

“Some Case Study in Supply Chain Management”

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ABSTRACT

I present era almost every industry is going to be automated. Business today is in a global environment. This environment forces companies, regardless of location or primary market base, to consider the rest of the world in their competitive strategy analysis. Firms cannot isolate themselves from or ignore external factors such as economic trends, competitive situations or technology innovation in other countries, if some of their competitors are competing or are located in those countries. Companies are going truly global with Supply-chain Management (SCM). A company can develop a product in the United States, manufacture in India and sell in Europe. Companies have changed the ways in which they manage their operations and logistics activities.

1. INTRODUCTION

Organizations increasingly find that they must rely on effective supply chains, or networks, to successfully compete in the global market and networked economy. This concept of business relationships extends beyond traditional enterprise boundaries and seeks to organize entire business processes throughout a value chain of multiple companies. During the past decades, globalization, outsourcing and information technology have enabled many organizations such as Dell and Hewlett Packard, to successfully operate solid collaborative supply networks in which each specialized business partner focuses on only a few key strategic activities. This inter-organizational supply network can be acknowledged as a new form of organization. It is not clear what kind of performance impacts different supply network structures could have on firms, and little is known about the coordination conditions and trade-off that may exist among the players. In the 21st century, there have been few changes in business environment that have contributed to the development of supply chain networks.

First, as an outcome of globalization and proliferation of multi-national companies, joint ventures, strategic alliances and business partnerships were found to be significant success factors, following the earlier "Just-In-Time", "Lean Management" and "Agile Manufacturing" practices. Second, technological changes, particularly the dramatic fall in information communication costs, a paramount component of transaction costs, has led to changes in coordination among the members of the supply chain network. So supply chain management is the term used to describe the management of the flow of material, information and fund across the entire supply chain, from suppliers to component producers to final assemblers to distribution (warehouses and retailers), and ultimately to the consumer. In fact, it often includes after-sales service and returns or recycling. In contrast to multi-selection inventory management, this coordinates inventories at multiple locations.

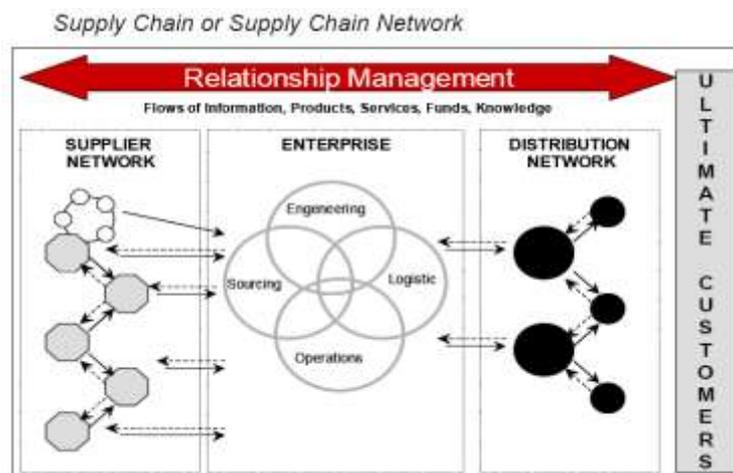


Fig 1.1 Supply chain network

1.2 History & Background of SCM

The origins of the technique we now know as supply chain management are thought to lie in the shipyards of Japan and were first used in the early 1950s. The technique was later used in the car manufacturing industry and in particular was pioneered, again in Japan, by Toyota. It is true to say that there are many people throughout the World who believe that it is the peculiarities and uniqueness of Japanese culture that permitted not only the wide spread adoption of SCM in Japanese manufacturing but also restricts its application and transfer to other countries and other cultures outside of Japan.

1.3 What is supply chain?

Many organizations today are forced to increase their global Market share in order to survive and sustain growth objectives. At the same time, some organizations must defend their domestic market share from international competitors. The challenge is how to expand the global logistic and distribution network, in order to ship products to customers who demand them in a dynamic and rapidly changing set of channels. Strategic positioning of inventories is essential, so that the products are available when the customer wants them.

The term supply chain consists up image of product or supply moving from supplier to manufacture to distributor to retailer to customer along a chain. It also implies that only one player is involved at each stage. So a supply chain involves a variety of stages as shown in fig. 1.2. Supply chain should actually be efficient and effective. In this case, efficient means to minimize resource use to accomplish specific outcomes and effective, in terms of designing distribution channels. Efficiency is measured by delivery performance, product quality, backorders and inventory level, whereas effectiveness is measured by service quality and the service needs.

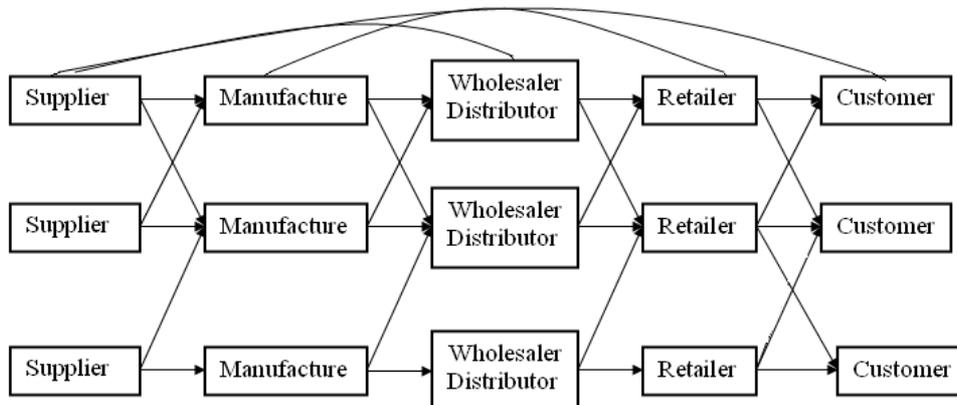


Fig 1.2 A simple supply chain stages

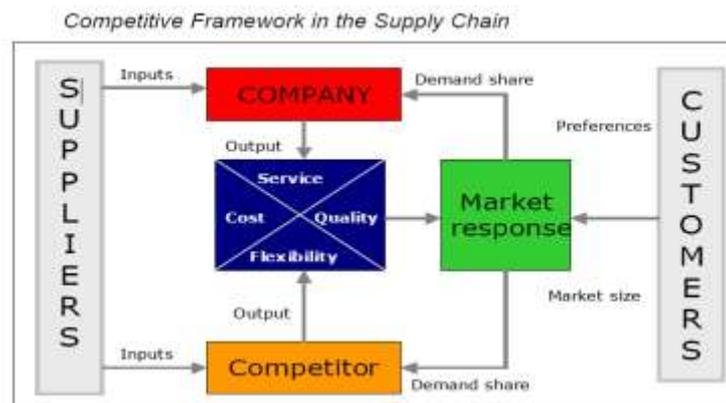


Fig 1.3 Competitive framework in the supply chain

1.4 Supply Chain Management

Supply chain management encompasses the planning and management of all activities involved in sourcing and procurement, conversion, and all logistics management activities. Importantly, it also includes coordination and collaboration with channel partners, which can be suppliers, intermediaries, third-party service providers, and customers. In essence, supply chain management integrates the whole system management system; each system is interlinked to other. For example, purchasing is directly in link with the accounting and operation material management as shown in fig 1.4. Marketing and account in direct contact with the operation material management

Supply chain management is the combination of the enterprise strategies, business process and information technologies that integrates the suppliers of raw materials or components, the manufacturers or assemblers of the finished products, and distributors of the products or services into one cohesive process to include demand forecasting, materials requisition, order processing, order fulfillment, transportation services, receiving, invoicing, and payment processing. Supply chain management is a cross-functional approach to managing the movement of raw materials into an organization, certain aspects of the internal processing of materials into finished goods, and then the movement of finished goods out of the organization toward the end-consumer. Customer are only point from which service provider get value for his product. These functions are increasingly being outsourced to other entities that can perform the activities better or more cost effectively. Customer and supplier are main focus point of supply chain. Cash flow and order flow from direct customer to supplier, means supply of product depend on the order received from customer. Inventory of product requires at two point firstly when supplier supply raw material to manufacture, secondly when manufacture supply finish good to the customers as shown in fig.1.4 .

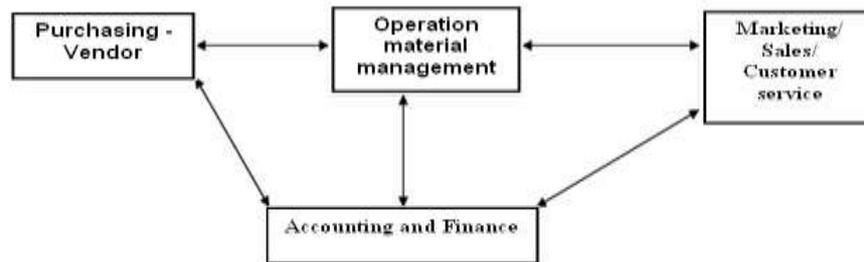


Fig 1.4 Supply chain system integration

1.5 Definition of supply chain management

The supply chain may be defined in to no of ways:

Jayashanker:- a supply chain to be a network of autonomous or semiautonomous business entities collectively responsible for procurement manufacturing and distribution activities associated with or more families of related product.

Lee:- defined as a supply chain is networks of facilities that procure raw material transform them into intermediate goods and then final products to customer through a distribution system.

Ganeshan :- has yet another analogous definition supply chain is a network of facilities and distribution option that perform the function of procurer of material transform of these material in to intermediate and finished products to customer.

1.6 Seven principles of supply chain management

1. Segmenting the customers according to their demands and providing them with a tailored set of products and services that will have maximum impact on them.
2. Customizing the logistics network through more robust logistics planning enabled by real time decision support tools that can handle flow-through distribution. More time-sensitive approaches to managing transportation will result in significant increase in revenues and return on investment.
3. Listening to signals of market demand and planning the production according to them helps the organizations to avoid situations like over stocking and out of stock during peak seasons.
4. Differentiating products closer to the customer avoids product obsolescence and increases the impact on the customers.
5. Sourcing strategically from suppliers who share the common goals improves the supply chains efficiency as it reduces inventory and gives way to concepts like vendor-managed inventory.
6. Developing supply chain wide common, technology strategy improves interaction between the supply chain partners.
7. Adopting a common supply chain wide performance measure directs all the supply chain partners to work towards a common goal and facilitates comparisons across organizational boundaries.

1.7 Objective of SCM

- To reduce the physical supply chain links
- To define supply chain responsibility to core service competency
- To decrease the time and cost of getting end user product in required quantity at the place of requirement.
- Efficiency & Cost Effectiveness across the entire Chain SCM objective is to maximize the overall value generated.

- Supply chain profitability is the difference between the revenue generated from the customer and the overall cost across the supply chain
- Supply chain success is measured in terms of supply chain profitability and not in terms of the profits at an individual stage
- Revenue is from customer – positive cash flow
- All other cash flows are simply fund exchanges that occur within the supply chain given that different stages have different owners
- All flows of information, product or funds generates costs within the supply chain
- Supply chain management involves the management of flows between and among stages in a supply chain to maximize total supply chain profitability

2.1 Literature review

Rao (2007) stated that selection of supplier basing on price alone will not be suitable in all contexts. Many firms make the fundamental mistake of focusing only on the quoted price ignoring the fact that the supplier may differ on the criteria that have great impact on the supply chain cost. So supplier selection shall be viewed as multi-criteria decisions making problem. Fuzzy outranking technique is used to rank the supplier. It helps in evaluating the quality policies.

Riedel (2009) developed a conceptual framework that integrates the cultural background of a certain location, of an enterprise and of those people involved in planning, coordination and execution of processes in to exiting concepts of supply chain planning and operating. Idea was based on theories of culture, physiology, decision process and on concept of SCM and network. He said that the cultural, quality and social, legal and social conditions are not considered sufficiently when relocating production, so the probability increases that the relocation project will fail. **Su (2008)** studied the impact of strategic behavior on supply chain management. He studied that consumer behavior is directly connected with the supply chain surplus. Consumer expect increasing generous discount and retailer fulfill thesis expectation by cutting deeper and deeper in to margin. Quantity commitment and price commitment and two strategies induce consumer to purchase early at higher price by marinating exclusively of the product. He said that the retail industry has long recognized the critical impact of bargaining hunting behavior on the bottom line, and the advent of markdown optimization offers and opportunity to tackle this issue directly.

Chandra (2009) described that dynamic nature of modern supply chain leads to frequent changes in the supply chain structure. General requirement for methodology governing modeling of reconfigurable supply chain and develop supply chain configuration methodology according to these requirement. It shows that dealing with stochastic and dynamic factor as well as model modification are the main issues in decisions making for supply chain configuration.

Smirnov (2009) presented a constraints based contract net protocol for agent based a BOT (build to order) and supply chain. Applicability of both supply chain configuration using intelligent agents and has been proved in many research work. Mainly this is due to the fact that both agent based system and supply chain consist of a number of independent units that have to collaborate in order to achieve the goal set.

Shiau (2009) has shown in his study, security management of modern supply system raise challenges to various aspects of SCM researches demanding an integrated and holistic solution framework. In this, he concentrated on two fundamentals security taxonomy and security management to support the pursuit of a security centric supply chain management mission.

3.1 Some issues in supply chain management

Supply chain success just doesn't happen. It takes focus and efforts across the entire company organization and with outside suppliers and service providers. Logistics touches every part of a company. So supply chain management must be multidimensional in its approach and scope, this includes process, people and technology. This is true whether you are a wholesaler, retailer or manufacturer all issue affect the value generated. And it is true if you are lean and need to be agile, flexible and collaborative. Supply chains can be long and complex, stretching between different countries. A firm may have many customers, each with different order and shipment requirements and destinations. There can be many suppliers, sourced from different cities and many countries. Each supplier may require instructions and planning as to lead times. Now a days, people, process and technology are main issue in SCM .

- **Process:** - Process means a practice, a series of actions, done for a specific purpose, such as satisfying customers. Customers demand and expect more from their supplier that is a fact regardless your size or industry. And supply chain management is critical to that customer satisfaction. Supply chain process is a flow of activities with the goal of meeting the requirements of a customer. It includes all internal functions, logistics, distribution, sourcing, customer service, sales, manufacturing and accounting. The series flows backward--from delivering each customer

order each order as demanded back through the performance of suppliers to provide needed good finished products, parts and components.

- **People:** - People make organizations and are important to supply chain success. They need to have functional expertise and skills. They need to know how to manage and operate warehouses, inventory, transportation, purchasing. They need both a tactical view for everyday business and a strategic vision of where and how their function fits in the supply chain and how to make it better. People success is a function also of the corporate culture, how the company sees itself, defines itself and operates, both internally and externally. The culture can be a facilitator of processes or an inhibitor.
- **Technology:-** Supply chain management is sometimes define, or incorrectly defined, in terms of technology. Process can be defined as technology, with an overemphasis on hardware and software, and not on the purpose of the process. In every process there is flow of data and information. So technology plays a big role in the flow of data and information. Lot of software's is available in the market for security of data and effective use of information. Software may be "sold" as the answer, the means, to supply chain nirvana. That can lead to an over expectation by the user, which in turn can lead to disillusion with what is required to set up and operate the system and with the results actually achieved.

These are some major issue in supply chain

- Supply Chain Networks
- The network facilities and supporting transportation is important
- Increased complexity for organizations is a problem
- Inventory Deployments
- The bullwhip effect
- Collection and storage of vast amounts of data
- Technology
- Transportation Management
 - Right product, right time, right quantity, right quality, right cost, right destination
- Global Issues
 - Global issues examine how all of the above categories are affected when companies operate in multiple countries
 - **3.2 What is logistics?**
 - **Logistics :-** the process of planning, implementing, and controlling the efficient, effective flow and storage of goods, services, and related information from point of origin to point of consumption for the purpose of conforming to customer requirements." The formal definition of the word 'logistics' as per the perception of Council of Logistics Management is the process of planning, implementing and controlling the efficient, effective flow and storage of goods, services and related information from the point of origin to the point of consumption for the purpose of conforming to customer requirements. "Logistics means having the right thing, at the right place, at the right time".

3.2.1 Inbound Logistics

Creation of value in a conversion process heavily depends on availability of inputs on time. Making available these inputs on time at point of use at minimum cost is the essence of inbound logistics. All the activities of a procurement performance cycle come under the scope of inbound logistics. Scope of inbound logistics covers transportation during procurement operation, storage, handling if any and overall management of inventory of inputs.

3.2.2 Outbound Logistics

Value added goods are to be made available in the market for customers to perceive value. Finished goods are to be distributed through the network of warehouses and supply lines to reach the consumer through retailers' shops in the market..

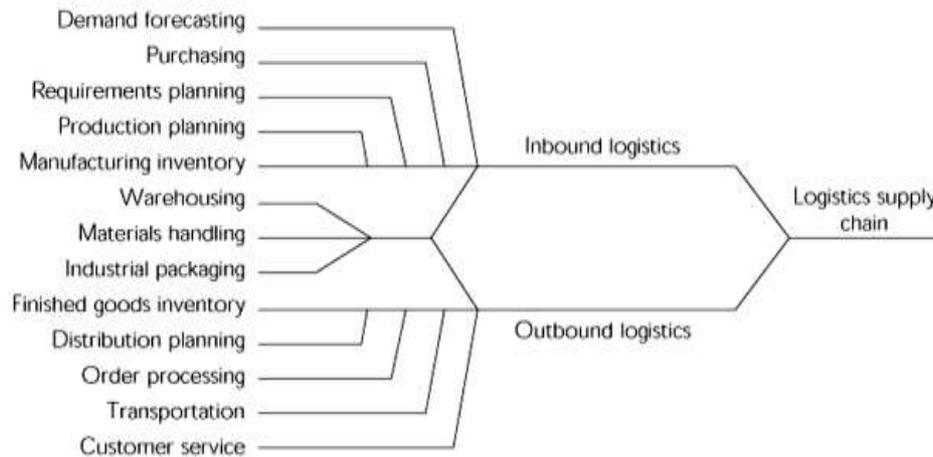


Fig 3.1 Integration of logistics system

3.3 Decision phase in a supply chain

- Supply Chain Strategy or Design:
- Supply Chain Planning
- Supply Chain Operation

3.4 Process view of supply chain

- Cycle View:
- Push/Pull View

3.5 Drivers of supply chain performance

- Facilities
- Inventory
- Transportation
- Information
- Sourcing
- Pricing

3.6 Inventory in SCM

Inventory is spread throughout the supply chain and includes everything from raw material to work in process to finished goods that are held by the manufacturers, distributors, and retailers in a supply chain. Again, managers must decide where they want to position themselves in the trade-off between responsiveness and efficiency.

3.7 The role of IT in supply chain

Information is a key supply chain driver because it serves as the glue that allows the other supply chain drivers to work together with the goal of creating an integrated, coordinated supply chain. Information is crucial to supply chain performance because it provides the foundation on which supply chain processes execute transactions and managers make decisions. Therefore information makes the supply chain visible to a manager. With this visibility a manager can make a decision to improve the supply chain's performances. Using IT system to capture and analyze information can have a significant impact on a firm's performance. Information is a key ingredient not to just at each stage of the supply chain but also with in each phase of supply chain decision making from the strategy phase to the planning phase to the operational phase.

4.1 Benefits of supply chain management

Supply chain management can cover the entire product cycle, from the introduction of raw materials to the points at which the consumer purchases the product. Supply chain management is a collaborative-based strategy to link across enterprise business operations to achieve a shared vision of market opportunity. It is a comprehensive arrangement that can span from raw material sourcing to end — consumer purchase. A company should implement supply chain management because of its powerful impact of short and long term goals like profit, market share, and customer satisfaction. To put the, advantages in numeric terms companies that have implemented supply chain management have a 45% supply chain cost advantage over their competitors. Companies that had implemented supply chain management had an order cycle time and inventory days of supply that were 50% lower than their competition. Finally, these companies met their promised delivery dates 17% faster than their competitor.

4.2 Integration of supply chain model

A simplified integrated supply chain model is shown in figure.4.1 The thick arrows show how the product and its materials move through the supply chain the thin arrows show the flow of informational and financial data. The figure illustrates a product's complete cycle from raw material to the final sale . Every business in the supply chain has an important role in the chain's success. The continuous communication between all the businesses in the supply chain at every Step of production allows for a smooth and continuous flow of products. The first step to be taken once the decision to implement SCM has been made is to lay the necessary groundwork so that supply chain management can operate properly.

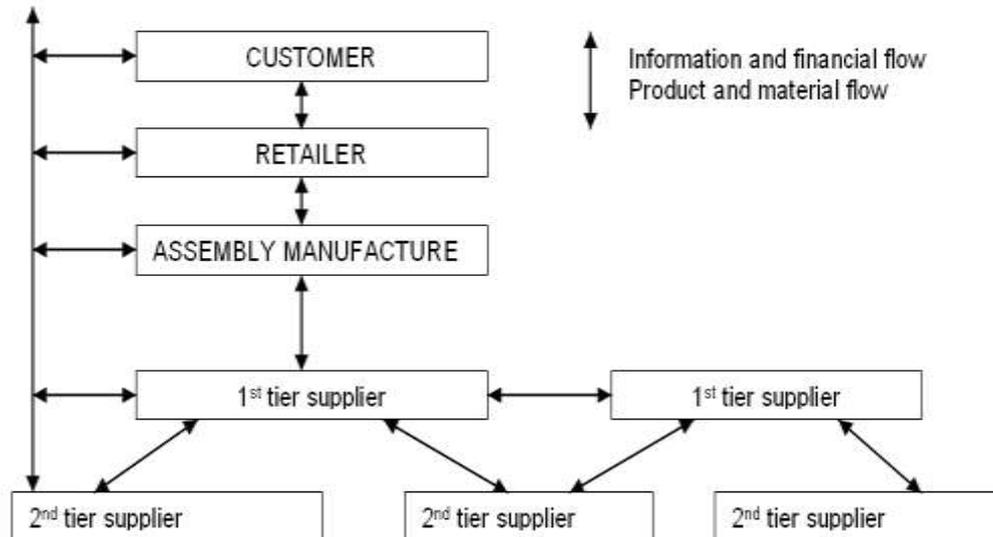


Fig 4.1 Integrated supply chain model

A study by management consultants Kerarney found that inefficiencies and implementation mistakes in the supply chain can waste as much as 25% of a company's operating costs. After necessary internal work has been completed, the next steps are to select supply chain partners, work to maintain supply chain relationships and make groundwork decisions.

4.3 Functional integration of whole business

Before a business can even concern itself with the other companies in the chain, it must have its own business in order and functioning properly. Functional integration must occur within the organization before integration can occur throughout the entire supply chain. Functional integration is the process of integrating or uniting all the functions of the business to work together. For example, logistics functions within the company such as distribution must integrate with supply management, manufacturing and even information technology before the company's functions can be integrated with other companies in the supply chain.

4.4 Selection of good partner

The second step is to integrate with external partners such as suppliers, vendors, customers, and logistics providers. The responsibilities involved include the sharing of information about upcoming production plans, new products, promotions, and even financial data. The many benefits these partnerships can bring include significant increase cost efficiencies, customer-service improvements, and marketing advantages. One company that has benefited greatly from such partnerships is Texas Instruments. The company defines a partnership "as a tailored business relationship based on mutual trust and openness and shared risk and rewards. It can yield a strategic competitive advantage for both parties and result in business performance greater than either partner could achieve individually. When companies implementing supply chain management select their supplier they must look for partners that have the capabilities to serve the organization are not too distant and are interested in developing a partnership.

4.5 Supply chain relationship management

A poor relationship in any part of the supply chain can have disastrous consequences for all members of the chain supply chain relationships are probably the most fragile and the most susceptible to breakdown. Communication between all in business is vital. Instituting an objective performance measurement system is an important method of ensuring a good relationship with a supplier or any business in the supply chain. The system will ensure that both parties are operating according to expectations and are meeting stated objectives. As an example, two companies may set the goal of increasing sales by 5% every year. When the business set these expectations and discusses the potential sources of conflict, communication is facilitated and problems can be solved.

4.6 Decision making

Business must embrace all their supply chain partners' tree from the gaps that have traditionally separated business. Goods must move simultaneously from sources to consumers, and information must flow immediately up and down the supply chain. Short and long term decision about location, production, inventory and transportation must be made to achieve this seamless movement. The location of production facilities stocking points and sourcing points in the supply chain must be decided. Once the size, number, and location of the firms are determined, the possible paths the products will follow to the final customer can be decided.

4.7 Summary

Companies implementing should take care all factor discussed above for better supply chain surplus. If implantation of supply chain properly in the right way than only we get can more profit, decrease overall cost. All companies that intend to compete globally should implement supply chain management. It is vital that they continually reach new customers and attract their existing customers. Companies unwilling to take the time to correctly implement supply chain management may not able to survive.

5.1 Roll of vendor in SCM:

XYZ Automobile Industries Ltd does as assembly work of the spring system. . So it has to depend on other vendor to supply raw material. It has 50-60 approved vendors, and yearly it gave rating to them according to their performance. Maruti also recommended some vendor to XYZ Automobile Industries Ltd selection of order and all flow of process clearly shown in figure. In this for buying specific part XYZ Automobile Industries Ltd have to depend permanently on that vendor. It buys raw material from vendor according to requirement and sometimes customer asked to buy material from some specific supplier.

5.2 Inventory:

Inventory plays a big role in SCM. We can say it is the heart of SCM. Every company wants to avoid inventory of final product in his company and raw material inventory not to be exceeded in company. Storage of raw material helps the company to avoid breakdown in line.

5.3 Costing:

Costing includes raw material process cost, overhead cost, packaging, transportation and inventory cost. Costing departments is directly attached to all department in the company it receives cost of material from the purchase material department. So better information flow of from one department to other is a key point in successful implementation of SCM in the company of SCM is working properly than only we can find exact cost of the product.

5.4. Customer order:

SCM play a wide role in the all department simultaneous. Customer orders are received directly from Hero Honda, Honda and other MNC's. First, customer gives tender to its vendor. Hero Honda having large no of vendor and XYZ Automobile Industries Ltd is one of them, every year Hero Honda gives rating to its vendor. Customer orders are received through mail or fax.

5.5 Outbound Logistics

Value added goods are to be made available in the market for customers to perceive value. Finished goods are to be distributed through the network of warehouses and supply lines to reach the consumer through retailers' shops in the market. Value added goods are to be made available in the market for customers to perceive value.

5.6 Summary

Company is not providing training to customer so training should be provided by the company to its entire employees. Area of company is not so big; sometimes it creates problems in inventory. So company should increase its floor area so that inventory can be made maximum and help in continuous supply of material and final product to the customer.

6.1 Objectives of Study

1. To see the effect of implementation of supply chain management technique on the productivity of the company, across the period of time.
2. To analyze the profit margin of the company before and after implementation of supply chain management ERP package.
3. To study the inventory of the company before and after implementation of supply chain management.
4. To make a study of the working capital management of the company before and after implementation of supply chain management.
5. To compare the reduction in the cost of production after implementation of Supply chain management.
6. To provide suggestions for the improvement of efficiency and functions of the company.

6.2 Conceptual Study of Supply Chain Management

Globalization also brings foreign competition into markets that traditionally were local. Local companies are thereby forced to respond by improving their manufacturing practices and supply chain management. Experience shows that the gains to be made in cost, lead-time and quality through working in partnership with customers and suppliers are significant.

Supply chain management (SCM) is the process of planning, implementing and controlling the operations of the supply chain as efficiently as possible. Supply Chain Management spans all movement and storage of raw materials, work-in-process inventory, and finished goods from point-of-origin to point-of-consumption Ganeshan and Harrison have yet another analogous definition:

SCM Principles: Ultimate customer focus, Network of organizations working for common purpose and mutual benefits, Process orientation, Total systems thinking, Cost Dimension.

- **Inventory**
- **Transportation**
- **Warehousing**
- **Information**

6.3 Performance Measures of Supply Chain Management

Supply chain performance measures can be classified broadly into two categories qualitative measures (such as customer satisfaction and product quality) and quantitative measures (such as order-to-delivery lead time, supply chain response time, flexibility, resource utilization, delivery performance, etc.). In our study we consider only the quantitative performance measures. Improving supply chain performance requires a multi-dimensional strategy that addresses how the organization will service diverse customer needs. While the performance measurements may be similar, the specific performance goals of each segment may be quite different.

Quantitative metrics of supply chain performance can be classified into two broad categories: Non-financial and financial.

- **Non-Financial Performance Measures**
- **Financial measure**

6.4 Cycle Time

Cycle time or lead-time is the end-to-end delay in a business process. For supply chains, the business processes of interest are the supply chain process and the order-to-delivery process. Correspondingly, we need to consider two types of lead times: supply chain lead-time and order-to-delivery lead-time. The order-to-delivery lead-time is the time elapsed between the placement of order by a customer and the delivery of products to the customer. If the items were in stock, then it would be equal to the distribution lead-time and order management time.

6.5 Customer Service Level

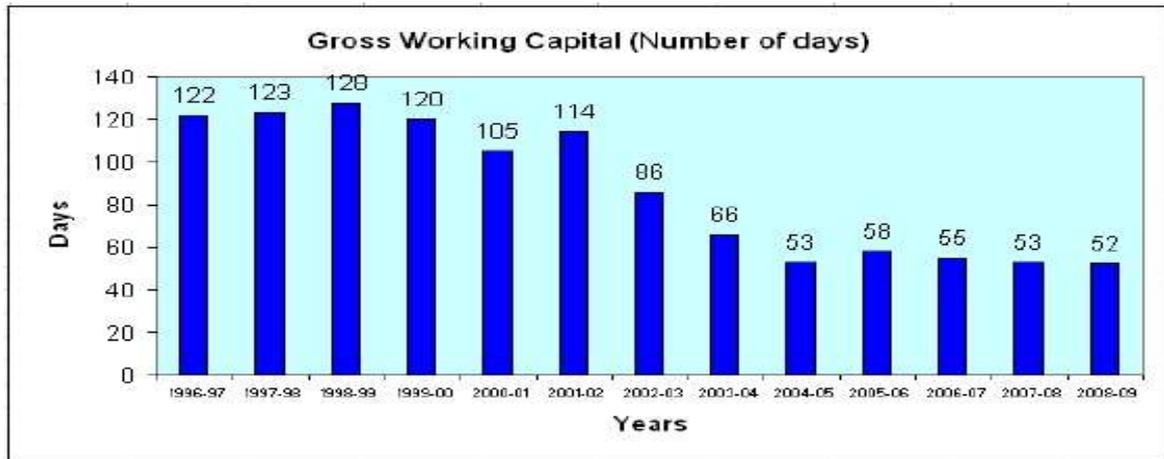
Customer service level in a supply chain is a function of several different performance indices. The first one is the order fill rate, which is the fraction of customer demands that are met from stock. For this fraction of customer orders, there is no need to consider the supplier lead times and the manufacturing lead times.

6.6 Relationship Between SCM And Performance In ABC Industries Ltd

The introduction of SCM Software SAP R/3 solutions within ABC Industries Ltd has led to efficient business processes, enhanced customer service, reduced costs, improved productivity, accelerated transaction time, workflow management and reduction in the number of credit management errors.

6.7 Working Capital Cycle

Working capital cycle, also known as the asset conversion cycle, operating cycle, cash conversion cycle or just cash cycle, is used in the financial analysis of a business.



Graph 6.1: Working capital analysis

6.8 The Inventory Management

The inventory management in 2003-04 and 2004-05 was best in the company history. Online availability of data will further improve Inventory Management in the stockyards, leading to better customer services. Lead time required to process orders, settle complaints, develop new products & reconcile accounts, in substantially lesser time.



Graph 6.2: Inventory turnover (In Days)

6.9 Customer Satisfaction

Customer satisfaction was a real issue at ABC Industries Ltd. When orders were placed, customers were promised a due date that was not based on hard data, plant capacity or raw-material availability. Orders were delivered when promised only about 50 percent of the time. To make matters worse, customers would generally not receive advance notice if their order would not be ready as promised, and this lack of communication burdened customer resources down the line, in the finishing and distribution channels.

6.10 Summary

- In purchasing, the approval process is not integrated with the company's e-mail system, which results in additional unnecessary effort, less control, and longer lead times. ABC Industries Ltd could streamline its purchasing process by using my SAP ERPe-mail integration for workflow approvals. In addition, the company could save time and streamline communication by using the new SAP solutions, rather than spreadsheet the solution to handle its budget process outside.
- Evaluate SAP functions for a monthly rolling budget forecast based on a total cost breakdown for existing cost centers. This would speed up the budget process dramatically and free management from non-value-added tasks. It would enable the

use of what-if scenarios to show the projected budget impact of various business decisions.

- In strategic purchasing, the company must increase the share of annual rate contracts in total purchasing, and there is an opportunity to reduce inventory-carrying costs by improving the share of vendor-managed inventory.
- In manufacturing, a real-time analytics engine could aggregate and deliver a unified version of events, alerts, key performance indicators, and decision-making support to production personnel through role-based dashboards.

7.1 Summary of work done

Two case studies have been conducted in XYZ AUTOMOBILE INDUSTRIES LTD and ABC INDUSTRIES LTD. Work has been carried out in these organizations on supply chain management. The chains of both firms are studied and the concepts of supply chain management are implemented.

In XYZ AUTOMOBILE INDUSTRIES LTD the study is conducted in collection of material, supplier, storage, supply chain of spring manufacturing and distribution. During study some drawback is found and some suggestion is also mentioned for increasing supply chain surplus. In ABC INDUSTRIES LTD the study conducted in inbound logistics like customer order supplier of raw material and planning and also conducted in outbound logistics like transportation, inventory of finished goods and handling of material.

7.2 Limitation of present work

- The company didn't provide authentic written documents/data. So all information is verbally collected. So the result outcome is not so accurate.
- The present work study touches the human factor very small extent. Therefore, the behaviors and culture of Indian work force should be studied deeply for the effective implementation of supply chain management.

Conclusion

Management of a supply chain means managing all the different processes and activities that produces value in the ultimate consumer. Companies that intend to compete globally should implement supply chain management. It is a vital that they must continually reach new customers and attract their existing customers. The leading companies, who have implemented the approach, are found to operating with 36% lower logistics cost than the average. Management of supply chain requires the planning and control of activities to achieve a desired goal and shaping the organization by coordinating activities, goal interest and relationship to be able to resolve conflicts and make good decision.

Future Trends in Supply Chain Management

The evolution the quality role in supply chain management will be shaped by the goals of reducing procurement risk and overhead. This involves reducing the effects of sub-standard materials on process efficiency, product quality, and exposure to product liability. Overhead reduction involves transferring incoming inspection responsibilities to vendors and moving the customer's quality function to an audit mode. Critical health and safety issues still require inspection. The procurement model evolves from lowest price to a lowest total cost, highest value model. This process requires ever closer vendor-customer data interchange and process integration. The increased competition will prompt supply chain innovation. New trends will be brought in supply chain management system so that many small companies will continue to challenge large companies and thus raise competition to whole new level. Supply chain is a tool to integrate the Indian economy with global economy.

References

- [1]. Anderson DL, Britt.L., "The Seven Principles of Supply Chain Management".
- [2]. Anupindi, Ravi, "Managing Business Process Flows: Principles of Operations Management",
- [3]. Babu B. V., Gujarathi A., "Multi-Objective Differential Evolution for Optimization of Supply Chain Planning and Management", 2007 IEEE Congress on Evolutionary Computation, (2007), pp. 2732-2739.
- [4]. Boone T., Ganeshan R., "A Book on Supply Chain Management", Jaico Publishing House.
- [5]. Cavale V., Sahey B.S., "The face of supply chain in India", Industrial Engineering Journal Vol. 32, No. 3 (2003), pp. 20-27.
- [6]. Chandra C., Grabis J., "Configurable Supply Chain: Framework, Methodology and Application", International Journal Manufacturing Technology and Management, Vol. 17, No. 1/2, (2009), pp. 5-22.
- [7]. Chopra S., Meindl P., "A Book on Supply Chain Management- Strategy Planning and Operation", 3rd Edition, Pearson Education Publication.



- [8]. Cowdrick M. R., "Supply Chain Planning –Concept & Case Studies", 17 International Conference on Computer & Industrial Engineering, Vol. 29, 1995, pp. 467- 471.
- [9]. Davis T., "Effective supply chain management: Management Review", summer, (1993) pp. 5-10.
- [10]. Ellram, Copper M. C., "Characteristics of Supply Chain Management and the Implication of Purchase and Logistics Strategy, "International Journal of Logistic Management.
- [11]. Favilaa J.,Fearnce A., "supply chain software implementation: Getting it Right" Supply Chain Management : An International Journal, Vol. 4 , No. 3,(2005),pp. 241-243.
- [12]. Franks, J.," Supply Chain Innovation, Work Study Volume 49, No.4, (2000), pp 152-155
- [13]. Ganeshan R., .Harrison T. P.," An Introduction to Supply Chain Management", Penn State University.
- [14]. Gopal K. M, "Supply Chain Management in Cyber Age", Journal of Institute Public Enterprise Vo. 22, 1999
- [15]. Handfiled R.,"Supply Chain Redesign: Converting Your Supply Chain in to an Integrated Value Stream", Financial Prentice Hall, (2002), pp.38.
- [16]. Padmanabhan V., "The Bullwhip Effect in Supply Chains". Sloan Management Review 38, No. 3 (1999), pp 93-102.
- [17]. Rao K. N., "Supplier Selection in Supply Chain Management through Fuzzy Outranking Technique", Industrial Engineering Journal, Vol. 36, No. 9, (2007), pp. 17-21.