their everyday jobs. By holding each person accountable for quality in all they do, TQM aims for zero defects. It's similar to not detecting flaws but preventing them.

Ensure quality standards:

- Award contracts to proven suppliers
- Investigate processes
- Be a good customer
- Be a good partner.
- Supplier management and development

Designing a good management system and typical management metrics will centre on such things as cost, quality and delivery. One key to an effective management system is to have a standard of comparison, a benchmark for performance.

Determine the criteria to select the best of the supplier this is based on,

- Length of relationship
- Past performance
- Volume of business you do

It is needed to gather the right data to measure the performance correctly, from within your company, from the supplier, and from a site visit.

3. STRATEGIC SOURCING

- Worldwide sourcing
- Category management

- Negotiating planning
- Contract management

a) Worldwide Sourcing:

the benefits of worldwide sourcing are the best prices, the latest technology, competitive processes and new markets.

the negatives regarding worldwide sourcing are it will cost much higher in transportation costs, insurance costs, packaging costs, taxes, coordination and time.

Worldwide sourcing will be a success if we clearly define processes, centralised decision-making, communicating effectively, and decentralised operational control.

b) Category Management:

Purchasing a commodity on behalf of the company is typically required to manage a category of purchases. Three different qualities of a commodity—many suppliers, vital in nature, cost-driven, and the requirement to perform spend analysis, which entails recording and categorising all the money spent on purchases throughout the year—are important for a buyer. The corporation can determine its spending on a certain item with a specific supplier in each region thanks to spending analysis.

c) Negotiating Planning:

Planning is key for negotiation, more than price, the payment terms and delivery schedules play a role.

the first step in planning is prepare to for negotiation: know what you want, and anticipate the seller's wants and needs. and the second step is creating a negotiating plan: develop specific objectives, gather relevant information, understand sellers' objectives and take a position on each factor.

d) Contract Management:

It usually costs less to avoid trouble than to pay for getting out of trouble.

Contract: an agreement between two parties to accomplish a specific task.

Purchase agreement: A legal contract obligating a buyer to buy and a seller to sell a product or service.

Purchase agreement elements: Annual contract, blanket purchase order, price agreement, corporate agreement**.**

e) Legal and ethical considerations:

If you do not have integrity you have nothing.

In this, you should avoid favours, reciprocity and personal gains,

The legal documents required were: incoterms, environmental and social responsibilities.

4. Strategic cost management

Strategic cost management includes:

Price and cost analysis is a component of strategic cost management.

• Cost-benefit analysis

• the overall cost of ownership

• Targeting costs

• Analysis of learning curves

When consumers spend firm funds, they should receive value.

A fair return or an equivalent in goods, services, or money is what is referred to as a value.

Buyers are expected to find value when they spend company money.

A value is just compensation for something transferred, whether it be in cash, products, or services.

• Decrease expenses

• Raise profits

• Lower expenses while raising profits.

The job of the purchasing department is not to attain the lowest price, their job is to ensure price paid is fair and reasonable, fair to the company and fair to suppliers.

How to determine fair and reasonable prices:

The approaches are:

- price analysis: comparing suppliers' prices with benchmark prices.
- cost analysis: determining a supplier's cost to produce a product or service.
- total cost analysis: a study of all costs of total transactions.

2. Cost analysis:

Suppliers' prices can be analysed if it A value can be increased by three straight-forward ways,

is fair or not by accessing cost information.

Accessing cost information can be done by:

- Receive a cost breakdown
- Conduct a cost analysis
- With this supplier breaks down the company can research and plan up the negotiation
- Total cost of ownership:

In addition to the price itself, it includes all costs like sales tax, and delivery charges, if it is bought from another country it might include customs duty too.

In total cost of ownership analysis, the purchasing department tries to understand the entire cost to obtain, operate and dispose of a product. By this, you will capture all the costs incurred after the item is delivered, as you use it. TCO provides one total figure for the purchase.

Total cost of ownership categories:

- Purchase Price: Cost associated with making the purchase such as qualifying the supplier.
- Acquisition cost: Cost of getting the purchased item, such as transportation, duties, and installation costs.
- Usage cost: includes maintenance cost, downtime cost, repair parts cost, and service contracts.
- End of life cost
- Target costing:

The maximum amount of cost that can be incurred on a product.

This can be done by

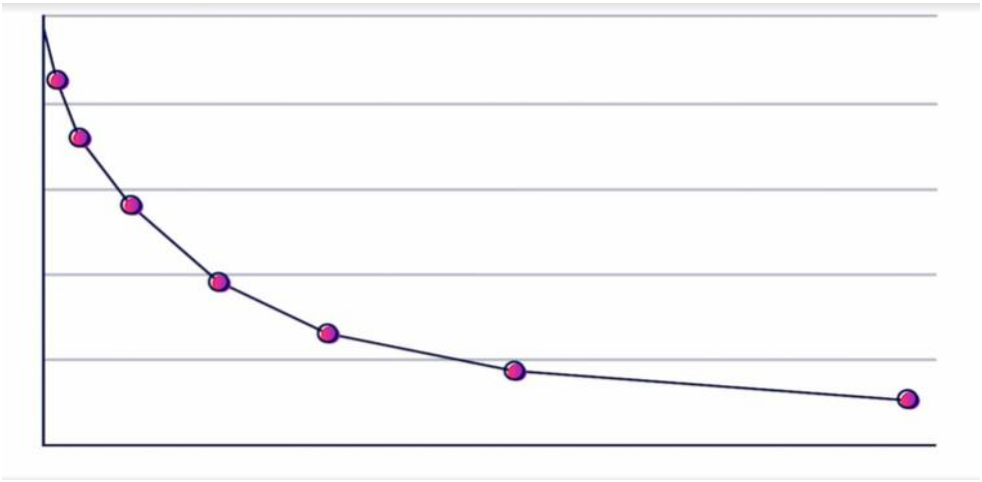
- Determine the allowable cost (selling price -profit =cost), allowable for you to buy from the supplier.
- Set a target cost for each component.
- Meet with each supplier.
- Learning curve analysis:

The more you practise anything, the better you get at it; this is the outcome of learning; practice makes man perfect.

In a manufacturing facility, the learning curve is applicable to direct labour expenses.

It determines the rate at which direct labour costs rise as production volume rises. You advance at a predetermined rate for each doubling of production volume.

For instance, according to the 85% learning curve, your direct labour expenses per unit decrease by 15% each time your production volume doubles.



The three situations where learning curve analysis can be applied are:

- New process or product
- High direct labour costs
- Stable direct workforce.

6. E-SOURCING:

Online buying has grown tremendously, and many companies today measure themselves by how fast their internet sales are increasing.

Business to Business is also growing, for the buyer this is called e-Sourcing. Making company purchases from key suppliers through a totally electronic transaction is called e-Sourcing.

Buyers and suppliers have been connected electronically for a quite while, and the software to do this has grown significantly over the years.

At first, the two companies were connected through Electronic Data interchange (EDI), which allowed them to exchange information in the standard format.

Today purchase software helps buyers to automatically place orders over the internet

There are three electronic models are there:

- Supplier websites (sell-side systems)
- Buyer websites (buy-side systems)
- Third-party marketplaces

CONCLUSION

Modern supply chain management places a high priority on warehouse efficiency, which directly impacts organisations' overall success and competitiveness. The significance and elements influencing warehouse efficiency are highlighted by the important conclusions that follow:

Improved Picking and Packing Procedures: A well-designed warehouse structure and organisation improve operations by cutting down on travel time. The efficiency of a warehouse can be greatly increased by implementing effective storage and layout strategies.Automation, robotics, warehouse management systems (WMS), and Internet of Things (IoT) devices are examples of sophisticated technology that can be integrated to improve operational efficiency. Automation speeds up order processing, lowers manual labour, improves accuracy, and eventually enhances warehouse throughput.Data-Driven Decision Making: Real-time monitoring and data analytics offer insightful information on warehouse operations. examining information about inventory levels, order trends.