

# A Comprehensive Outline of the Various Aspects of Supply Chain Management

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**Abstract** - Supply chain management is the management of the flow of goods and services and entails all processes that metamorphoses raw materials into end products. It involves the active reorganization of a business's supply-side activities to make best possible use of customer value and gain a competitive benefit in the marketplace. SCM embodies an effort by suppliers to develop and deploy supply chains that are as resourceful and cost-effective as possible. Supply chains comprises the whole lot from production to product development to the information systems needed to direct these activities. SCM is built on the idea that all the product that reaches the market is an outcome of the efforts of the multifarious organizations that contribute to the supply chain. Even though, supply chains have survived for a long time, most companies have only of late paid attention to them as highly valuable asset to their operations. SCM incorporates both integrated planning and implementation of processes that is pivotal to enhance the flow of materials, information and financial capital in the areas that largely comprises of i.e. is demand planning, sourcing, production, inventory management and storage, transportation, logistics and return for excess or imperfect products.. Supply chain management is an extensive, baffling responsibility that banks on each of the partners from suppliers to manufacturers and beyond to function in a smooth way. Therefore, effective supply chain management necessitates change management, partnership and risk management to generate alignment and communication between all the persons responsible. In this paper various aspects of supply chain management, such as characteristics, components, challenges, benefits and drawbacks are discussed and explored in detail.

**Keywords:** supply chain, inventory, supplier, distributor, transportation, SCM

## 1. INTRODUCTION

Supply Chain Management (SCM) is defined as the organization of flow of products and goods, which commences from the provenance of products and terminates at the product's consumption. It also entails movement and storage of raw materials that are involved in work in progress, inventory and finished goods. The key objective of supply chain management is to oversee and relate production, distribution, and shipment of products and services. It is accomplished by establishments with a very good and firm hold over internal inventories, production, distribution, interior productions and sales. Supply-chain management comprises of the following steps namely

design, planning, execution, control, and monitoring of supply-chain activities with the motive of creating net value added output, building a competitive substructure, enhancing worldwide logistics, harmonizing supply with demand and gaging performance globally." SCM is a subset of industrial engineering, systems engineering, operations management, logistics, material procurement, information technology, and marketing and go all-out for a holistic approach

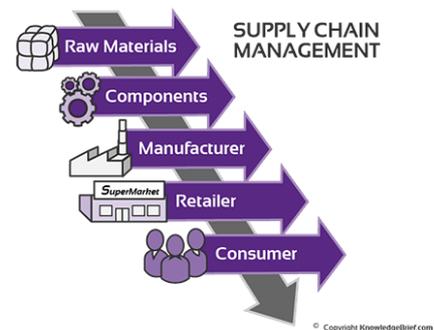


Fig 1. Supply chain showing flow of goods from supplier to the end user

The above figure demonstrates the flow of goods, services and data from the supplier to the end user who are generally general public. The picture portrays the movement of a product from the primary manufacturer/supplier in this case to the secondary manufacturer, who passes it on to the distributor for shipping. The distributor in turn transports it to the wholesaler or retailer, who would disseminate the products to various small shops from where the customers can conveniently purchase the product.



Fig 2 . Several facets of supply chain management

Supply chain management chiefly merges both the supply and demand management. It uses disparate stratagems and tactics to view the complete supply chain components and work competently at every step in the supply chain. All unit that contributes in the process should aim to curtail the costs and facilitate the companies to bolster their long-term performance, and creating value for its investors and clients. This process abates excessive cost that would be incurred by exterminating the superfluous expenditures, activities and handling. Companies with globally more extensive supply chains want to become more state-of-the-art and productive by optimizing all the processes involving in the supply chain.

## **2. CHARACTERISTICS OF SUPPLY CHAIN MANAGEMENT**

### **2.1 Order Management**

Supply chain management systems can speed-up the implementation of the whole order-to-delivery cycle by aiding corporations to effectively generate orders from customers using online order systems and track sales orders online. Supply chain management allows the dynamic scheduling of supplier deliveries to efficiently meet demand, along with rapid formulation of pricing and product arrangements. Nowadays supply chains exist globally, so the need for an efficient order management system is becoming very significant to survive in today's industrial age which is becoming more and more sophisticated with each growing day.

### **2.2 Procurement**

All actions and tasks allied with sourcing, purchasing, and payables is completely computerized and reorganized across a company's whole supplier network with supply chain management software. Consequently, businesses can build stronger associations with salespersons, improved assessment and management of their performance, and improve consultations to have better control over volume or bulk discounts, and other prudent measures. Procurement defines all those processes concerned with evolving and employing stratagems to be able to manage an organisation's spend portfolio in such a way as to accomplish the organisation's comprehensive goals and to take full advantage of the value released and/or curtail the total cost of ownership. Procurement is a more holistic term than just purchasing, which is more focused on the strategic acquisition of goods and services and the implementation of plans rather than the development of stratagems.

### **2.3 Logistics**

As companies are developing on a global scale, the supply chains become more and more convoluted. This makes the synchronization of many warehouses and transportation channels involved quite an arduous task without supply chain software in place. With supply chain management,

businesses improve timely delivery performance and increase customer satisfaction by attaining complete transparency into how finished goods are stored and disseminated, irrespective of the number of facilities or partners that are involved.

### **2.4 Anticipation and Planning**

With supply chain management, organizations precisely foresee the customer demand and plan their procurement and production processes accordingly. Accordingly, they can sidestep unnecessary purchases of raw-materials, eradicate manufacturing over-runs, and thwart the need to store excess finished goods, or slash prices to move products off of warehouse shelves.

### **2.4 Return Management**

Supply chain software abridges and accelerates the examination and handling of impaired or fragmented goods – on both the buy and sell side of the business – and automate the processing of claims with suppliers and distributors, as well as insurance companies. Many supply chain contributions also include supplementary options or modules designed to boost related activities. Through these features, support is provided for a variety of central processes such as contract management, product lifecycle management, capital asset management etc.

### **2.5 Inventory Management**

With supply chain management, firms can significantly reinforce the way they track and manage their supplies of raw materials and components needed for production, finished goods to placate open sales orders, and spare parts required for field service and sustenance. This eliminates excess and waste, emancipates excess costs for other imperative purposes, and decreases considerable storage costs.

## **3. COMPONENTS OF A SUPPLY CHAIN**

### **3.1 Planning**

This is the pivotal component of all of them. Before the commencement of the entire supply chain, it is critical to decide the approaches and put them into action. Foreseeing the demand for the product or service, exploring the viability, costing, profit, and manpower etc., are crucial. Without a proper plan of action or tactic in place, it will be nearly infeasible for the business to attain effective and everlasting benefits. Thus, considerable time has to be dedicated to this phase. Only after the finalization of the plans and consideration of all pros and cons, can one advance ahead. Every business needs a plan of action or proposal or a roadmap based on which the strategies are made. Planning aids in recognizing demand and supply trends in the market and this, in turn, helps to make a successful supply chain management system.

### 3.2 Information

As it is said "Information is wealth", today's world is dominated by unceasing flow of information. In order to be efficacious, it is indispensable that a business stays up-to-date with the state-of-the-art information about the multifarious aspects about everything. The market trends of supply and demand for a particular product can be understood in a better way if the information is accurately and timely disseminated through various levels of the business. Information is central in a knowledge-based world economy, and obliviousness about any aspect of business may spell doom for the prospects of the business.

### 3.3 Source

Suppliers play a huge part in a successful implementation of supply chain management systems. Products and amenities sold to the end user are made with the aid of disparate sets of raw materials. It is therefore essential that suitable quality raw materials are procured at lower rates. If a supplier is inept to supply the required products on time, and within the postulated budget, the business is bound to incur losses and gain a bad standing. It is decisive that a company acquires good quality resources, so that, it can create good quality products and uphold its reputation in the market. This imposes a strong role for suppliers in the supply chain management system.

### 3.4 Inventory

For a highly effective supply chain management system, it is imperative that an inventory is kept and meticulously maintained. An inventory comprises of the ready list of items, raw materials, work in process materials and other rudiments required for the product or service. This list has to be frequently modified to demarcate available stock and required stock. Inventory management is crucial to buttress the function of supply chain management, since without proper inventory management the production, as well as sale of the product, is not viable. Business corporation have now started to pay more attention to this constituent just because of its massive influence on the supply chain.

### 3.5 Location

Any business, that wants to thrive as well as flourish, needs an optimal location which is lucrative for the business. For instance, a carbonated drink factory is set up in an area where water supply is scant. Water is a basic requirement of such business. The dearth of water could hamper the production of the company. A business cannot endure if it has to share an already scarce raw material with the community. Henceforth, an apposite location, which is well connected, and very close to the source of vital resources for production is critical to a business's prosperity. The requirement and convenience of manpower must also be well-thought-out while setting up a business corporation.

### 3.6 Transportation

Transportation is very important in terms of carrying raw materials to the manufacturing unit and disseminating the final product to the market. At every juncture, timely transportation of goods is compulsory to sustain a smooth business process. Businesses which pays notice to this factor, and takes advantage of it, will benefit from the production and transportation of its goods on time. It is also imperative that a company works towards an innocuous and safe transportation process. The transportation management system are obliged to ensure zero harm and minimal loss in transit. A well-synchronized logistics system along with immaculate invoicing are the two powerful pillars of secure transportation.

### 3.7 Return of faulty goods

Among the numerous components that contribute to a successful supply chain, it is the facility for the return of damaged/faulty goods, along with a highly open consumer complaint addressal unit that plays a significant role, so that there is proper coordination to return the faulty goods to the source i.e. supplier. Nothing is fool proof. Even a machine may breakdown once in a billion times if not more. As a part of a sturdy business process, one may expect the return of goods under countless situations. Even the superlative quality control processes might have inevitable fleeting moments of lapses. In the case of such errors, inexorably to be followed by consumer complaints, a business should, intuitively, recall the product/s and issue a letter of forgiveness. This not only creates a good customer attachment, but also sustains a smooth relation in the long run.

## 4. CHALLENGES TO A SUCCESSFUL IMPLEMENTATION OF SCM

**4.1 Proliferating demand for product customization** – Burgeoning demand for variety have a tendency to increase ambiguity, and vagueness often results in amplified cost and declined responsiveness.

**4.2 Dwindling product life cycles** – This makes the job of accomplishing tactical fit even more laborious as supply chain must continuously adjust to manufacture and distribute new product in addition to handling product's demand vagueness

**4.3 Demanding customers** – Today's customers are demanding faster execution, enhanced quality and better performing products for the tantamount price they paid 10 years ago which implies that the supply chain should provide more at a thrift cost just to sustain its business.

**4.4 Fragmentation of supply chain ownership** – In this modern era most firms have become less vertically integrated. There are so many members with disparate needs for each of them in supply chain for providing

standardized goods. Many owners with its own policies and interests, the chain (network) becomes more byzantine to synchronize.

#### 4.5 Globalization

- Supply chains have become more global
- Global supply chains generate lot of advantages such as aptitude to source from a global base of suppliers who may offer improved or discounted goods than that were available in a company's home nation. Suppliers are way apart making harmonization much more arduous

#### 4.6 Struggle implementing novel stratagems

- Creating efficacious tactic is very complex.
- Adept execution of strategy is as imperative as creating successful strategies which is hard

### 5. BENEFITS OF SUPPLY CHAIN MANAGEMENT

#### 5.1 Curtail cost effects

There are numerous ways according to which, supply chain management software can lower down the current overhead expenses of an organization.

- Enhances inventory management system
- Facilitates effective execution of inventory system
- Exterminates damage resources by fine-tuning the storage space.
- Make SCM system more responsive, then it is easy to achieve company goals by scrutinizing customer's requirements.
- Building strong relationship with vendors & distributors.

#### 5.2 Increase Net Output

Supply chain management (SCM) software is established in a way to enhance communication, teamwork and synchronization with vendors, transportation and shipping companies. The streamlined & centralized distribution plan of supply chain management software make it more reliable for end users and give more precise output results.

#### 5.3 Raise Business profit

The most stunning feature of SCM software raises profit of the business considerably. Open behaviour towards new ground-breaking technologies establishes new ways of success for an organization. Higher visibility and improved collaboration feature ultimately because of a cause of raising your organizational output. The top hat will eventually raise company's growth graph.

#### 5.4 Bolster cooperation level

The most surprising characteristic of supply chain management software is higher collaboration level within the organizational task. Supply chain management software gives full entree to track what the supplier and distributors are doing at all times and vice versa. SCM software gives the opportunity to share information. Sharing information keeps stakeholders up-to-date, so the entire process of SCM functions smoothly. These associations speed-up other tasks like reporting, forecasts, order statuses, quotation and other transportations plans.

#### 5.5 Decreases time delay

The Key benefits of Supply Chain Management software are lessened delay in tasks. Delays in SCM often leads to bad associations with stakeholders and loss of business. Common issues like late shipments from vendors, hold-ups on production lines, and logistical errors in distribution channels can negatively impact a company's capability to please customer's demand for products. SCM software's all actions can be impeccably coordinated and executed from start to finish, to ensure higher levels of on-time delivery across the globe.

### 6.0 DRAWBACKS OF SUPPLY CHAIN MANAGEMENT

#### 6.1 Extensive training and planning required

SCM makes use of Just-In-Time inventory to increase effectiveness and reduce waste in modern industry. But implementing SCM requires wide-range planning and training, often more than what a company expects. For the system to work, companies that are part of the supply chain have to go through extensive training before implementing an SCM system. A company's SCM implementation can bomb because of paucity of sufficient training for employees and a dearth of understanding by management on how complicated execution can be. The expense of training and implementation also causes top management dignitaries to give less than full commitment to SCM to save money for various other factors in play.

#### 6.2 Imprecise Information Causes Mayhem

SCM depends on supply chain management software, but too often different parts of the supply chain are working on different software programs, thwarting all-in-one integration. The software has to estimate parts distribution needs, but if the information entered isn't precise, neither is the estimation. The system also can be beleaguered by employees circumventing the SCM system to manually manage ordering and inventory with fax machines, spreadsheets etc. If the training isn't enough to make employees comfortable using the system, then the system only gives an inadequate picture of a supply chain's status. Enterprise resource planning software is supposed to integrate all of the company's information into a single

application, which aids SCM applications by having a single source for up-to-date information. ERP software, nevertheless, is expensive and tough to execute as well.

### 6.3 Paucity of premeditated inventory management

Some companies don't rely on forecasted demand and start manufacturing only when customer places his demand. This leads to delay in supply of products to the end users not maintaining on time delivery. There is a lot of uncertainty in prognosticating the customer demand and this exists due to fear of paying exorbitant inventory costs.

### 6.4 Lean Supply Chains are Susceptible

Supply chains are lean by design. Larger inventories are more affluent to house. If surprise demand for a product occurs due to a volatile trend, a supplier could run out of stock of an important part, consequently contributing to production delays and unexploited resources. More unforeseen, and with bigger negative impact, would be natural disasters including earthquakes and hurricanes, labour strikes, or terrorist attacks that could inflict the supply chain. Without exigency planning, a natural or man-made disaster would be a cataclysm for every component in the supply chain.

## 7. CONCLUSION

Supply Chain Management is an imperative tool used by every kinds of industry in this modern era. It facilitates to increase the profit by lessening the cost and to gratify the end-customer. Supply chains practically exists in every industry, but are especially notable in manufacturing industries that have an obvious flow of goods from suppliers to manufacturing facility to the end customers. Analogous to a two-sided coin, SCM too has both benefits and downfalls, and the latter outweighs the former. More advanced technology, and optimization techniques for different components of the supply chain has to be explored so that drawbacks can be abated, and that is the future scope for further advancements in this area of specialization.

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