Supply Chain Management Issues in an Indian SME: A Sap-Lap Analysis

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Abstract

After liberalization and globalization of the economies in modern world, survival of Small and Medium Enterprises (SMEs) have become very difficult. SMEs faces cut throat competition from bigger giants of market. To face tough competition of open global markets, SMEs must have effective Supply Chain Management (SCM) to have consistent value addition. SCM becomes becomes more effective when supply chain is coordinated and responsive. A well coordinated supply chain increases the supply chain profitability. Small and Medium Enterprises (SMEs) in India and other developing countries face problems in SCM implementation due to lack of resources and improper directions. In this paper, authors have tried to discuss SCM implementation in an auto part manufacturing Indian SME.

A Situation-Actor-Process (SAP)-Learning-Action-Performance (LAP) model has been applied for this case study. The situation represents the present scenario of the organization. Actors are the participants, influencing the situation to evolve different business processes. Based on SAP, various learning issues have been analyzed which will help in identifying suitable action for improving the performance.

Keywords: Supply chain management, SAP-LAP analysis, Coordination, Small and medium enterprises, Responsiveness.

1. Introduction

Globalization has brought increased pressure on Indian manufacturing SMEs to continually reduce prices against a backdrop of improving quality and service. Other major challenges for SMEs are to continuously provide innovative and customized products using the best available process technologies, reducing delivery lead time and product life cycle etc. Improvements in competitors' capabilities have elevated product complexity and expanded accessibility to new technical breakthroughs.

According to Huin et al. (2002), management of manufacturing SMEs requires speed, accurate and intelligent decision making to cope with the complex dynamic enterprise resources and uncertainty from external demands and variables. Recently, firm level competition has been replaced with competition among the supply chains. As SMEs have commonly been categorized to be component manufacturers for larger companies, where they operate in the "make to order" or rather the "engineer to order" approach, it imposes rigid constraints on meeting changes in requirements at short notice (Little and Lee, 1999). SMEs can no longer compete without effective coordination in their respective supply chain. According to Hong and Jeong (2006), SMEs have significant impacts on supply chain performance, where they may serve the roles of suppliers, distributors, producers and customers.

Over the last two decades, supply chain management has come to be seen as a key component of organizational competitiveness and effectiveness (Womack and Jones, 2005). Globalization has opened the doors of opportunities for Indian SMEs. This has intensified the competition among the SMEs, prompting them to be innovative in order to reduce costs, enhance quality, and improve their performance and responsiveness to customers' demand. To achieve these goals, existing SMEs as well as new entrants are all attempting to improve level of their supply chains (SCs).

Worldwide interest in supply chain management has increased steadily since the 1980s when organizations began to see benefits of collaborative relationships in business and in operations. This management concept is, however relatively nascent in India (Vrat, 1998). Thus, the era after liberalization saw Indian consumers demanding superior quality and services, thereby forcing firms to enhance product quality, increase variety, shorten product development process and improve services. While trying to remain competitive, Indian industries found that existing supply chain systems were not configured to meet the increasing requirements of consumers (Kappor and Ellinger, 2004).

The increasing uncertainty of supply networks, globalization of business, proliferation of product variety, and shortening of product life cycles have forced Indian industries to look beyond their boundaries for collaboration with supply chain partners (Sahay, 2003). Kanungo et al. (1998) observed that in a developing country like India, where the market is diverse and fragmented, supply chain efficiency could bring in remarkable benefits to the organizations.

In this paper, a case study of a manufacturing SME (ABC) in India has been undertaken to analyze various issues related to supply chain management. The main objectives of the case study in this paper are to analyze various issues of SCM in context of Indian SMEs for effective coordination and responsiveness. Section 2, of the paper discusses the literature review. Section 3, discusses research methodology. Section 4, discusses the organization's present situation in respect of SCM. Section 5, discusses case study SAP-LAP analysis. Section 6, is observations and conclusion.

2. Literature Review

To effectively compete in global market, a firm must have effective supply chain management. A supply chain consists of disparate but inter-dependent members who are dependent on each other to manage various resources (such as inventory, money and information). The conflicting objectives and lack of coordination between these members may often cause uncertainties in supply and demand. Coordination may help in managing inter dependencies and reducing uncertainties. Typically, a mechanism is required to streamline the whole supply chain and motivate all the members to be a part of the entire supply chain (Arshinder et al., 2009). A supply chain is known as a network of facilities and distribution options that performs the functions of procurement of materials, transformation of these materials into intermediate and finished products, and the distribution of these finished products to customers. Supply chain coordination plays a critical role in integrating different actors along the supply chain to enhance performance (Soroor et al., 2009). Singh (2011) has observed that, SMEs should follow holistic approach to improve overall coordination and responsiveness of supply chain.

According to Arshinder et al. (2009) today's biggest challenge in the supply chain (SC) is to manage disparate but dependent members of the supply chain. For an efficient supply chain, it is expected that the supply chain members behave coherently to achieve channel coordination. The centralized control of supply chain assures supply chain coordination but it may not be realistic, on the other hand, in a decentralized control, the supply chain members optimize local decisions without considering the impact of their decision on the other member's performance and on the overall performance of supply chain. Supply chain members are dependent on each other to effectively transfer goods and information among each other. Increasing global cooperation, vertical disintegration and a focus on core activities have led to the notion that organizations are links in a networked supply chain. This strategic viewpoint has created the challenge of coordinating effectively the entire supply chain, from upstream to downstream activities (Chen and Paulraj, 2004). Arshinder et al. (2008) reviewed various perspectives on supply chain coordination and various mechanisms available for coordination. Supply chain coordination relies on the availability of prompt and accurate information that is visible to all actors in the supply chain. However, new demands in the supply chain system require changes to information flow and exchange.

Literature has reported series of views on coordination in supply chain. For example Supply chain coordination is an effective approach to streamline operations/processes between the dependent supply chain members (Chopra and Meindl, 2008). The dependencies between the supply chain members can be managed with the help of coordination mechanisms such as invoking supply chain contracts, information sharing, information technology, collaborative decision-making, meetings with supply

chain members, and technical support (Tsay, 1999, Cachon and Fisher, 2000, Disney and Towill, 2003). The high adoption costs of joining inter-organizational information systems and information sharing under different operational conditions of organizations may hurt some supply chain members (Zhao and Wang, 2002).

Singh (2008) has observed that for improving their competitiveness, SMEs should develop their strategy to improve their value chain effectiveness. It has been observed that SMEs in general are not able to implement supply chain management (SCM) to its full extent, mainly because they depend on bigger customer and follow the norms stipulated by them. Larger companies consider SMEs as being easy to replace, buyers are reluctant to form partnerships with SMEs (Arend and Wisner, 2005). Systems, tools and methods also represent significant differences between SMEs and larger companies, in relation to adoption of electronic interfaces between actors in the supply chain. For example, larger companies have the resources and technical budgets to implement e-business and e-supply strategies but SMEs continue to be challenged by resource limitations (Wagner et al., 2003).

3. Research Methodology

Case study has been developed by collecting data from primary and secondary sources. Primary data and information have been collected, mainly through semi structured interviews of the concerned managers in each department. Secondary information has been collected through published sources and website of the organization. In the development of this case study, the published material mainly consists of business dailies, business weekly, corporate magazines, and the material available on the website of the company. As requested by the company, to maintain the confidentiality of information, the names of companies are not revealed in this paper.

SAP –LAP methodology (Sushil, 2000) is used to analyze supply chain issues in an organization from manufacturing sector in this study. It does in-depth study of an organization and there is interplay between SAP and LAP. A framework of SAP-LAP is shown in Figure 1. The paradigm considers three basic entities in any management context, i.e. situation, actor, and process. It could be seen that a situation is to be dealt by an actor or set of actors through a process or set of processes. The freedom of choice exists with an actor, who could be an individual, a group or the organization as a whole. The obtained learning would direct the possible actions to be taken for handling the situation, which would result into the performance of the system (Sushil, 2000). SAP-LAP methodology has been used extensively by researchers for the case studies of different sectors. Majumdar and Gupta (2001) have used SAP-LAP analysis to study initiatives of Indian car manufactures in developing internet and e-business technology. Arshinder et al. (2007) used SAP-LAP model to analyze the status of coordination in supply chain of a leading automotive parts manufacturer in India.

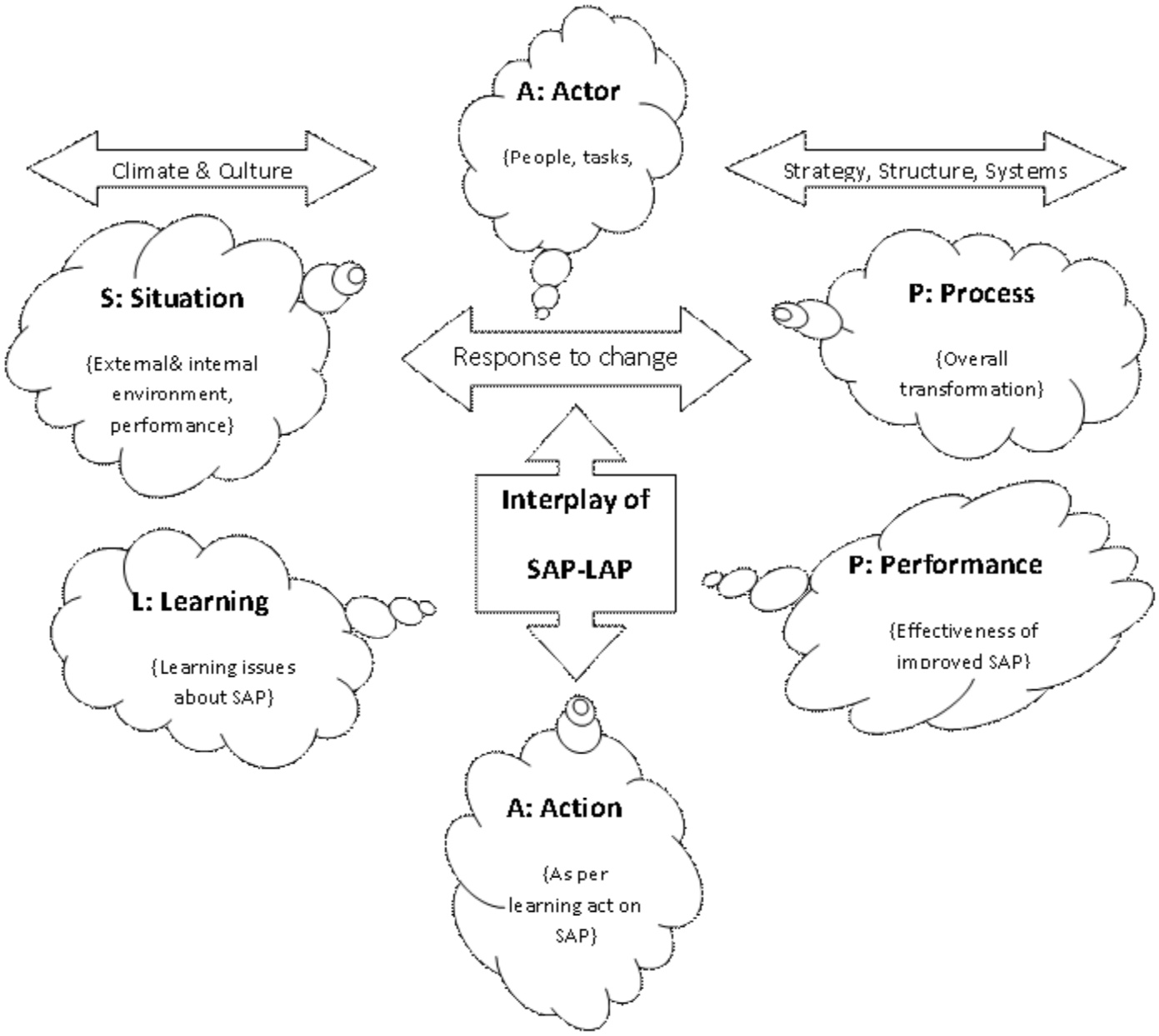
The steps for case analysis using SAP-LAP framework are: understanding situation, actors and roles, evolving process, learning issues, suggested actions, and expected performance. The ‘‘situation’’ represents the present status, environment of an organization, and the driving forces for SCM implementation of an organization. The ‘‘actors’’ are the individual participants, or group of members, which influence the situation and define an organization culture to evolve business processes. The ‘‘process’’ is an overall transformation process that converts a set of inputs into outputs to recreate the situation. Understanding situation brings out key points of the emerging situation of the case in terms of historical perspective, external environment, competition, government policies, market condition, and organizational performance and so on. Second step actors and their roles identify key actors in the case and their roles. Usually, this aspect of case analysis is not well addressed in the traditional case methods. Third step evolving processes critically analyzes the key process (es) evolving in the case and portrays their key issues. The processes could be of any type.

The traditional models are not able to capture the overall gamut of supply chain activities in a holistic manner. The traditional models are also weak in capturing the dynamics of changing environment and flexibility required to face dynamics. The proposed model not only discusses the issues of SCM but also explains how to work on the SCM issues for various changes.

The discussed case is of company ABC from auto sector. Sushil (2000) has recommended the use of SAP-LAP methodology for critically examining a case organization. This methodology consists of two steps. In the first step, the SAP analysis, the dynamic parameters of a case are highlighted through the three dynamic interface of any business system. These interfaces are situations (S), actors

(A), and processes (P). The next step is LAP synthesis. LAP has three components. These are learning issues (L), actions recommended (A), and anticipated improvement in performance (P). The actors consistently evaluate the situation, follow processes, and take actions to improve their coordination and responsiveness and depending on the results either the processes are modified or same processes are followed in future.

Figure 1 SAP-LAP Framework (source: Sushil, 2000)



The SAP-LAP paradigm incorporates both learning and action in a symbiotic manner coupled with performance. It not only takes into consideration optimization of processes, but also incorporates multiple perspectives of various participating actors in a managerial process. Thus, SAP-LAP analysis offers a learning and interpretive framework of inquiry into the problem under consideration. Therefore, for the organizations, which are in the process of adopting new and complex technologies, SAP-LAP framework provides one of the most useful methodologies of analysis and synthesis.

The situation is treated like a journey and examines the past, present, and the expected trends in future. For the various actors under consideration, it inquires about their

worldviews, roles and capabilities, and their respective freedom of choice. The process is examined in terms of three seminal questions, i.e. what, why, and how? The basic purpose of the process is questioned and then the questions are asked to generate the alternatives (Sushil, 2000).

The LAP is carried out for situation, actor, and process independently leading to a synthesis. The key learning issues about the SAP are to be identified synthesizing into overall learning issues. This will lead to key suggested actions to improve the situation, actor and process respectively. Finally, the impacts of these actions on the performance of the situation, actor, and process are explored (Sushil, 2000, 2001).

4. Organization Description: In this section, study will try to focus various issues of SCM in context of the case organization.

Profile of the Organization

ABC was established in Oct, 2004. The company has earned all these years to acquire a distinctive identity for its brands as well as company name. ABC auto Pvt. Ltd. manufactures various auto parts. ABC is spread in 6000 square meters area with covered area of 3000square meters. Total employees working in ABC are about 1500. Main product of ABC is axle, supplied to different customers. Major customers of ABC are Bajaj auto pvt. Ltd, Suzuki motorcycle India pvt. Ltd., Honda motorcycle and scooter India (Pvt.) Ltd., Hero motocorp Ltd. Machine tools used by ABC are turning centers, machining center, forging centers, hobbing m/cs, and heat treatment furnace. ABC operates in four shifts from 8 am to 4.30 pm (1st shift), 4pm to 12.30 am (2nd shift), 12am to 8.30am (3rd shift) and 9am to 5pm general shift.

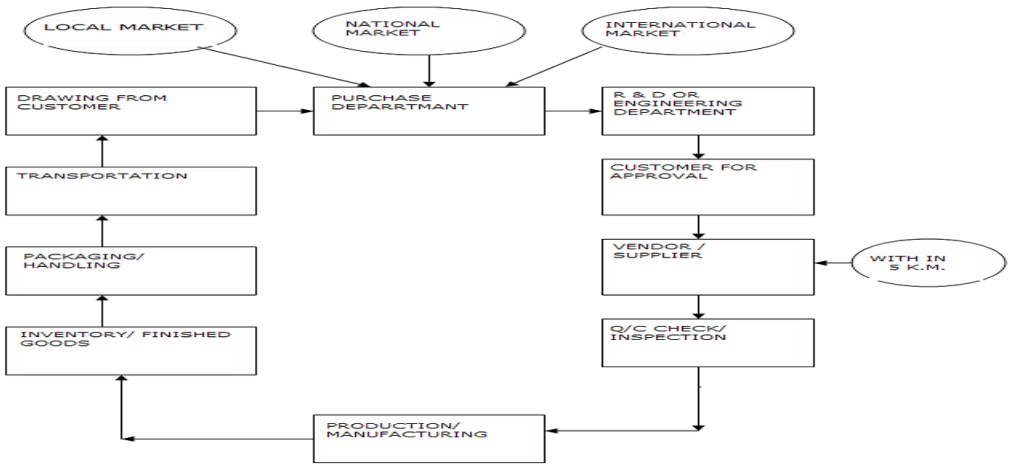
According to ABC's vision statement, its goals include maintaining leadership in the Indian automobile parts manufacturing industry, creating customer delight.

Supply Chain Issues at ABC

ABC have different department like engineering or R&D, purchase, quality, production, heat treatment and logistics and have good collaboration in each department.ABC is getting good response from its customers. Whole supply chain of ABC is divided in different parts. Firstly purchase department and then engineering or R&D department receives order from its customers. It receives order from its customer, and along with order receives drawing of all part that it has to manufacture for its customer. Now ABC studies this drawing and makes a development plan. After confirmation from customer, ABC gives order to supplier for raw material. It make sample product and send to the customer. Then customers check that product and give order for mass production to ABC.

Roll of vendor in SCM: ABC depends on vendors to supply raw material and other services. It have vendor, and yearly it give rating to them according to their performance. Some customers also recommend vendor to ABC. In that case for buying specific parts ABC have to depend permanently on that vendor. So SCM plays a big role in vendor development. ABC makes a schedule for its entire vendors for continuous supply of raw material and final product to the customer to avoid line break down. One of raw material vendor is K.K. metal.

Figure. 2 Supply chain of ABC



Inventory: Inventory plays a big role in SCM. Every company wants to avoid inventory of final product and keep a limited stock of raw material. Storage of raw material helps the company to avoid breakdown in line. If customer says that they need more than one day inventory ABC has to keep more inventory. But this cost of inventory that customer has to pay. If company is not able to supply product to the customer on required time than it create problems for customer like loss due to line stoppage. So ABC always do inventory of one day for final product.

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 is a key point in successful implementation of SCM in the company. If SCM is working properly than only we can find exact cost of the product. Final cost of the product also includes cost of manufacturing, overhead cost and transportation.

Inbound Logistics

The supplier supply raw material as ordered by ABC. Inbound logistics includes sourcing, order placement and expediting, transportation, receiving and storage. Overall, procurement operations are called inbound logistics. All orders are based on the demand it receives from its various customers.

Customer order: SCM play a wide role in the all department simultaneous. Customer orders are received directly from respective customers. Customer orders are received through letters, mail, fax or phone and sometimes order are placed in customers meetings. Sales order is prepared for the same.

Raw material: All the raw materials are easily available. Raw materials are supplied from various vendors and this is thoroughly examined by the ABC purchasing department to ensure the quality of the material. Supplier assures deliver at door step of ABC.

Inventory: Inventory depends on customer demands. Generally, one day inventory is necessary for company to avoid breakdown in customer production line. If breakdown occurred in the supply of products to the customer than ABC have to pay for that loss happened due to breakdown of supply of final product. Sometimes vendor ask ABC to keep inventory of 3-7 day, customers have to pay cost of this inventory.

Power and fuel: The unit requires power load of 1200 KVA to run machines. Provision of diesel generator set also been made to operate the critical item of machinery during power cuts.

Water and its disposal: The suitable provision of bore-well with water storage tank has been made in the plant. The waste water is treated in waste water treatment plant in ABC.

Outbound Logistics

Outbound logistics starts from manufacturing unit and ends at the customer, procurement cycle.

Order management: Customer orders are well managed in the company. A record is prepared in which all customer names with daily demand are recorded. There may be chance that customer changes the requirement of product than company also keeps provision for this.

Finished goods inventory: A good purchased as "raw material" goes into the manufacturing of a product. A good only partially completed during the manufacturing process is called "work in process". When the good is completed as to manufacturing but not yet sold or distributed to the end-user is called a "finished good". So inventory of finished good plays a good role in SCM. Finished goods should be stored at right place in dispatch section, so that loading becomes easy. Company generally keeps provision of inventory as safety stock to compensate variation in customer demands, if any. Because company also wants that there should be no breakdown of supply of finished goods to his customer. Sometimes customers pay for extra inventory kept by ABC.

Packaging and handling: Final product is placed in corregated box in palatize form. The size and shape of packing are designed and planned by customer. Customers ask company to supply product packaging in specified shape and size. Because customer wants that working people in his company should not face problem in unloading and storage of the product. In designing the shape, size and weight of the box company should ensure that staff working on product line can handle it easily. Product life cycle also had taken in to account when designing the box. If packaging is not good then corrosion

may damage the product. The anti rust oil coating done on products prone to rusting or company use anti rust polythene begs. VCI sheet is also used.

Transportation: Final products are delivered to customer plant by own transports of ABC at right time, right place and at right cost. It plays a big role in the SCM. Company has 13 vehicles for transportation of final product to the customer. Before the material is loaded in to the vehicle, they are physically checked for any breakage, cleanness and dirt.

Vendor Development Strategy

ABC's vendor development was one of the key factors for reducing production costs, and thereby a key factor for the firm's remarkable growth. ABC sources raw material and other supplies from local market vendors within the distance of 5-10 kilometers. For work like plating ABC source from its local vendor in industrial area with in a circle of 5km. They deliver per-shift. For supplies like raw material ABC keep a stock of two days. For supplies like machine parts and other daily usable items ABC keep a stock of one week.

5. SAP-LAP Analysis

In this section, we analyze the ABC case using SAP-LAP framework. The analysis is conducted in the context of the coordination and responsiveness issues of SCM in the organization.

Situation

This section describes the present status of ABC in terms of different issues of SCM and its future plan, technology, R&D, coordination, responsiveness, competitive advantage, and performance.

Interestingly, from establishment in 2004 ABC is progressing in a well planned way. In financial year of 2007-2008 it did a total business of Rs.120 million. During financial year of 2008-2009 ABC did a total business of Rs. 140 million. After the entry of many foreign auto manufacturers in India, ABC has lot of opportunities. Opportunities also brought lots of challenges for ABC. ABC is facing a very tough competition from different competitors. To excel in cut throat market competition ABC need a strong network of suppliers and vendors which it lacks. There is always fear of business loss exist in market from competitors. After dedicated efforts from management toward suppliers and customers networking and implementation of other supply chain management tools in year 2010-11, ABC got a total business of Rs.200 million in financial year of 2010-2011.

An intense competition exists amongst different SMEs due to presence of many other players in this segment of the auto parts manufacturing. The continual decrease in its market share and profit is a matter of concern for ABC. There is increasing pressure to maximize the efficiency, responsiveness, agility and adaptability of the supply chain. ABC is focusing on reducing costs and making new customers. The competitors are offering the product at far lower price, and giving ABC a tough competition in both technology and cost. In this context, ABC is committed to use SCM practices successfully.

Actor

The views about supply chain management presented in this paper are based on semi structured interviews with different actors and interlocutors during field visits. Those approached include top management and middle level managers, employees in supply chain and R and D departments apart from vendors and sub-vendors.

Process

The supplier supply raw material to the ABC as they receive order. Customer orders are received through letters, mail, fax or phone and sometimes orders are placed in meeting with customers.

Inbound logistics, which involves raw material and services from vendors. Raw materials are supplied by selected/suggested (by customers) vendors by proper contract. Suppliers are bound to deliver raw material at the door step of ABC. Proper inventory management is done to reduce inventory carrying cost and stock outs. The initiatives of supply chain like standardization of parts, Just in Time (JIT) is used to reduce cost and inventory. The internet and phone help ABC keep in touch with its customers, vendors and with other members of the business community. The information sharing with the suppliers is mostly internet or phone based. The order processing time

has collapsed from few days to few hours. The production forecasts of ABC are based on its customer's orders and past records. All vendors and customers are connected through email, fax and phone for transferring real time information on orders. The tracking of finished goods on outbound side is being done mainly by phone and fax. Vendors are rated on bases of their performance evaluated on regular intervals.

Learning

In open competition, cost cutting is very important but customer satisfaction is also required. Therefore, ABC has to make its supply chain more integrated and efficient. This may be achieved through extensive and strategic use of all its resources and use of modern information technology tools.

The total material costs in the finished product are between 65 and 70 percent. Therefore, efficient management of inbound logistics and materials procurement are the critical issues for better management of its supply chain. ABC uses selected number of vendors tested and rated from time to time. The standardization of parts at ABC has helped achieve risk pooling which, in turn, reduces average inventory as well as overall inventory levels. Similar parts from different customers are grouped, that has significantly helped in inventory management and logistics services. Delivery of the final products are done by company own transports, areas are divided customers wise. Inbound transportation and outbound transportation cost company about 10 to 12% of total cost. This can be reduced by selecting vendors and customers in close vicinity of the plant of ABC. But location of customer does not come in will list of SMEs like ABC.

ABC needs to improve its relation with vendors and customers. Some of loyal vendors are selected and linked with main plant using modern technology techniques. Strength of supply chain can be increased by actively involving all members and use of modern IT tools. Therefore, the maximization of the benefits of IT in a supply chain requires all the suppliers and customers to be willing to invest in the IT sector. The E-commerce has created new opportunities and challenges in the sales and procurement. Trust is necessary for information sharing among the various partners of a supply chain.

The availability of real-time data leads to improvement in forecasting and thereby enables production to be more in tune with the customers demand. In absence of real time information sharing about delivery status with the logistics operator or transporter lead to uncertainties. It also results in high transportation costs or last moment changes in the delivery schedule. But due to scarcity of resources ABC has not deployed e-business technologies to all areas and all customers/vendor links.

Action

Since ABC is the active member of its supply chain, it can make use of its importance in the supply chain and ask the vendors to use the latest IT tools and industrial engineering practices for supply chain performance improvement. The organization should develop a system for improving coordination and responsiveness of its supply chain. This way ABC can benchmark its supply chain practices with the best in the business. It should periodically review its supply chain policy. New industrial tools/techniques may be used to identify the gray areas in its supply chain. Raw material supply/services are totally depends on its vendors. Therefore, vendor management needs to be made the thrust area. The vendor performance needs to be evaluated on regular bases. The number of vendors can be brought down. For improving coordination in supply chain, ABC needs to focus on accurate data-sharing with its vendors, utilize business intelligence systems to support automated replenishment, and make its collaborative planning, forecasting and replenishment system more mature. The strategic use of IT in vendor/customer interaction can improve supply chain performance. Proper incentives need to be provided to the vendor for information sharing and for use of IT tools in the supply chain. These incentives could be in terms of technological assistance, long-term contracts, status of most preferred vendor etc. The e-business technologies should be used to involve customers, suppliers and sub vendors. Resources should be devoted to use modern technology within organization and in supply chain.

Performance

ABC measures its vendor on quality, cost, and on time delivery parameters. The parameters like adaptability, agility and alignment can be added to the process of vendor-selection. This will result is selecting vendors who can better deal with uncertainty. The performance measurement and benchmarking of supply chain would

provide ABC an opportunity to identify the gaps in its supply chain practices. The reduced vendor-base is likely to add to the smooth and reliable functioning of its supply chain. This will help in development of strategic relationship, lowering of expenses in IT deployment, reducing work-burden on people and the system. Use of modern IT tools for inter-department coordination helps in making system more agile. The periodic discussion with the customers and other supply chain partners will help achieve better supply chain integration.

Connectivity of customers, vendors and service providers to the organizations network will serve dual purpose. First, it will provide the organization a database of the nature of complaints in its products and accordingly it can analyze these complaints and further improve the services of the product. Second, it will boost up the faith of its customers in the organization and its product.

The reduction in number of vendors, deployment of e-Business technologies and processes all across the value chain would result in satisfied customers in the supply chain. The website needs to be made for the organization and it should be more customer-focused to the extent that the customers may choose the configuration of products within technical and economic constraints. New features should be added on website to attract new customers. There should be options to place order for new customer on website. IT-based real time information sharing towards modularization and postponement will reduce inventory as well as working capital requirement.

6. Some Observations And Concluding Remarks

Use of SCM implementation initiatives taken by Indian industries has been demonstrated through a case study. The case company belongs to the auto parts manufacturing sector. The company is among the leaders in the automobile sector. This case has provided good insight about the initiatives for SCM implementation. SCM implementation has lead to benefit like improvement in productivity, profit and reduction in production cost. Graphs are plotted with respect to % of sale.

Figure 3 Operating Profit Rate vs % of Sale

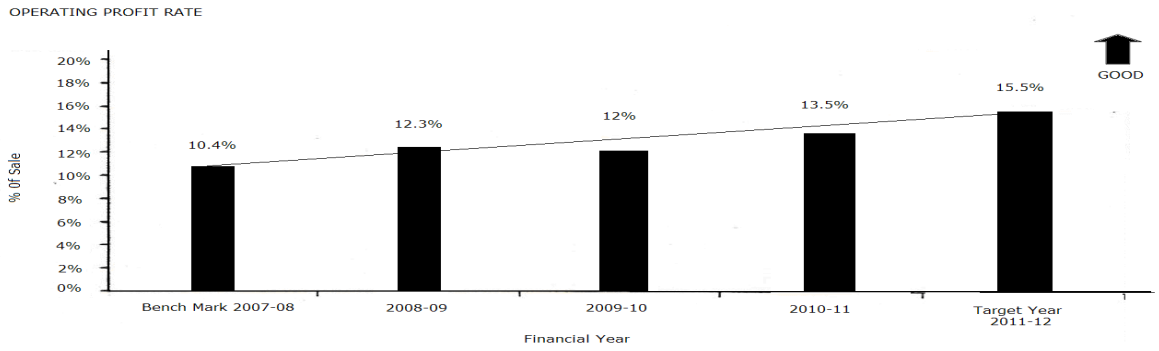


Figure 4 Production cost Vs % of Sale

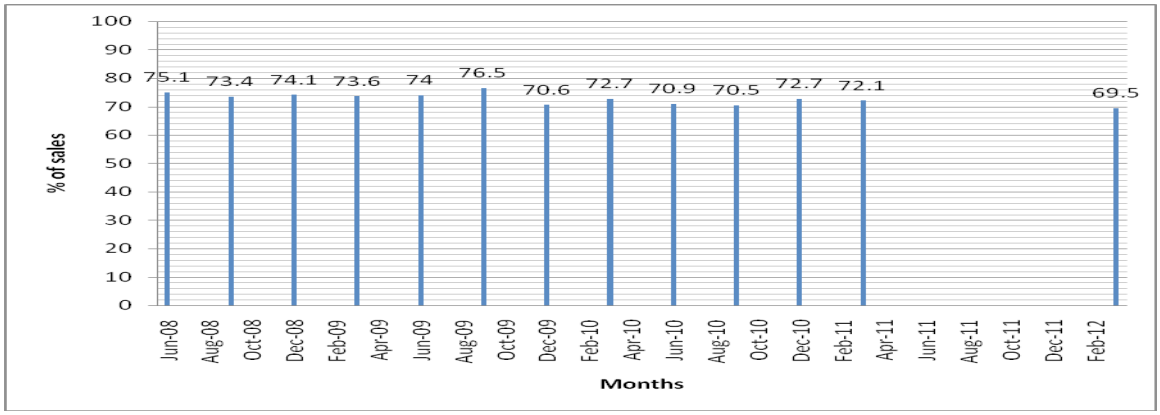
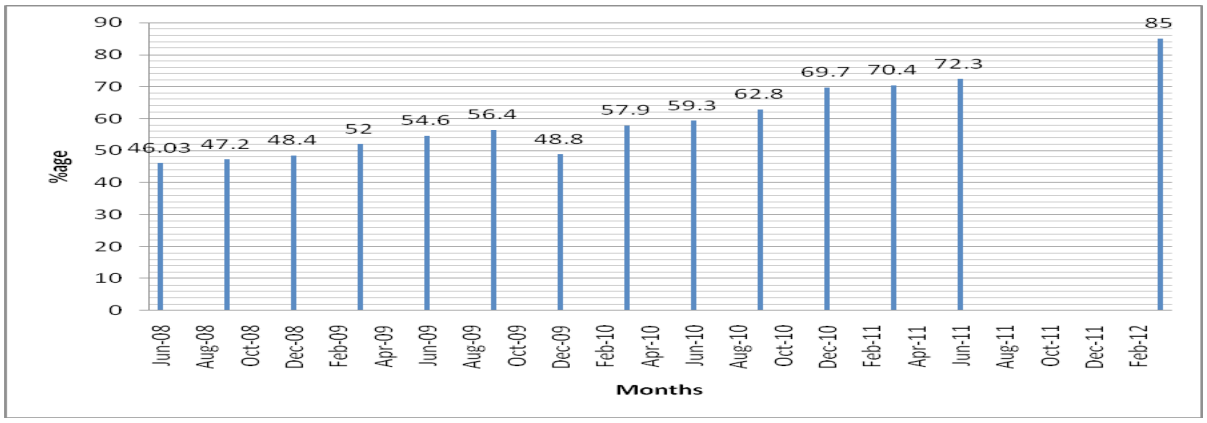


Figure 5 Productivity Vs % of Sale



The case investigation was based on resource-based view. Further, SAP-LAP analysis of the case study was conducted based on semi-structured interview with the experts. The studied case revealed that there is a major difference in perceptions, practices and implementation of SCM. This study can be further extended to other cases for cross-case comparison. The study was conducted to see how the supply chain initiatives help SMEs in SCM implementation.

Authors observed some of the observation from the case study.

- Operating profit has increased from 10.4% (in year 2007-2008) to 15.5% (in year 2011-2012). Sharp increased was observed in years from 2009-2011 during SCM implementation phase and after that (Figure 3).
- A drop in operating profit was observed in year 2008-2009 due to tough competition from competitors.
- In effort to reduce production cost ABC was working from the day one, after implementing SCM it reduces from 72.7% to 69.5% (from year 2010-2012) (Figure 4).
- Productivity has increased from 48.8% in year 2009 to 85% in year 2012 after implementation of SCM (Figure 5).
- Company not providing training to its employees in SC issues, so training should be provided by the company to its entire employees about the SC implementation techniques. Regular training helps in motivation of employees.
- Area of company is not so big; sometimes it creates problems in inventory. So company should increase its floor area so that resources can be managed efficiently and help in continuous supply of material and final product to its customers.
- Generally company is using 1-3 day inventory of raw material (based on customers) that require more floor area and also increase the overall cost of final product. Inventory should be reduced.
- Modern IT tools should be used to share information in all area with all SC members.
- Sometimes due to low packaging standard material takes corrosion and damage the product so company do the packaging carefully and increase the packaging standard.

The research finding will be quite useful to practitioners who are implementing SCM in SMEs. It will also motivate SMEs to implement SCM successfully in their respective organization. When facing more turbulent global market and cut throat competition SMEs have to be proactive and dynamic in SCM implementation. Information sharing and coordination mechanisms should be examined very carefully before SCM system is implemented. These findings should not be generalized. To further validate the findings, study can be extended as an empirical study with certain more number of case studies.

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