# SUPPLY CHAIN MANAGEMENT : AN OVERVIEW

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## ABSTRACT

*Supply chain management (SCM) has become an important focal point of competitive advantage organization for business. It deals with material and information that flow between facilities. It should be formulated and may be considered more comprehensive of management activities than the field of operation management. Many organisation develops their plans over time and then study the effect in terms of precision where as strategic SCM is concerned with structural modification to enhance productivity. However the success or failure of the SCM policy will depend upon how the plan is operationally implemented. By selecting the chain of activities in time an operation SCM plan is formed in order to realize the firms objective or more generally a sequence of alternative activities are considered from which the actual path is selected step by step on the basis of suitable criteria.*

*Key words : decision support system, Modelling system, Language system dynamics, Supply chain management, Set valued mappings.*

## 1.1  INTRODUCTION

Supply chain management is becoming increasingly important in competitive business. To compete at the supply chain level, firms must adopt an appropriate supply chain management strategy. The strategy needs to be integrated and coordinated throughout the supply chain, to generate the performance of supply chain members. Supply chain has become an important focus of competitive advantage for organization business. Supply chain management(SCM) deals with material and informations that flow between facilities. It should be formulated and may be considered more comprehensive of management activities than the field of operation management [1].many organisation develops their plans over time and then study the effect in terms of precision where as strategic SCM is concerned with structural modification to enhance productivity. However the success or failure of the SCM policy will depends upon how the plans is operationally implemented [2]. By selecting the chain of activities in time an operation SCM plan is formed in order to realize the firms objective or more generally a sequence of alternative activities are considered from which the actual path is selected step by step on the basis of suitable criteria.

The study of management of supply chain emphasizes how to maximize the overall value of the firm by better using and deployment of resources across the whole of the firm. The principle of supply chain activity is receiving input from firm's suppliers – add value – deliver to customers. A supply chain encompasses all the parties that are involved, directly or indirectly, in fulfilling a customer request. It includes manufacturer, suppliers, transporters, warehouses, retailers and even customers themselves. These functions includes new product development, marketing, operation, distribution, finance, customer service and other function that related to serving customer request (Chopra and Meindl, 2007). Effective supply chain management is important to build and sustain competitive advantage in product and services of the firms (Gunasekaran and Ngai, 2004). The performance of supply chain is influenced by managing and integrating key element of information into their supply chain Qrunfleh (2010). To achieve effective

supply chain integration, the firms need to implement information technology (Handfield and Nichols, 1999; Qrunfleh , 2010). By using technology of information, the firms could manage the flow and impact of numerous supply chains dimension, such as quality, cost, flexibility, delivery, and profit (Brandyberry et al. ,1999). The development and long-term utilization of information technology improves firm performance in terms of return on investment (ROI), return on equity (ROI) and market share (Byrd and Davidson, 2003). Supply chain coordination and integration is facilitated by using integrated information technology, which directly impacts a financial performance of the firms (Vickery et al., 2003). To achieve a competitive advantage and better performance, supply chain management strategy needs to support the business strategy.

This study aims to find out the effect of supply chain management strategy such as lean supply chain, agile supply chain, and hybrid supply chain on supply chain performance. It will also investigates the effect of supply chain management practices in terms of strategic supplier partnership, customer relationship and information sharing on supply chain performance. The paper is organized as follows: Relevant literature is reviewed and synthesized first to develop a conceptual model, followed by research methodology. The results are then presented along with discussion. Finally Conclusions are drawn and implications are discussed.

## 1.2 WHAT IS SUPPLY CHAIN MANAGEMENT (SCM)

Supply chain management (SCM) is the streamlining of a business' supply-side activities to maximize customer value and to gain a competitive advantage in the marketplace. Supply chain management represents an effort by suppliers to develop and implement supply chains that are as efficient and economical as possible. Supply chains cover everything from production, to product development, to the information systems needed to direct these undertakings. SCM is the oversight of materials, information, and finances as they move in a process from supplier to manufacturer to wholesaler to retailer to consumer. SCM also involves coordinating and integrating these flows both within and among companies. It is said that the ultimate goal of any effective supply chain management system is to reduce inventory (with the assumption that products are available when needed). As a solution for successful supply chain management, web-based application service providers (ASP) for companies are completing for sophisticated software systems with web interfaces. The following are five basic components of SCM.

1. **Plan**: This is the strategic portion of SCM. Companies need a strategy for managing all the resources that go toward meeting customer demand for their product or service. A big piece of SCM planning is developing a set of metrics to monitor the supply chain so that it is efficient, cheap and delivers high quality and value to customers.

2. **Source**: The companies must choose suppliers to deliver the goods and services they need to create their product. Therefore, supply chain managers must develop a set of pricing, delivery and payment processes with suppliers and create metrics for monitoring and improving the relationships. And then, SCM managers can put together processes for managing their goods and services inventory, including receiving and verifying shipments, transferring them to the manufacturing facilities and authorizing supplier payments.

3. **Make**: This is the manufacturing step. Supply chain managers schedule the activities necessary for production, testing, packaging and preparation for delivery. This is the most metric-intensive portion of the supply chain—one where companies are able to measure quality levels, production output and worker productivity.

4.  **Deliver**: This is the part that many SCM insiders refer to as logistics, where companies coordinate the receipt of orders from customers, develop a network of warehouses, pick carriers to get products to customers and set up an invoicing system to receive payments.

5.  **Return**: This can be a problematic part of the supply chain for many companies. Supply chain planners have to create a responsive and flexible network for receiving defective and excess products back from their customers and supporting customers who have problems with delivered products.

| Plan | → | Source | → | Make | → | Deliver | → | Return |
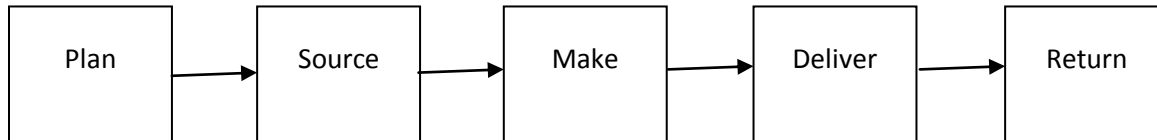
Layout of Supply Chain Management

## 1.3    WHAT IS THE RELATIONSHIP BETWEEN ERP, CRM AND SCM?

Many SCM applications rely upon the kind of information that is stored inside enterprise resource planning (ERP) software and, in some cases, to some customer relationship management (CRM) packages. Theoretically a company could assemble the information it needs to feed the SCM applications from legacy systems but it can be a nightmare to try to get that information flowing on a fast, reliable basis from all the areas of the company. ERP is the battering ram that integrates all that information in a single application, and SCM applications benefit from having a single major source to go to for up-to-date information. Most CIOs who have tried to install SCM applications say they are glad they did ERP first. They call the ERP projects "putting your information house in order." Of course, ERP is expensive and difficult, so you may want to explore ways to feed your SCM applications, the information they need without doing ERP first. These days, most ERP vendors have SCM modules, so doing an ERP project may be a way to kill two birds with one stone. In addition, the rise and importance of CRM systems inside companies today puts even more pressure on a company to integrate all of its enterprise wide software packages. Companies will need to decide if these products meet their needs or if they need a more specialized system.

Applications that simply automate the logistics aspects of SCM are less dependent upon gathering information from around the company, so they tend to be independent of the ERP decision. But chances are, companies will need to have these applications communicate with ERP in some fashion. It's important to pay attention to the software's ability to integrate with the Internet and with ERP applications because the Internet will drive demand for integrated information.

## 1.4    OBJECTIVES OF INSTALLING SUPPLY CHAIN MANAGEMENT SOFTWARE?

Before the internet came along, the aspirations of supply chain software devotees were limited to improving their ability to predict demand from customers and make their own supply chains run more smoothly. But the cheap, ubiquitous nature of the internet, along with its simple, universally accepted communication standards, have thrown things wide open. Now, companies can connect their supply chain with the supply chains of their suppliers and customers together in a single vast network that optimizes costs and opportunities for everyone involved. This was the reason for the B2B explosion; the idea that everyone in a company does business which could be connected together into one big happy, cooperative family. Of course, reality isn't quite that happy and cooperative. But today

most companies share at least some data with their supply chain partners. The goal of these projects is to create greater supply chain visibility. The supply chain in most industries is like a big card game: the players don't want to show their cards because they don't trust anyone else with the information, but if they showed their hands they could all benefit. Suppliers wouldn't have to guess how many raw materials to order, and manufacturers wouldn't have to order more than they need from suppliers to make sure they have enough on hand if demand for their products unexpectedly increases. Additionally retailers would have fewer empty shelves if they shared the information they had about sales of a manufacturer's product in all their stores with the manufacturer. The internet makes showing your hand to others possible, but centuries of distrust and lack of coordination within industries make it difficult. During the last few years most companies have gotten over the trust issue. In many cases "gotten over" is a euphemism for "have been bullied into sharing supply chain information from a dominant industry player." Want to sell your goods in Wal-Mart? Better be prepared to share data and adhere to Wal-Mart's data-exchange standards.

The payoff of timely and accurate supply chain information is the ability to make or ship only as much of a product as there is a market for. This is the practice known as just-in-time manufacturing, and it allows companies to reduce the amount of inventory that they keep. This can cut costs substantially, since you no longer need to pay to produce and store excess goods. But many companies and their supply chain partners have a long way to go before that level of supply chain flexibility can be achieved.

## 1.5 EFFECT OF RADIO FREQUENCY IDENTIFICATION (RFID) TECHNOLOGY ON SUPPLY CHAIN

The recent publicity of radio frequency identification (RFID) and its use in supply chain management has created awareness among businesses. RFID for the supply chain (RFID/SC) is an emerging technological trend that has attracted a lot of attention in the U.S., Europe, and Asia. Information sharing is important to achieve supply chain visibility. RFID is a type of automatic identification and data capture technology that uses radio waves as a means of communication between a tag and a reader. RFID tags are essentially barcodes on steroids. Whereas barcodes only identify the product, RFID tags can tell what the product is, where it has been, when it expires - essentially whatever information a company wishes to program. RFID technology generates mountains of new data about the location of pallets, cases, cartons, totes and individual products in the supply chain. It produces oceans of information about when and where merchandise is manufactured, picked, packed and shipped. It creates rivers of numbers telling retailers about the expiration dates of their perishable items - numbers that will have to be stored, transmitted in real-time and shared with warehouse management, inventory management, financial and other enterprise systems. In other words, as RFID technologies in the supply chain spread into the operations of more manufacturers, parts suppliers and retailers, they will transform the supply chain as we know it today.

Another benefit of RFIDs is that, unlike barcodes, RFID tags can be read automatically by electronic readers. Imagine a truck carrying a container full of widgets entering a shipping terminal in China. If the container is equipped with an RFID tag, and the terminal has an RFID sensor network, that container's whereabouts can be automatically sent to Widget Co. without the truck ever slowing down. It has the potential to add a substantial amount of visibility into the extended supply chain. Right now, the two biggest hurdles to widespread RFID adoption are the high cost of building the infrastructure to manage RFID data and a lack of return on investment (ROI) for many midsize and small manufacturers working in today's supply chains.

## 1.6 WHAT IS THE IMPACT OF RESPONSIBLE SOURCING, ENVIRONMENTAL SUSTAINABILITY AND THE "GREEN" MOVEMENT ON THE SUPPLY CHAIN?

If the technological side of supply chain management wasn't hard enough, the new "corporate social responsibility" (CSR) movement inside 21$^{st}$ century organisation and IT departments adds another layer of complexity. Broadly defined, CSR initiatives for companies include such strategies as being able to show environmental sustainability (i.e. reducing the carbon footprint), responsible sourcing from a wide range of global suppliers, and how "green" an organization is.

In order to prove that a company has lowered its carbon emissions, isn't dumping hazardous materials into rivers and doesn't buy its materials from suppliers that employ underage workers, company leaders need to be able to gain insight into and track the actions of their suppliers, and their suppliers and their suppliers - all the way down the chain into some good and not-so-good parts of the global economy. This ability also becomes critical when tainted goods need to be identified and found quickly in a supply chain, before the goods spread throughout a country's population.

Wal-Mart announced in fall 2008 that all of its suppliers—including the thousand located in China—would have to be in compliance with laws and regulations relating to rigorous social, environmental and energy efficiency mandates. Wal-Mart's suppliers would even have to attest that their suppliers received high ratings on environmental and social practices.

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