

## A Review Paper on ROLE of SUPPLY CHAIN in INVENTORY CONTROL

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### Abstract

*Every employer wishes stock for clean going for walks of its sports. It serves as a link between production and distribution processes. The funding in inventories constitutes the most considerable a part of modern belongings and operating capital in most of the undertakings. For that reason, it is very vital to have right manipulate and management of inventories. The motive of inventory control is to ensure availability of materials in enough amount as and when required and also to minimize investment in inventories. Inventory is commonly taken into consideration to include in 3 foremost areas that are raw substances, paintings in progress and completed goods. Where those are held and in what quantities, and how they're controlled will range substantially from one enterprise to another. The activities of stock control involves are figuring out inventory requirements, putting targets, offering replenishment strategies and options, monitoring item usages, reconciling the stock balances, and reporting inventory popularity. Supply chain management as a tool for enhancing the overall excellent control in manner industries. Supply chain control is a primary and essential region of academic studies due to its effect on method industries competing in today's global economic system. In today's competitive surroundings, it's far extremely difficult to successfully produce high first-class, low fee products without considering a first-class set of providers. Providers form the primary hyperlink within the deliver chain of any organization. Providers selection is a multi standards problem, which includes both qualitative and quantitative factors, shrewd deliver chain consequences in reduction of stock, manufacturing and distribution fees.*

**Keywords:** Inventory, Supply Chain Management, Total Quality Management, Stock

### 1. Introduction

With the ever surging call for in products and services across several economic sectors, increasingly control practices have advanced to ease the manner of powerful and efficient carrier transport to clients and other organizational stakeholders. Stock management is increasingly more regarded as a tool for optimum use assets and for attaining average operational performance across industries (akindipe, 2014). However, universality of inventory control challenges inclusive of delays, stock-outs, and lack of manufacturing time is broadly recognized and researchers preserve to are looking for most efficient solutions across the globe. Relatively efficient shipping systems and deliver chain control have thus come to be vital, specifically for big companies, to make sure smooth, green and great shipping of products and services. Within the emerging environment whilst patron pleasure and service have emerge as a top reason for an corporation to face aside from competition, the need for effective inventory control is essentially visible greater as a demand than only a fashion.

Stock control touches almost each sides if operations. A proper stability have to be struck to keep right stock with the minimal financial impact at the patron. Inventory control is the sports that maintain stock keeping objects at preferred ranges. In manufacturing since the point of interest is on bodily product, inventory control awareness on fabric manage.

“Inventory” approach physical stock of goods, that's saved in palms for easy and green walking of future affairs of an enterprise at the minimal value of price range blocked in inventories. The fundamental motive for wearing inventory is that it is bodily not possible and economically impractical for each inventory object to reach precisely wherein it's far wished, exactly when it's far wished.

Stock management is the incorporated functioning of an enterprise managing supply of materials and allied sports as a way to gain the most co-ordination and top of the line expenditure on materials. Stock control is the maximum essential characteristic of stock management and it forms the nerve middle in any stock management corporation. An stock control gadget is an crucial element in an business enterprise. It is comprised of a chain of techniques, which offer an assessment of the organization's stock.

## 2. Problem

The trouble of inventory control is one of the maximum essential in organizational management. frequently, there may be no widespread solution – the situations at each corporation or company are specific and encompass many one-of-a-kind capabilities and limitations. An taking place venture of the mathematical models improvement and figuring out the superior inventory manage approach is related with this problem. functions of stock management fashions are that the ensuing most fulfilling solutions may be applied in a fast converting state of affairs where, as an instance, the conditions are modified day by day. there is a need for brand new and powerful techniques for modeling systems related to stock management, inside the face of uncertainty. Uncertainty exists regarding the manage item, because the method of acquiring the important statistics approximately the object isn't usually viable. the solution of such complex duties requires the usage of structures evaluation, improvement of a scientific method to the problem of control in trendy.

## 3. Methodology

Table 1 – Categories and their description for the framework of SCM. Source

Category	Description
Environmental uncertainty	Uncertainty in terms of - supply (e.g., quality, timeliness), - demand (e.g., fluctuations, variations) and - technology (technological change)
Customer focus	Importance given to customers in the execution of strategic planning, quality initiatives, product customization and responsiveness
Top management support	Time and resources contributed by the top management to strategic purchasing, supplier relationship development and adoption of advanced information technology
Competitive priorities	Supply chain strategy not based on cost alone, but rather on the issues of quality, flexibility, innovation, speed, time and dependability
Information technology	Presence of electronic transactions and communication between the supply chain partners
Strategic purchasing	Conceptualized by its proactive as well as long-term focus, its contributions to the firm's success and strategically managed supplier relationships
Supply network structure	Emphasizes non-power-based relationships and inter-firm coordination as well as the informal social systems that are linked through a network of relations
Managing Buyer-Supplier Relationship	Incorporates five key aspects of the buyer-supplier

- Supplier base reduction	relationship Reduced numbers of suppliers, contractual agreements and supplier retention policies utilized by the buying firm
- Long-term relationships	Initiatives taken by the buying firm to encourage long-term relationships with their suppliers
- Communication	Involves two-way communication and interaction between buyers and suppliers
- Cross-functional teams	Efforts taken to encouragement as well as use of supplier-involved cross-functional teams
- Supplier involvement	Involvement of the suppliers in crucial project and planning processes
Logistics integration	The seamless integration of the logistics function of the various supply chain partners
Supplier performance	Comprises indicators like quality, cost, flexibility, delivery and prompt response
Customer performance	Comprises indicators of operational performance in addition to financial indicators such as return on investment, profit, present value and net income

#### 4. Inventory management

Stocks (reserves) are created to carry out the regular activities of the enterprise. proper and well timed willpower of the most suitable stock manipulate strategy allows freeing a sizeable amount of property, frozen in the form of stocks, which ultimately increases the performance of resource use. despite the fact that there are actually thousands and thousands of various types of merchandise manufactured in our society, there are best fundamental selections that one has to make whilst controlling inventory:

1. How massive ought to a stock replenishment order be?
2. When ought to an inventory replenishment order be placed?

The goals of inventory control frequently lessen the trouble if it's far greater worthwhile to do quickly however extra high-priced or slower however cheaper. The essence of inventory control is to augment enterprise operations with the intention to make sure effective float of goods, products, and services (Chalotra, 2013). in this context, 'stock' is the mixture listing of items; a quantity of goods in stock or stock of the product which an enterprise is producing on the market and the additives that make the sale. 'Stock' consists of a wide range of products or materials – stationery, workplace device, plant, equipment, consumables, and so on. Available to be used for sale. The element of 'management' or 'control' is concept to be pivotal on this context due to the fact any 'control' is deemed a process by means of which occasions are made to comply to a fixed plan. The term 'control' has familiar synonyms along with control, overseeing, administering, undertaking, making plans, superintending, guiding, organizing, supervising, regulating, supervising, all done that allows you to prevent "helplessness", "neglect", "weak spot", or "mismanagement" in the machine. as a result, stock management is the supervision of supply, storage and accessibility of items in an effort to ensure an good enough supply without immoderate oversupply. Stock control is frequently related to information the stock blend of an company and the distinctive levels of demand on that inventory, depending on numerous outside and internal factors that can exert call for substances in a given length.

#### 4.1 Nature of Inventory Management

Some notable issues within the scope of modern inventory management are illustrated in table

<i>Scope of modern inventory management</i> Key Questions in Inventory Management	Description
Where?	Supply availability, location of stores and associated facilities, logistics
What?	Users' needs, usage/frequency level
When?	Planning, efficiency
At what cost?	Budget, stock holding/warehousing and handling cost dynamics

#### 4.2 A Supply Chain Model of Inventory Control

Inventory control in a typical supply chain follows the sequence shown below.

Step 1 - Request for new stock from stores to head / central office.

Step 2 - Head / central office issues purchase orders to the vendor.

Step 3 - Vendor ships the materials.

Step 4 - Warehouse / Store-keeper receives the materials.

Step 5 - Warehouse stocks and distributes to the branch / regional stores.

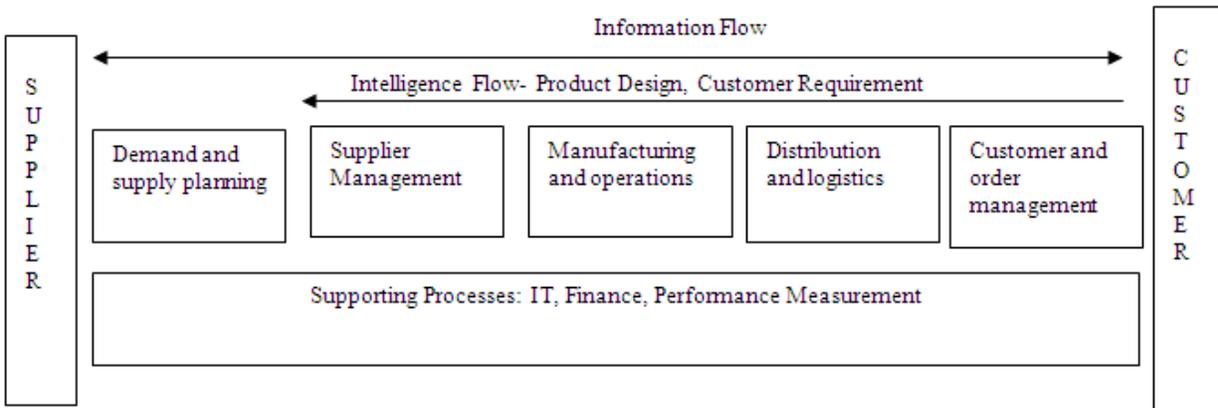
Step 6 - Store receives the goods and distributes as needed by users / customers.



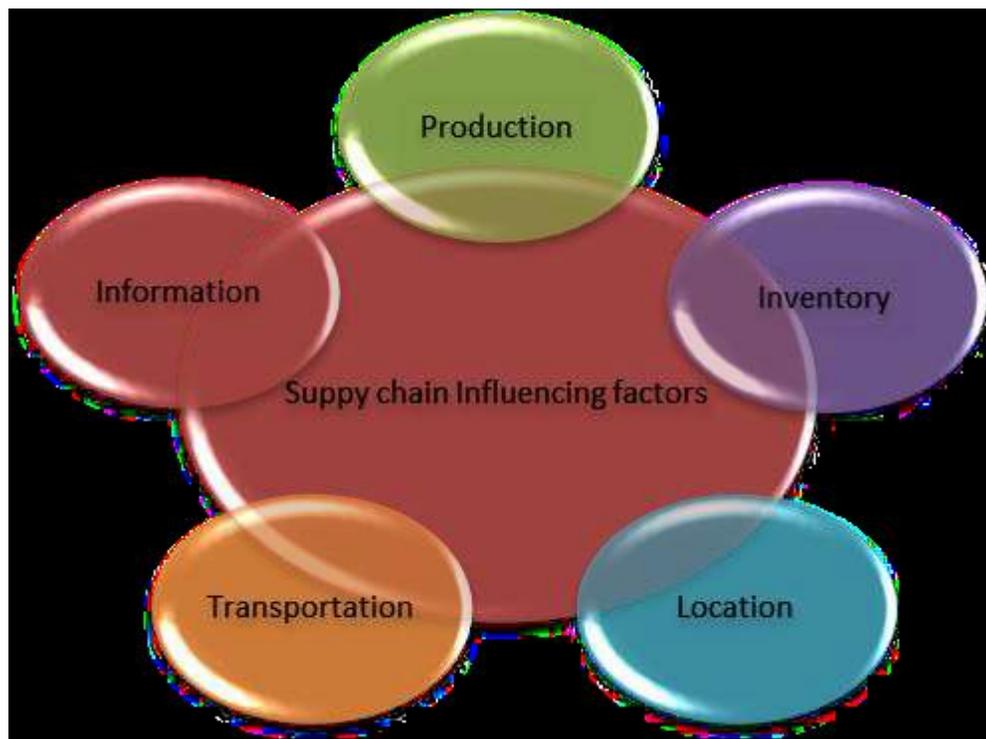
Figure1 Supply Chain Structure

#### 5. Supply chain management (SCM)

The concept of Supply Chain Management (SCM) was developed in production management as the stream related to customer service, demand, flow, and distribution for making an improvement in process. It is an integration and coordination of business process that manages the flow of material distribution from supplier to customer. Supply Chain system deals with analysis of information from different points on the Supply Chain to reduce operational cost. SCM has traces from history like in 1776 Adam Smith suggested improvement in production methods by specializing workers in certain tasks. During 1859 to 1915 F. W. Taylor gave the concept of "Functional Management" which leads to Value Engineering technique developed by L.D. Miles in 1950 to solve resource allocation, inventory, Scheduling processing; location layout and control problems. In future introduction of Management Information System (MIS) and Decision Support System (DSS) will provide further impetus in Production Management. The processes involved in supply chain are shown in figure.



**Figure2 Supply chain process**



**Figure3 Factors influencing the supply chain**

“A supply chain consists of all stages involved, directly or indirectly, in fulfilling a customer request. The supply chain not only includes the manufacturer and suppliers, but also transporters, warehouses, retailers, and customers themselves” (Chopra and Meindl, 2006).

## 6. SCM Objectives

1. Eliminate communication gap between functional departments to avoid delays in deliveries and avoid quality complaints.

2. Consolidate the industry wise product range by strengthening the customer base and formulate product as core business.
3. Reduce all raw material cost by 5% to be competitive in the market.
4. Minimize the inventory levels.
5. Reduce delays in export documentation and custom clearance.

SCM ought to be followed for the non-stop development in each part of enterprise. As SCM exists in shopping, production, planning, advertising, distribution inside and past the corporation borders. SCM suggests a manner to price optimization all along the chain and it's miles an integration of centers and distribution options that plays the procurement and transformation of substances into finished products. The deliver chain not only includes manufacturers and providers, however also transporters, - warehouses, shops, and customers themselves. The SCM mind-set must be modified, it must be way of questioning - now not techniques and need to be lifestyle- not the modern-day of control device.

## 7. Total quality management (TQM) issue

SCM is short form of TQM philosophy and each gear are activated for the enterprise development with patron delight. TQM conceptual definition shows that the efforts completed to decorate the traditional business to obtain complete excellence for pride of consumer. SCM is likewise customer-targeted commercial enterprise system that links producer, distributor, store, and customers to reduce operational value. it's far undertaken at various ranges of production. it is a technology of movement of substances, intermediates and finished products from the manufacturer to consumer effectively and efficiently. The overall view indicating requirements of TQM and SCM are as follows:

### 7.1 TQM Requirements

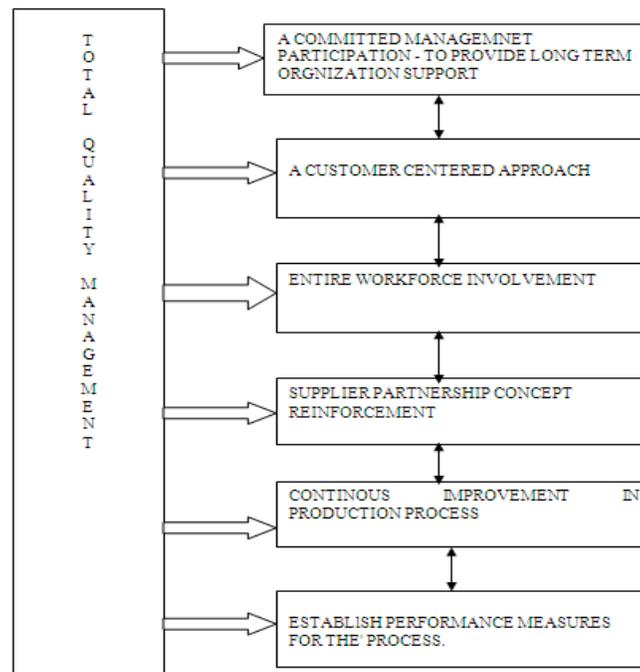
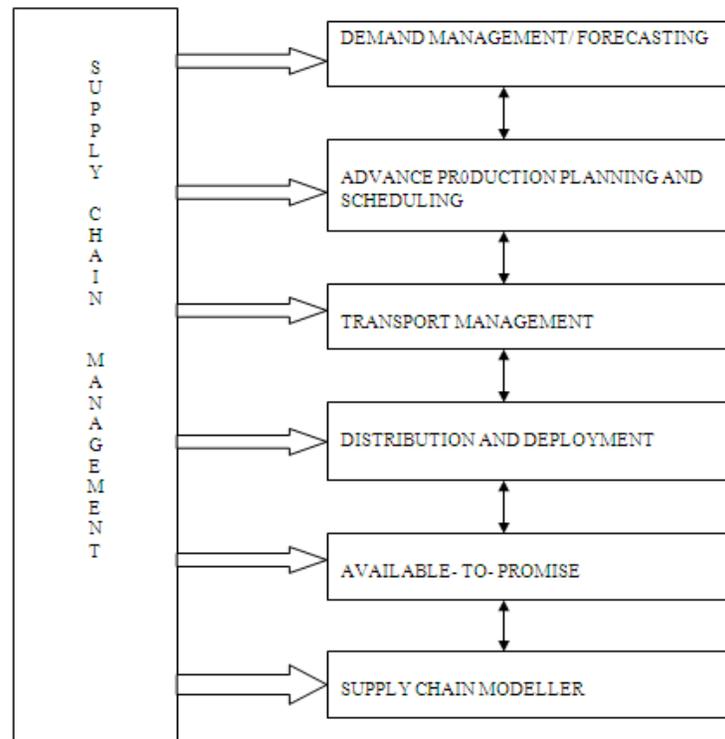


Figure 4 TQM Requirements

## 7.2 SCM Requirements

The diagrammatic view represents in brief the requirements for ideal supply chain management.

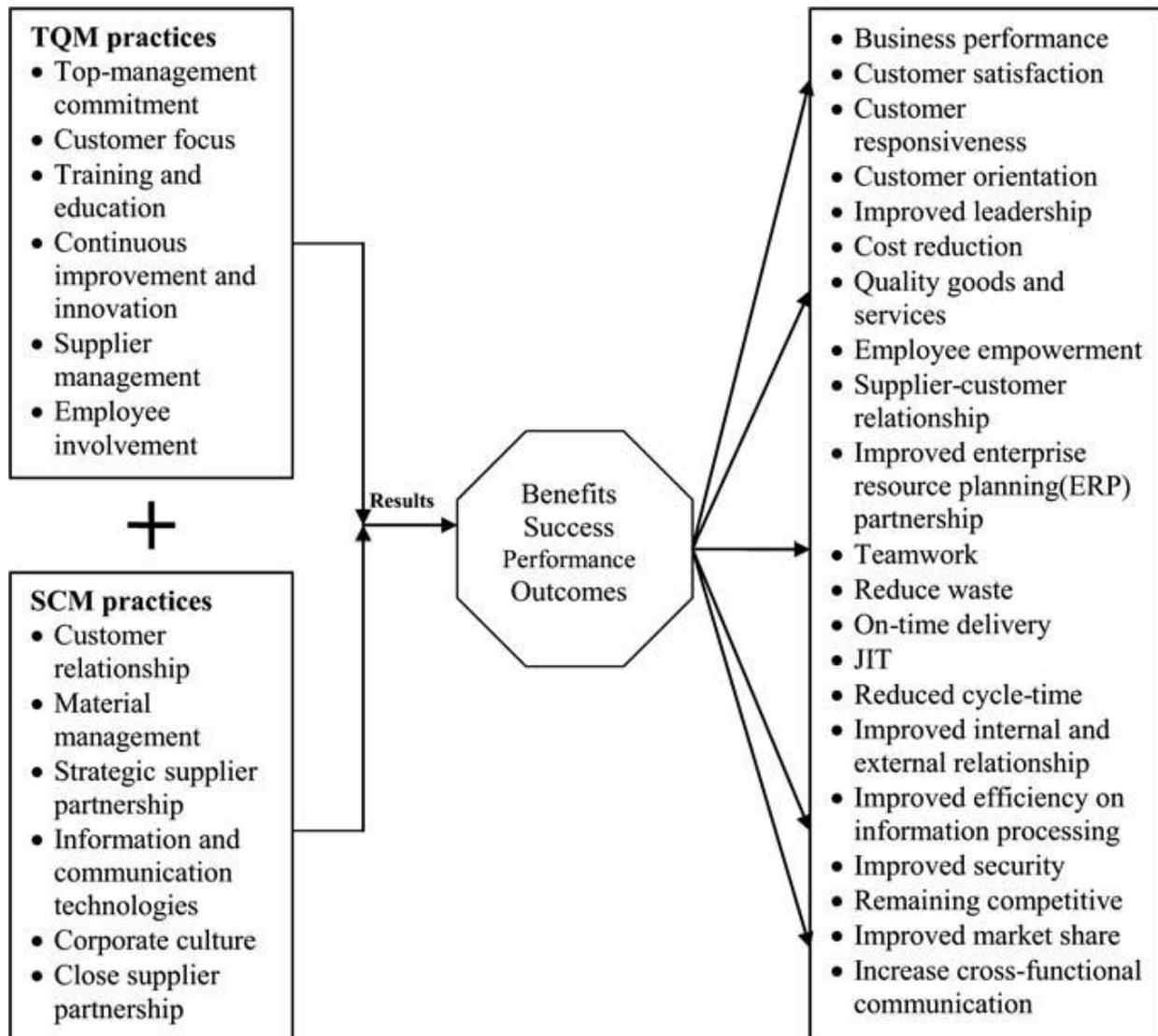


**Figure 6 Supply Chain Requirements**

## 7.3 TQM and SCM Practices:

TQM is a set of management practices applicable throughout the organization and geared to ensure the organization consistently meets or exceeds customer requirements. Introducing TQM practices in an organization is a long-term commitment. The successful implementation and adoption of TQM practices requires planning, time and effort.

SCM entails coordination and configuration of the process that is necessary to make products available in a timely, reproducible, and satisfactory condition. The characteristics of SCM could be achieved by identifying and making use of SCM practices, in organized way. SCM practices involve a set of activities undertaken by the organization to promote effective management of their supply chain (Koh et al., 2007). This section deals with the identification of these different SCM practices from a variety of literature.



**Figure 7 TQM and SCM Practices**

## 8. RESULTS

The consequences of the analysis primarily based on associated literature suggest that a right stock manipulate system is carefully associated with low storage prices, fee-reduction and well timed shipping of needful items, merchandise, materials and services to customers and stakeholders, thereby enhancing sustained profitability, competitive ability, and more desirable marketplace diversification potentialities. within the gift surroundings of keener opposition and sales pressure, the company does no longer have any other choice than to manipulate sources extra successfully to continue to exist and to stay financially afloat. The adoption of the correct combination of a number of those processes can enhance carrier shipping in phrases ensuring consistent glide of materials at the same time as also minimizing the attendant carrying/dealing with prices. The discussion turned into not exhaustive as groups end up greater aggressive, increasingly stock control practices will keep to return into the mild.

To that stop, against the backdrop of tightening global economic conditions, the subsequent pointers may be made for improving stock control practices in developing economies:

1. Do not maintain too much stock on your warehouse. make use of correct forecasting methods that will help you effectively procure the products in a timely manner earlier than demand escalates.
2. Make sure that you manage your inventory objects nicely. the use of bar codes and inventory tracking software can assist. Having the proper software with facts backup modules also can facilitate green manipulate inventory efficaciously.
3. Order merchandise based on priorities. fast-shifting products need to be ordered first as opposed to randomly storing merchandise into your inventory, thereby making your company to incur huge garage costs unnecessarily.
4. You have to always have a backup plan in case of machine failures. on this digital age, you must backup your inventory statistics into far flung systems (cloud computing) in case you enjoy unintentional loss of stock information. an awesome backup plan can move a long manner in making your inventory manage a extra efficient system.
5. System review: groups ought to discover the prospects of renegotiating phrases and decrease prices with stock vendors, however conscious of retaining product first-class.
6. Potential-constructing: advertising of inventory management way of life should shape part of the renewed campaigns to plug leakages, loopholes and wastages in public finance. moreover, non-stop education and re-education of group of workers to be able to decorate professionalism and productivity ought to retain to attract senior control attention, in particular on the subject of price-powerful automatic stock control machine.

## 9. Conclusion

Supply Chain management is a systematic technique to improve the full productivity of the industries by optimizing the timing, place and quantity of material drift from raw substances to finished goods at customer's web site the usage of IT infrastructure and interacting with all of the associated intermediates and that is anticipated technique for enforcing TQM philosophy to enhance agency. SCM and TQM are the ways to value optimization one all alongside the chain at the same time as different related to general business, but both starting from customer order to the delivery of goods to him.

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