

# Future of the Supply Chain Management

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**Abstract:** An efficient supply chain management (SCM) can make a big difference for the manufacturing companies to be competitive in today's marketplace. In order to have a place in a cutting-edge technological advances and sustain the competitiveness, the manufacturing companies need to understand the relationships between the customers and suppliers. Based on this understanding, the processes need to be improved to achieve further customer satisfaction while keeping the suppliers in business. For instance, SCM must know every stage of the process, starting from knowing where to look for quality raw materials to designing and assembling of the products to the distribution of the finished product to the customers who are in need of these products. There are still few challenges in the SCM and two important general tendencies include focusing on customer service and information technology [19].

**Keywords:** Supply chain; supply chain management (SCM).

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## Introduction to Supply Chains

Supply chains has become more prominent when materials flows were introduced. In particular, we can see the following five important points regarding this trend [2]:

- the quality revolution
- the manufacturing materials management and integrated logistics
- increased interest in industrial markets and networks
- increased focus
- powerful industry-specific studies

There are several definitions of supply chains. Some of them are presented here. Supply chain is “a structured manufacturing process wherein raw materials are transformed into finished goods, then delivered to end customers” according to Beamon [1]. Pienaar [16] defines supply chain as “a general description of the process integration involving organizations to transform raw materials into finished goods and to transport them to the end-user”.

The supply chain practioners and researchers have started to look beyond just the relationship between the buyer and supplier to consider triads as “the smallest unit of a network” [12]. In earlier times, the supply chain was considering the the flow of the materials from supplier to manufacturer, then to distributor and finally to the customer. Nowadays, the supply chains must focus on how quickly the supplies are being delivered to the customers [3].

Mentzer et al. [13] points out that just about any organization can be included in several supply chains. Wal-Mart for instance is a good example in which it can be part of supply chain for food, electronics, software, hardware, and many other types of products. Additionally, AT&T may see Motorola involved with multiple supply chains with different roles: a customer, a partner, a supplier, and so on. This types of relationships certainly complicatest the supply chain management; therefore, strategies for shared understanding of the supply chain management have been introduced by the researchers.

## Value chain

Basic definition of a value chain indicates that a manufacturer of a specific industry needs to follow a set of activities in such a way that they are able to produce a valuable product or offer a valuable service to a customer. The value chain analysis may need to be adapted for each specific study. Kaplinsky and Morris [8] divide the value chain analysis into eight modules:

- setting the perspective
- mapping
- market segmentation
- market access
- value chain performance
- value chain governance
- upgrading
- distributional issues

### Supply Chain Management (SCM)

The Supply Chain Management Professionals' Council [4] indicates that Supply Chain management (SCM) consists of activities related to designing, managing, purchasing, transformation, and logistics management as well as coordination activities with the following partners: suppliers, mediators, third party service providers, and customers. Basically, supply chain management involves coordination and balancing of supply and demand within and in between corporations. Essentially, the expectation is to provide the right manufactured goods or services, to the correct location and correct quantity, at the right time and at the right cost.

There are many desired objectives that need to be considered in supply chain management. These may include keeping the customer satisfaction high and even improve it if there is a room for improvement; improving offered services as well as making sure that the products are services can compete with the services and products of the similar companies [14, 20]. The other factors involved include minimizing the cost and the amount of resources required for manufacturing the products while enhancing the efficiency and the effectiveness [21]. Supply chain management need to consider that the inventory is not too large or too small and it is essential to reduce the inventory levels and their associated costs [5, 9]. Similarly, the profit levels needs to increase [6] as well as improved cooperation [7].

One of the goals of the supply chain management is to examine and manage supply chain networks. The motivation behind this decision is to have the possibility for an alternative in order to save costs and increased customer service. It is difficult to improve corporate competitiveness especially when the customer demands change rather quickly [10].

In order to achieve the desired characteristic of supply chain management such as increased customer satisfaction while minimizing the associated cost, companies realized that supply chain management processes must be examined and adopted.

The activities of the supply chain management can be divided into three categories as show below:

**Strategic:** The strategic level involves high level, rather than low level decisions regarding the entire organization. Some of the examples include location and size of individual manufacturing sites, the list of suppliers, and different types of products to manufacture based on the projected sales.

**Tactical:** At the tactical level, the aim is to improve benefits while reducing costs. Basically, the companies need to pay attention to best practices, deciding on the most suitable suppliers and logistic companies to ensure efficient transportation of the goods and products at reduced cost. Additionally, the companies need to store right amount of inventory to reduce the cost of warehouses not only from rental perspective but also from saving electricity and cooling.

**Operational:** The operational level deals with decisions on day-to-day operations of the companies, which in turn shows how the manufactured products go through the supply chain. Some of the examples include production schedule, receiving orders from customers, purchasing cost and timeline from suppliers, and placing products in warehouses [15].

### Supply Chain Management in 2020-2025

Figure 1 below shows the individual business drivers with the corresponding impact and required supply chain capabilities from 2020 through 2025.

Business Drivers	Impact	Required Supply Chain Capability
Increased Network Development Investment	Doubling of spend/volume through the supply chain	Expanded capacity (FTEs) to support the increased volume across sourcing and logistics. Expectation on procurement to move from "sourcing savings" to value creation and Logistics delivering higher service levels with increased volumes
Policy & Regulation defining Network Performance hurdles	Increase to 8% of revenue at risk	Reduced "room for error" and increased consequences requires improved risk management practices
Adapting to Distributed Energy Resources	Increasing pressure to deliver efficiency improvements	External market pressures e.g. price caps, alternative energy sources, etc... increases the expectation to improve supply chain effectiveness and increase return on investment (i.e. value delivered vs. cost to operate the supply chain)
Preparing for flat or declining Energy Prices		
Advancement and integration of Operations	Seamless connection from customer to supplier	Adoption of collaborative and innovative solutions to support integrated planning & operations with internal stakeholders and external suppliers
Serving changing needs of Customer & Communities	Supply Chain needs to handle increased specification variety	Build a service orientated supply chain (e.g. convenience, responsiveness, flexibility) to support customer facing teams in a more complex environment

Figure 1: Key business drivers impacting future supply chain management [17].

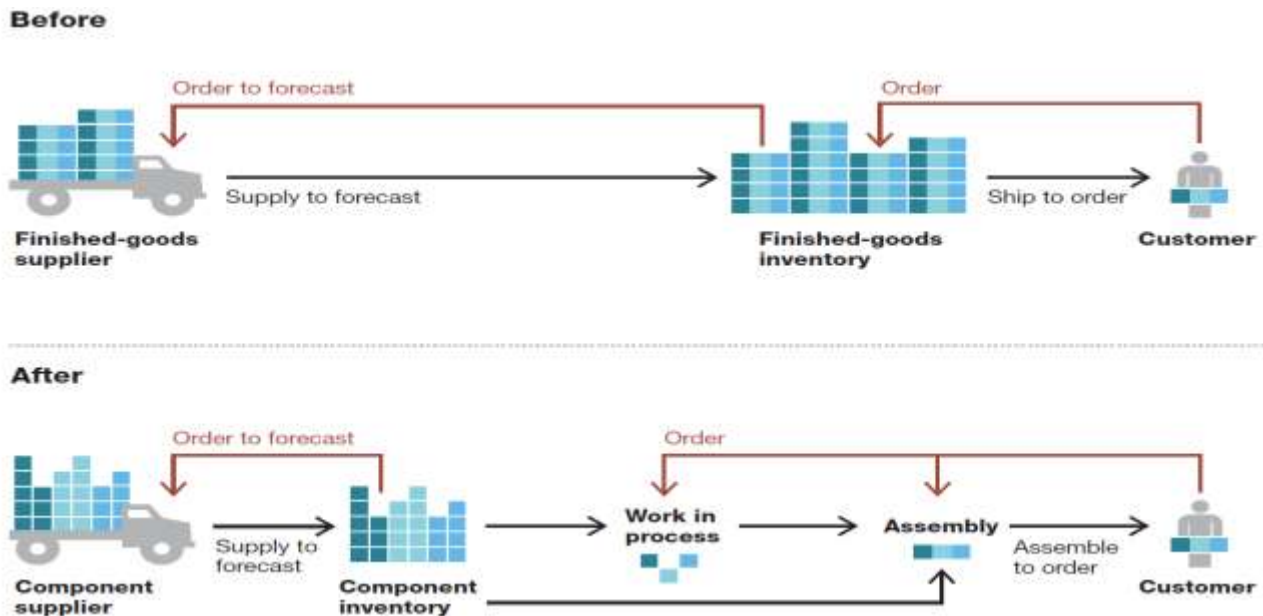


Figure 2. Better visibility equates to bigger efficiency [11].

These days, the organizations usually have at most two types of supply chain, namely rural and urban. In the next 10 years, we may need additional supply chains in order to respond to the emerging situations such as availability of labor and space as well as traffic congestion. Some of the possible supply chain solutions may include [18]:

- Automation in manufacturing
- Verticalization which means the high story warehousing for storage
- Lean design for manufacturing which corresponds to applying lean concept to the system design
- Cooperation with third-party logistics providers and competitors

The supply chain infrastructure is expected to help make smooth transitions towards faster, multimodal and better operations [18].

- Faster: Thanks to Dedicated Freight Corridor and improved road infrastructure will allow the operations to run faster
- Multimodal: The intension is to move from road only transportation mode to other transportation modes such as rail with the help of increased level of containerization. For instance, Indian Railways is planning to make improvements on Delhi-Mumbai corridor.
- Better: The operations will get better and more efficient due to the standardization of the trucks, more usage of containerization, increased level of automation in handling of materials, and better storage units for the manufactured goods.

### CONCLUSIONS

This paper discussed the importance of supply chain management and the motivations behind the supply chain management. The companies who adopt best practices of supply chain management confirm the several advantages such as reduced cash flow cycle time and cycle times, reduced material costs, increased workforce productivity, improved customer satisfaction and so on. When the companies can match the needs of the customers with the appropriate suppliers, the customer satisfaction inevitable increases. While there are several challenges in supply chain management, in this paper, we focus on the customer satisfaction and the technology that enables it.

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