

Supply Chain Management: Enabler to Business Advantage

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ABSTRACT: Adversarial relationships have long dominated business relationships, but Supply Chain Management (SCM) entails a new perspective. SCM requires a movement away from arms-length relationships toward partnership style relations. SCM involves integration, co-ordination and collaboration across organisations and throughout the supply chain. It means that SCM requires internal (intraorganisational) and external (interorganisational) integration. This paper analyses the relationship between internal and external integration processes, their effect on firms' performance and their contribution to the achievement of a competitive advantage. Performance improvements are analysed through costs, stock out and lead time reductions. And, the achievement of a better competitive position is measured by comparing the firm's performance with its competitors' performance.

KEYWORDS: Competitive advantage, Internal and external integration, Logistics integration processes, Logistics performance, Supply Chain Management.

1 INTRODUCTION

Supply chain management (SCM) involves not only the integration of key business processes within the organization but also the integration of these processes throughout the entire supply chain (Croxtton, Garcia-Dastugue, Lambert, & Rogers, 2001). "Leading-edge companies have realized that the real competition is not company against company, but rather supply chain against supply chain" (Cooper, Lambert, & Pagh, 1997: 3). Given this approach to organizational success and competition, SCM may present a key opportunity for organizations to enhance performance and establish a competitive advantage. This thesis used the definition of SCM as defined by the Global Supply Chain Forum (GSCF). "The GSCF, a group of non-competing firms and a team of academic researchers, has been meeting regularly since 1992 with the objective to improve the theory and practice of SCM" (Lambert, 2008: 2). According to the GSCF, "supply chain management is the integration of key business processes from end user through original suppliers that provide products, services, and information that add value for the customers and other stakeholders" (Lambert, Cooper, & Pagh, 1998: 1). The GSCF defines eight key SCM business processes. Fully implementing each of the eight processes at once may prove to be difficult and challenging but, may also be necessary in an attempt to avoid sub-optimization (Lambert, Garcia-Dastugue, & Croxtton, 2005). This research will delve deeper into the implications of implementing three of the eight processes. Determining the potential impacts of implementing any one or all of the eight processes may prove to serve great value to the field of SCM by further developing a way ahead for SCM implementation. The customer relationship management (CRM), order fulfilment (OF), and returns management (RM) process share distinct relationships and may be able to enhance organizational performance when implemented individually or together. Measuring competitive advantage and organizational performance associated with the development of these processes is a necessary component and step toward capturing the potential benefits SCM may have on the organization

Lambert lists and briefly describes each of the supply chain management processes:

- **Customer Relationship Management** – provides the structure for how relationships with customers are developed and maintained. Cross-functional customer teams tailor product and service agreements to meet the needs of key accounts, and segments of the other customers.
- **Customer Service Management** – provides the firm’s face to the customer, a single source of customer information, and the key point of contact for administering the product service agreements.
- **Demand Management** – provides the structure for balancing the customers’ requirements with supply chain capabilities, including reducing demand variability and increasing supply chain flexibility.
- **Order Fulfilment** – includes all activities necessary to define customer requirements, design a network, and enable the firm to meet customer requests while minimizing the total delivered cost.
- **Manufacturing Flow Management** – includes all activities necessary to obtain, implement and manage manufacturing flexibility and move products through the plants in the supply chain.
- **Supplier Relationship Management** – provides the structure for how relationships with suppliers are developed and maintained. Cross-functional teams tailor product and service agreements with key suppliers.
- **Product Development and Commercialization** – provides the structure for developing and bringing to market products jointly with customers and suppliers
- **Returns Management** – includes all activities related to returns, reverse logistics, gate keeping, and avoidance (Lambert, Garcia-Dastugue, & Croxton, 2005: 28).

Each of the key processes has sub-processes at the strategic and operational level that are inherent to that process, but these sub-processes are also where interfaces amongst the key processes occur (Croxton et al., 2001). Analysis of these interfaces can lead to an evaluation of the level and strength of the relationships between the key processes. The strategic level is primarily focused on establishing, managing and providing implementation guidance for the process as opposed to the operational level, which “is the actualization of the process once it has been established” (Croxton et al., 2001: 15).

While the GSCF has developed and defined eight key business processes to be developed and implemented within and throughout the supply chain, this research will specifically focus on the extent to which the strategic development of the CRM, OF, and RM processes impact competitive advantage and organizational performance. With a growing level of theoretical and practical importance, SCM has proven to be a pillar in today’s competitive global market and this research will provide a clearer understanding of how specific processes comprising SCM contribute to organizations in pursuit of establishing a competitive edge and enhancing performance.

2 INFORMATION TECHNOLOGY

Supply Chain Management is a broad based function which encompasses all business and operational processes involved in but not limited to Procurement, Manufacturing, and Finished Goods Transportation, warehousing & Distribution and Inventory Management. In a globalized business scenario characterized by Geographically spread markets, raw material procurement sources across the world and cheaper manufacturing and labour markets being available in developing world, the business of meeting demand with supply is constantly changing and evolving. Global business has been fuelled and enabled by the IT Technology which has redefined all aspects of business today. All businesses today are run on ERP - Enterprise Resource Planning which provides the organizations with tools to manage all the functions including procurement, production, sales and finance management in seamless and integrated manner.

These software systems like SAP, Oracle, People soft etc, have taken over and enhanced the business processes which were traditionally being managed manually. Demand planning, Forecasting, Global procurement management are some of the enabling tools on which the Global procurement strategies are built and managed. The availability of these sophisticated systems has further enabled companies to implement good and cost effective manufacturing practices like JIT, Kanban, and VMI etc.

Finished goods distribution, transportation and inventory management, besides sales process is again driven by the various ERP modules combined with additional specific applications as required. ERP has enabled companies to manage their business processes in different markets and countries under one common business process thus providing standardization and control. The complex network of various processes, software platforms and applications and different soft ware tools used by various vendors and agents in the entire chain drive the supply chain of the companies.

E commerce has further redefined the way business is carried on. Online purchase has impacted the way supply chains are organized and markets are driven. Customer behaviour and preferences are changing as online marketing is establishing

a one to one contact with the customer and is able to offer a personalized experience. The instant delivery of the information through internet elicits immediate response and action from the customer. The sales lead time is rapidly decreasing. The demanding customer therefore needs to be serviced immediately at the same speed. The internet technology has further opened up the geographical boundaries for the companies. Any person sitting in any corner of the globe is able to purchase a product online at the click of a button. The companies have to be well equipped with the logistics and supply chain network to be able to service the customer.

When in a global scenario, goods and services move through multiple chains involving very many agents including transporters, forwarders, customs, distribution centres, distributors and lastly the retail outlets, availability of data, documentation and information becomes the lifeline for the organization to be able to take decisions and ensure seamless processes and control the supply chain. IT is one of the most important enabler of the Supply chain in modern complex world of Global Businesses.

3 LOGISTICS

Supply chain Management encompasses, planning, design, control and implementation of all business processes related to procurement, manufacturing, distribution and sales order fulfilment functions of a business. All these activities involve multiple networks of vendors and service providers which are integrated and co-coordinated by the Supply chain Experts of the organization to move raw materials and finished goods from and to all distant locations across the globe. Logistics is the backbone on which Supply Chains are driven. Logistics refers to management of flow of goods and supplies involving information, data and documentation between two entities or points. Logistics play important role in post procurement function of delivery of raw material from the supplier to the point of production and Finished Goods Supply chain management from the point of dispatch from factory to the point of delivery to the customer.

The flow of goods flows through a network of transportation by road, rail, air or ship and intermediary warehouses to hold inventories before moving to the forward locations. The entire activity involves multi tier suppliers, agents and agencies including freight forwarders, packers, customs department, distributors and Logistics service providers etc. Logistics therefore is an integral component of Supply chain Management. Origin of Logistics as a recognized discipline is generally attributed to military and defence organizations. Defence departments make use of detailed and extensive planning to gather supplies and move men and materials to various locations and bases. The success of any military exercise depends upon the ability of the establishment to be able to gather information, analyze, assimilate and take appropriate logistical measures to continuously support their units. Similarly in any business organization, the successful operations depend upon visibility and control over the logistics process managed through and with excellent logistics service provider backbone and network. In many cases Supply chain is often referred to as Logistics and vice e versa. Though logistics and supply chain are intricately linked, both do not mean the same. Logistics is a sub component and extension of Supply Chain.

In the case of Finished Goods distribution, SCM strategy will define overall network design for stock holding and further channels of distribution. Logistics deals with the entire gamut of designing transportation network, partnering with 3rd party logistics providers to establish distribution centres and warehouses, planning inventory management and operations process including packing, promotional bundling etc, primary, secondary distribution network and vendors and at the end the complete documentation and information process for the entire chain of activities

4 VENDOR MANAGED INVENTORY

VMI involves a collaborative and continuous inventory supply owned, managed and replenished by the Manufacturer right up to the last stocking point or point of sale to end customer. VMI concept is widely being used by companies both as procurement business model and FG supply chain model too. Industries like retail supermarkets, consumable supplier industry, electronic hardware industry and Automotive Components industries have adopted these strategies effectively to improve their supply chain efficiencies. VMI concept aims to reduce inventory in the pipeline, besides achieving the concept of JIT - Just in time where in the ownership of the inventory lies with the supplier until the time of usage or sale where it gets transferred to the buyer. This model also reduces operational costs of logistics and inventory management for the buyer.

VMI's success depends upon several factors. First of the entire concept pre determines the existence of a strategic partnership and alliance between the supplier and the distributor as well as the logistics service partners. On the part of the supplier, an participative approach to grow the relationship by investing into enhancing value for the customer and extending customer relationship management initiative drives such an approach, where in the supplier agrees to own the inventory

until the point of call off and continues to monitor and manage the inventory besides ensuring replenishments. The customer being distributor or manufacturing plant in this case appreciates the supplier initiative and take interest in coordinating and cooperating with supplier and supervise at times the 3PL who is situated at his premise or at a nearby location.

A VMI model as practiced in retail supermarkets is similar conceptually to the model as in Manufacturing setup, but the role of 3PL would not be as important or relevant it may not call for huge inventory management operations to be setup at the retail store. Though the purchasing and consumption decisions are taken by the buyer and accordingly trigger for stock release takes place from VMI bins, the supplier actively monitors the inventory usage and operates replenishment cycle, plans the shipment modes, delivery and takes ownership to ensuring agreed inventory fill rates and service performance.

5 DOCUMENTATION

Supply chain operations and network extend beyond domestic boundaries and global boundaries of all countries. A logistical exercise originates at the buyers end and involves multiple agencies including buyer, seller, 3PL freight forwarder, transporters at various juncture, shipping lines, airlines, various governmental agencies, customs departments at various locations and financial institutions like banks to complete the entire supply chain cycle. Smooth flowing of materials in a journey originating at one point and going through the entire cycle of exports and imports to reach a point of consumption would mean engagement and interaction with all of the above agencies who have a stake in the said transaction. Need for decision making concerning financial, commercial, technical, operational matters pertaining to shipments arise at various times in the cycle, which demands that the 3PL, the logistics carrier, the buyer, the supplier are actively engaged and have visibility to information and documentation for the smooth flow across various transit points. In fact in faultless logistics operations the documentation and information flow should precede physical movement of goods.

Documentation becomes important not only for the physical logistics operations involving multiple agencies engaged in the entire chain, the financial, trading and accounting processes of the both buyer and seller organizations and partner banks involved also depend upon the entire set of documentation pertaining to each transaction to be able to recognize the sale, recognize value of consignment and effect necessary payment. Accounting practices of the organizations require detailed documentation as per book keeping practices and norms. Finally goods and services are recognized and identified at every stage only with the set of authenticated documentation showing ownership based on which the customs allow them to be exported or imported into or out of the country. There are many more aspects like terms of carriage by the carrier coupled with insurance liabilities and coverage which call for set of documentation covering specific aspects of each transaction. Therefore the entire supply chain transaction involves set of standardized documentation from buyer and seller, from 3PL carriers and documentation as required by customs at exporting country and importing country coupled with trading or bank requirements documents. The entire set of documents and the terms of trade have been developed and standardized across all countries to facilitate international trade.

INCO terms and EDI approved / enabled standardized documentation has made Export and Imports smoother and hassle free, thus cutting down on bottlenecks and delays arising out of documentation requirements. Today software applications have built in standardized documentation templates and modules in their offerings which reduce the amount of time and effort involved in preparing documentation. ERP modules contain the documentation formats as an integral part of its internal processes. 3PL logistics providers work with various software applications which have shipping documentation built into its operational processes and offer track and trace with documentation visibility to customers on the web. Filing documents with customs has been EDI enabled. Electronic documentation has become a part of operations amongst all agencies. However at customs and banking counters, original documents are required to be produced as negotiating and legal valid documents for shipments to be cleared through.

A supply chain manager needs to be aware of the complete set of documentation requirement along with the various aspects to be able to design processes and documentation control mechanisms. Errors in documentation will lead to financial damage, delays in delivery and performance which is what every manager aims to avoid.

6 WAREHOUSE MANAGEMENT SYSTEM:

In any Supply Chain, Inventory Management and Warehousing form a part of operations intensive function and is one of the key building blocks in the entire chain. Most of the inventory is held at the warehouses as compared to the pipeline, and the efficiency of the warehouse operations will determine the further supply chain efficiency. Though it is a normal industry practice now to outsource the warehousing operations to a 3PL Logistics service provider, the SCM managers who are the decision makers and network owners would need to know the intricacies of warehouse operations and get actively involved

in choosing the right partner and right facility. A distribution centre or a warehouse is the key to the entire model as it holds the inventories and also manages other operations like bundling, packing, labelling, co packing, kitting etc as per buyer requirement. Most of the marketing and buyers requirements are met with from the warehouses.

Many factors and elements contribute to successful operations of a distribution centre. The time taken to detail the project and build a model taking into account all considerations will go a long way in ensuring operational efficiency of the supply chain.

6.1 PHYSICAL INFRASTRUCTURE

The building blocks or operational criteria of an ideal Warehouse Management System includes location, structure, roof height and flooring, design and layout external, utilities and facilities in the premise, internal layout design, storage infrastructure, material handling equipments, lighting and safety equipments and mechanisms, office infrastructure, IT and communications infrastructure, power and backup services and finally accessibility of the location and availability of labour. The list can be exhaustive and depends upon specific needs of each buyer's business.

6.2 IT SYSTEMS

The efficiency of warehousing operations is highly dependent not only upon the physical infrastructure but the system and intelligence that controls, directs and manages the physical transactions. A robust WMS capable of managing inventory and locations which is RF driven or enabled, would be the backbone of a good efficient warehouse.

The Warehouse Management System controls two sets of operations:

- On the inventory front, the system maintains inventory in the warehouse at Zone & individual location level, SKU level, pallet wise, carton wise and unit level inventories for multiple customers and allows specific inventory attributes and parameters to be built in to manage, allocate or block the inventory. The system also provides options to adapt FIFO, LIFO or other methods of inventory flow.
- On the Operations front the system manages, controls and directs all operations including receiving processes, put away processes, order processing, inventory allocation, picking process, packing process and finally shipment along with inventory updating. The intelligent system guides and helps operations manager to schedule and manage all operations for various groups and teams simultaneously depending upon the work load and pattern and thereby manage resource allocation too.

Another critical function of WMS is the cycle count process which is required to maintain the health of the inventory. WMS initiates daily cycle count and wall to wall counts as per user specification and attributes. Lastly WMS is able to provide various types and categories of reports and information related to inventory, shipments, transactions, timings of transactions and many more parameters.

7 CONCLUSION

A supply chain is the network of relationships between the upstream and downstream activities with all stakeholders who are involved in this chain of relationships. To take an example, if a particular good or service has to be delivered to the customer, there are raw materials that are needed for the manufacture, the forms of transport and means of storage for the raw materials, the transport of the finished goods to the retailers and the logistics involved in getting the goods to the customer are all parts of the supply chain that extend from the suppliers to the customers. In other words, there is a chain of relationships between the firm and the partners involved in this chain. Therefore, supply chains are comprised of all these stakeholders and the relationships between them determine the effectiveness of the supply chain. In contemporary times, supply chains can be sources of competitive advantage as efficient management of the supply chain leads to cost savings and synergies between the components of the supply chain leads to greater profitability for the firms. It is for this reason that many business leaders have focused their energies on optimizing the supply chains for increasing the top line as well as the bottom line.

In times of economic recessions, supply chains can be used as strategic levers as they can be optimized to perform better than the rivals do so that more profits can be extracted and lesser costs incurred. The optimization of the supply chain through just in time or JIT methods of holding inventory, focus on reducing the COGS or the Cost of Goods Sold by rationalizing the expenditure on the components of the supply chain all lead to a situation that can be extremely beneficial to the firms. It is for this reason that many firms like Wal-Mart, Proctor and Gamble, Tata Motors, and Unilever has focused on

rationalizing the activities that form the supply chain. The point here is that with astute management of the supply chain, the firms can derive value from the process, which can then translate into greater profits and lesser costs. Apart from this, the supply chains can also be of strategic and competitive advantage because a major portion of the cost of goods sold or COGS is made up of the logistics and the supply chain expenses.

Finally, the twin challenges of the globalization of the world economy and the increase in the global complexity of supply chains are formidable and when taken together with the effect of the ongoing economic crisis, business leaders have their hands full trying to make decisions on how to meet these challenges.

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