SUPPLY CHAIN MANAGEMENT IMPLEMENTATION TO ENHANCE FIRM’S COMPETITIVE ADVANTAGE

Yuniarti Hidayah Suyoso Putra
Fakultas Ekonomi UIN Maulana Malik Ibrahim Malang
Jalan Gajayana 50 Malang
E-mail: yuniarti_hidayah@yahoo.com
HP. 081334119895

Abstract

Rapidly changing business environment has led to the change of supply chain management (SCM) implementation. This paper attempts to discuss the benefits of SCM and how the companies manage it in order to maintain their competitive advantage. Illustrations from several companies are included. To achieve sustainable competitive advantage, five basic steps in supply chain management i.e. plan, source, make, deliver and return as discussed earlier should be conducted and evaluated carefully and continuously. SCM should take into consideration the choice of strategic partnerships not only based on the most efficient and effective cost structure but also the legal aspect of the supplier to avoid the company being shut down by the government. Trust and relationships with the suppliers should be maintained and finally, the technology innovation in SCM of a company should be developed more advanced, compared or combined with other companies to sustain competitive advantages.

Key Words: Supply Chain Management, Implementation, Competitive Advantage

In order to achieve the objective, a company has to decide a good strategy, which can be applied in this rapidly changing business environment. Since change is the striking feature of contemporary business (Brown and Eisenhardt 1998 p.3), managing change in every aspect of the business is very important to gain competitive advantage. A company then has to be sensitive with the current issues affecting its business. Issues in changes in demand and supply of the goods in terms of the price, volume and design can be very important to be addressed to achieve sustainable business. One way to address this issue is by managing supply chain.
The term ‘Supply Chain Management’ (SCM) has become an interesting topic over the last 10 years. It came firstly in the early 1980s in a discussion of the internal business integration that consists of purchasing, manufacturing, sales, and distribution functions (Harland, 1996). Since then, the use of that term seems to increase. At the 1995 Annual Conference of the Council of Logistics Management, the words “supply chain” was used for 13.5% of the session titles. At the 1997 conference, just two years afterwards, the percentage of sessions containing the term rose to 22.4. In addition, the term is frequently used to describe executive responsibilities in corporations (La Londe 1997) and has become a "hot topic" that it is difficult to understand a periodical on manufacturing, distribution, marketing, customer management, or transportation without seeing an article about SCM or SCM-related topics (Ross 1998). One of the reasons this concept becomes popular is the trends in global sourcing that prominence on time and quality based competition.

Therefore, this paper aims to discuss the benefit of supply chain management for a company which already applied this strategy to maintain their competitive advantages such as Cedenco Australia, Sleepmaster Pty Limited, Hospital Supplies of Australia and Woolworths will be provided so that deep understanding about this topic can be obtained.

Supply Chain

The definition of “supply chain management” seems to be less common than “supply chain” across authors (Cooper and Ellram 1993; La Londe and Masters 1994; Lambert, Stock, and Ellram 1998). La Londe and Masters argued that a supply chain is a set of firms that deliver materials forward. Normally, in manufacturing a product and placing it in the hands of the end user in a supply chain-raw material and component producers, product assemblers, wholesalers, retailer merchants and transportation companies are all members of a supply chain several independent firms involved (La Londe and Masters 1994). Another definition notes a supply chain is the network of organizations that are involved, through upstream and downstream linkages, in the different processes and activities that produce value in the form of products and services delivered to the ultimate consumer (Christopher 1992). In other words, a supply chain consists of multiple firms, both upstream (i.e.,
supply) and downstream (i.e., distribution), and the ultimate consumer. Given these definitions above, it can be concluded that a supply chain is a set of three or more entities (organizations or individuals) directly involved in the upstream and downstream flows of products, services, finances, and/or information from a source to a customer (Mentzer, 2001).

Encompassed within this definition, three degrees of supply chain complexity were identified by Mentzer (2001) as a "direct supply chain," an "extended supply chain," and an "ultimate supply chain." A direct supply chain consists of a company, a supplier, and a customer involved in the upstream and/or downstream flows of products, services, finances, and/or information. An extended supply chain includes suppliers of the immediate supplier and customers of the immediate customer, all involved in the upstream and/or downstream flows of products, services, finances, and/or information. An ultimate supply chain includes all the organizations involved in all the upstream and downstream flows of products, services, finances, and information from the ultimate supplier to the ultimate customer. Thus, this relationship can be illustrated as:

Figure 1: Develop Competitive Advantage through Linkages with Suppliers and Customers


Supply Chain Management

Slack, et al (1998) gave definition of SCM that in contrast to an internal orientation as a holistic approach to managing across boundaries in company. However, Ellram (1991) suggests that term “supply network” is more correct rather than “supply chain”. He argued that supply network may consist of many linked operations across organizations that combine to supply of goods and services to the end customers, while supply chain has narrower meaning.
Another definition came from Koch (2002). He defined SCM as the combination of art and science that goes into improving the way your company finds the raw components it needs to make a product or service, manufactures that product or service and delivers it to customers. Koch (2002) explains the following five basic steps in supply chain management.

1. Plan

This is the strategic portion of supply chain management. An organisation needs a strategy for managing all the assets that meet customer demand for the organisation product or service. A big part of planning is developing a set of strategies to monitor the supply chain so that it runs efficient, costs less and delivers high quality and value to customers.

2. Source

Choose the right supplier that will deliver materials needed to create a product or service. Develop a set of pricing, delivery and payment processes with suppliers and create metrics for monitoring and improving the relationships. Put together processes for managing the inventory of goods and services you receive from suppliers, including receiving shipments, verifying them, transferring them to your manufacturing facilities and authorizing supplier payments.

3. Make

Also refer as the manufacturing step. Schedule the activities necessary for production, testing, packaging and preparation for delivery. As the most metric-intensive portion of the supply chain, measure quality levels, production output and worker productivity.

4. Deliver

This is the part that many insiders refer to as "logistics." Coordinate the receipt of orders from customers, develop a network of warehouses, pick carriers to get products to customers and set up an invoicing system to receive payments.

5. Return
Create a network for receiving defective and excess products back from customers and supporting customers who have problems with delivered products.

Furthermore, SCM also deals with the planning and execution issues involved in managing a supply chain. Free Advice Center (2005) defines the components that will lead SCM to a better result, involving as following.

- **Demand planning**
  
  This is also called as forecast. In this part, the organisation predicts demand of the product or service and calculates materials needed to produce them.

- **Demand collaboration**
  
  Collaborative resolution process to determine consensus forecasts

- **Order promising**
  
  The ability to deliver goods or services to the customers

- **Strategic network optimization**
  
  Maximise all the utilities that can create optimal result of SCM

- **Production and distribution planning**
  
  Coordinate the actual production and distribution plans for a whole enterprise, usually on daily basis

- **Production scheduling**
  
  For a single location create a feasible production schedule, minute by minute

- **Plan of reduction of costs and management of the performance**
  
  Diagnosis of the potential and the indicators, masters dysfunctions in real time, evaluation and accounting reporting, evaluation and reporting quality

- **Supply chain management methodology** often encourages modelling real-world processes for analysis and optimization. One notable methodology is SCOR, promoted by the Supply Chain Council
The Benefits of SCM

The motive behind the formation of a supply chain arrangement is to increase supply chain competitive advantage of the organisations (Global Logistics Research Team at Michigan State University 1995; Monczka, Trent, and Handheld 1998). According to Giunipero and Brand (1996), by enhancing overall customer satisfaction through SCM, a firm's can improve its competitive advantage and profitability. La Londe (1997) proposed that SCM aims at delivering enhanced customer service and economic value through synchronized management of the flow of physical goods and associated information from sourcing to consumption.

Porter (1985) argued that competitive advantage grows fundamentally out of the customer value a firm creates, and aims to establish a profitable and sustainable position against the forces that determine industry competition. Thus, it is proposed that the implementation of SCM enhances customer value and satisfaction, which in turn leads to enhance competitive advantage for the supply chain, as well as each member firm. This, ultimately, improves the profitability of the supply chain and its members.

Specific objectives of SCM are to improve profitability, competitive advantage, and customer value or satisfaction of a supply chain. For example, a key objective of SCM is to lower the costs required to provide the necessary level of customer service to a specific segment, as suggested by Houlihan (1988), Jones and Riley (1985), and Stevens (1989). The other key objective is to improve customer service through increased stock availability and reduced order cycle time (Cooper and Ellram 1993). Customer service objectives are also accomplished through a customer-enriching supply system focused on developing innovative solutions and synchronizing the flow of products, services, and information to create unique, individualized sources of customer service value (Ross 1998).

Finally, low cost and differentiated service help build a competitive advantage for the supply chain (Cavinato 1992; Cooper et al. 1997; Cooper and Ellram 1993; Cooper, Lambert, and Pagh 1997; Ellram and Cooper 1990; Lee and Billington 1992; Novack, Langley, and Rinehart 1995; Tyndall et al. 1998). For example, SCM is concerned with improving both efficiency (i.e., cost reduction) and effectiveness (i.e., customer service) in a strategic context (i.e., creating customer
value and satisfaction through integrated supply chain management) to obtain competitive advantage that ultimately brings profitability (Mentzer et al., 2001).

Moreover, analysis on SCM will help to quantify supplier power by calculating the percentage of total profits that can be attributed to suppliers, which could help the firm to identify ways to exploit linkages with suppliers (Shank and Govindarajan 1993 p. 90). Moss-Kanter (1990) argued that supplier-customer relationships provide source of competitive advantage. For example, NCR’s partnership with suppliers like Intel has helped built tight relationships with customers like Businessland. Therefore, SCM once again provide benefit of enhancing relationships and sales of a company.

The Department of Industry, Tourism and Resources of Australia (1999b) also suggested some of the benefits that can be obtained from the development of successful supply chain partnerships include:

- The creation of a sustainable competitive advantage
- Increased profitability
- Reduced inventory holdings
- Increased return of assets and return on investment
- Increased market share
- New product lines
- Reduced waste

The relationships involved in SCM can be viewed as follow.

**The Layers of A Value Chain**
Inter-Firm Space

The Relationship of Firms
Managing SCM in Global Environment

Nowadays, in the new era of faster telecommunications where internet is used over the business to develop effective managements, SCM encounters different problems that are not exist a few decades a go. Thus, in managing a supply chain involves the flow of both tangible and intangible resources including materials, information, and capital across the entire supply of chain. The flow of these resources could be unidirectional such as materials and products, and also could be bidirectional (for example information). Furthermore, a supply chain could include from two stages through several stages such as manufacturers, suppliers, assembly and retailers. Whereby each of these stages has a possibility in involving several entities (for example suppliers) that either compete or cooperate to provide the best service, product, and materials requested from another stage in the chain (Piramuthu, 2005).

Therefore, there are several reasons why it is important to understand the dynamics of supply chains for instance decreasing inventory costs, smoothing the flow of materials, parts or components without unnecessary wait regarding out-of-stock situations, increasing profit by reducing inventory costs as well as other costs, and finally increasing customer satisfactions. Holding inventory is not bad as long as it keeps in the appropriate amount to smooth the flow of materials and parts across the supply chain. Hence, it is necessary enable to cope with dynamic variations in the environment such as inventory, demand, supply, spatial-, temporal-, and monetary- constraints in order to avoid stock-outs and over-stock problems. Prior research has
identified several examples of mismatched in demand and supply, which arise mainly regarding market volatility, and have resulted opportunity costs such as:

- General Motors suffered a decrease in quarterly earnings by $900 million in 1996 regarding a 18-day of labor strike at a brake supplier factory that idled workers at 26 assembly plants.
- $2.6 billion loss in 1997 for Boeing due to the failure of two key suppliers in delivering critical parts on time.
- Sony’s console shipment in US was 50% less than the planned regarding the shortage of PlayStation2 graphic chips, during 2000.
- In 2000, Ericsson loss of three market share points against Nokia and being forced to exit handset market associated to interruptions in supplies of chips for key new handset brought about the fire in Philips Electronics in New Mexico.

All the players in the supply chains have attempted to improve some of these problems through the visibility of inventory. Ericsson Data Networking Division mandated the use of a common visibility application, which facilitates management of the upstream supply chain as if all elements and players were part of Ericsson (Piramuthu, 2005).

Every day low price (EDLP), continuous product replacement (CPR) or vendor managed inventory (VMI), and electronic data interchange (EDI) to share information are the examples of recent initiatives in supply chain managements. Under EDLP, variations in demand will be discouraged since there is no incentive to place different order-size at different points in time. The manufacturer preserves sufficient inventory level at the retailer’s warehouse under CPR or VMI (for example Wal-Mart), meanwhile EDI enables structure for direct exchange of information between different stages in the supply chain (Piramuthu, 2005).

In short, we believe that the benefits of applying supply chain management are:

1. For Supplier
   - To gain more certain demand from other companies.
2. For Company

To reduce the cost of product in order to boost the sales and remain competitive to other competitor so that profitability and market share can be enhanced.

3. For Customer

To add customer value so that they can get better quality products with the lowest prices.

However, in a case study illustrated by Seal et al. (1999), managing supply chain may not as easy as it says. Choosing strategic partnership based on proprietary or size of transaction, managing relationships with that supplier as well as measuring benefit of the relationships using balanced scorecard or activity based costing can be very important to a company to obtain sustainable competitive advantage. Nevertheless, trust is needed to build the relationships with the suppliers so that they are willing to reduce their costs. Certainty of the demands from the company to its supplier will be more likely to determine the successful of managing supply chain. Otherwise, the benefit of supply chain management will not be achieved.

Furthermore, given that information plays critical roles in supply chain management, DaimlerCrysler’s MOPAR Parts Division, centerline, Mich., in the late 1990s, updated its systems or demand forecasting, dealer demand, global part ordering, distribution resources planning. Since the sole supplier of the parts to dealerships, the unit processes roughly 200,000 order lines daily and with all of that data, the company needs to know when inventory imbalances or delivery bottleneck problems occur.

Using the new supply systems, MOPAR took a chance to the next step i.e. investing in a performance management system from a relatively new vendor (SeeCommerce), in helping isolate information needed to manage by exception. The SeeCommerce system offers both data warehouse and the ability to monitor streams of events captured as transactions by integrating business intelligence (BI) capabilities with event-detection techniques borrowed from the process control world. The system can be used to perform traditional look-back analyses of past patterns and also supports an event-based workflow engine for analyzing
disruptions when they occur (Baer, 2005). The example of business intelligence platforms can be seen as follows.

Business Intelligence Platform Elements

The success of event-based business intelligence still depends on how we manage the business and sets the goals and also requires serious trial and error process. However, in MOPAR case, this system is worked. Evidence showed that since first going live, order fill rates have enhanced by 2 percent with a volume of more than 55 million order lines per year, which has translated to millions of dollars in annual savings (Baer, 2005).

As it is explained before, the term Supply Chain Management can be defined as a shared business process that synchronises product, information and cash flow among several independent organisations. Thus, the theory prescribes that collaborative sharing of supply chain information will improve the level of services, reduce supply chain volatility, and prepare the supply chain for more synchronised response, decrease costly inventory and capacity buffers. In Australia, despite of the benefits there are still some problems in the implementation of enabling technologies in wide scale such as product information management, global data synchronisation and Collaborative Planning Forecasting and Replenishment (CPFR) solutions (Greig, 2005).
The major retailers in Australia have set data for examples aggregated point of sales, warehouse withdrawals, distribution centre (DC) and store inventory levels and inbound and outbound DC service level data available to their trading partners for last several years. For examples Nielsen and Aztec have done this through-syndicated providers, or Coles uses e-markets places including GlobalNetXchange. However, most manufacturers have some drawbacks to fully integrated this data into their supply chain processes and have a tendency to use the data in an improvised way. This situation has led to dissatisfaction on both sides since neither party seeing appreciable advantages. In contrast, the leaders such as Unilever and Kraft are pioneering the implementation of CPFR and succeed. Both companies publicly discussed their progress on pilot implementation with Coles at a recent Fast Moving Consumer Goods conference. Their experience shows that collaborative forces measurable improvement in key supply chain performance measures for examples forecast accuracy, sales growth, reduction in inventory, and process efficiency within the Australian environment. Several advise from both companies to increase the benefits including as follows.

- Restructuring the organisation in order to make sure clear communication lines with corresponding functions in customer’s organisation. Unilever has organised customer business teams, which allows multiple functions from sales to logistics to easily relate to the specific need of their major customers with carefully connected key performance indicators.

- Applying simple process solutions associated with technological investment. Both companies have generated value in participating CMI/VRP programmes of their major trading partners, for example an arrangement where manufacturer personnel are located on-site and work along with the retail buying and replenishment teams.

- Focusing on inter-operability, this means that the successful collaboration should make it possible for each business to continue to use their IT solutions, while still supporting flawless business process integration across organisational boundaries.
• Encouraging and adopting industry standards. The true business process integration can include substantial sharing of data across multiple partners.

• Recognising the magnitude of the change and plan for it. Both companies have developed their CPFR processes, organisation and technological enablers over several years with a continuous sustained commitment to sound change management disciplines (Greig, 2005).

Furthermore, for global firms or the firms which depend heavily on export or import need to restructuring their supply chain management, since huge domestic and global development could radically change our way of thinking about SCM. Supply chain executive’s needs to plan the day-to-day operations, tactical, and strategic levels. The requirements of a set of explicit and implicit assumptions, rules, constraints, experiences, and instinct typically will assist the manager to take the logic actions. Since there is a changing in the development of SCM, they need to rethink SCM to match up with today’s realities such as:

• Inflation rate will affect the strategic balance between holding cash and holding inventory.

• The assumption that competition will always maintain the key production components such as labour, raw materials, equipment, etc., available and at low cost has lost traction in recent years. Therefore, this assumption will only erode in the future.

• The assumption that the emerging economies will be comfortable to serve at a low cost manufacturing extensions to U.S industry is unlikely remain valid.

• Market density and economic scale will shift the competition for brand supremacy from the country or regional stage to the global arena.

• If the transportation capacity problems remain unresolved, the buyers will change from spot markets to longer-term contracts or private/shared ownership of transportation assets in order to secure the available capacity.

• Consolidation at all levels in the supply chain will have a significant influence on power and leverage between supply chain partners.
• New forms of alliances and partnerships will be created to cope with the scale and complexity of global supply chains.

• Special market and infrastructure knowledge rather than bricks and mortar will distinguish global outsourcing firms.

• Technology will be the great leveller among firms and countries in the long run (La Londe, 2005).

Those assumptions will affect the manager in making decision on how they have to plan the SCM.

Moreover, managing supply chain is not only about reducing cost, but also maintaining the quality and standard of the product. A company should also aware of conducting business legally and ethically. On March 11th, 2005, O’Malley et al. (2005) reported that the union raid in Sydney revealed that prominent Sydney fashion houses like David Jones and Myer has been receiving supplied dresses from an illegal factory. The supplier of Cooper Street dresses, operated the business illegally by paying the employees $4 an hour, which is illegal in Australia. Both Myer and David Jones admitted that they are unaware of this matter but promised to solve this problem. Myer voluntarily signed the Fairwear agreement, a protocol designed to ensure the products of illegal factories are kept out of Australian shops, while David Jones withdraw its designs from its stores on a previous occasion for using exploited labour. The state secretary of the union, Barry Tubner said fashion houses should take more responsibility for how their garments were made.

METHODS

The research uses qualitative descriptive approach and focuses on the implementation of SCM in Cedenco Australia, Sleepmaster Pty Limited, Hospital Supplies of Australia, Woolworths based on literature review and previous study.

RESULTS

The Department of Industry, Tourism and Resources of Australia is very concern with SCM. It built the website to promote The Supply Chain Partnerships Program in order to assist business to become more competitive and innovative by encouraging...
the development of effective supply chain relationships between customers and their suppliers (The Department of Industry, Tourism and Resources of Australia, 1999c). It also provides the experience of many Australian companies in implementing the SCM and gaining competitive advantage from it such as:

**Cedenco Australia**

This company is the Australia’s largest tomato processor. It opened a factory, in Echuca, Victoria, in 1997 and processed 100,000 tonnes of tomatoes. It’s difficulties in production scheduling and logistics has lead to the loss of several million dollars in the first season but since it used The Supply Chain Partnership Program project involving tomato growers, contract harvesters, it can identify the constraints in the logistics. Using the quantitative and qualitative data on the efficiency, effectiveness and adaptability of the supply chain, it designed changes to the way fruit is harvested, transported, delivered, processed, packaged, and dispatched efficiently. It can cover the loss and gain profit trough major cost reductions. Now, it is using satellite technology and the latest telecommunications to link the field and the factory so that it can see supply chain on just one computer.

**Sleepmaster Pty Limited**

Sleepmaster, Dupont and Myer-Grace Bros are cooperating in the SCM project to generate shared benefit. Sleepmaster designs and manufactures pillows, quilts, manchester and sleeping bags, and imports fabric for sale to industrial markets, whereas DuPont is an innovator of high quality fibres that licenses bedding manufacturers such as Sleepmaster to use its materials in approved product and Myer-Grace Bros sells Sleepmaster products in all its stores. They gain competitive advantage from SCM project for instance product development lead-time is now 55 percent of the previous lead-time, forecasting of fibre demand has been resolved with the development of a forecasting tool, In-Full On-Time performance to Myer-Grace Bros is being measured more accurately and is being used to increase existing levels of performance to over 90 percent, and the Fibre Waste Reduction project successfully eliminated 60 percent of the total waste from the Multi Needle Quilting Machines.
Hospital Supplies of Australia

Hospital Supplies of Australia distributes pharmaceutical products sourced from many suppliers. One of its major suppliers is Glaxo Wellcome Australia. Through good relationships with its supplier, it can identify and remove many non-value adding actions and processes and obtain benefits i.e. centralised ordering and replenishment for all pharmacies in the network, more reliable availability of drugs from manufacturer to end user, use of barcode scanners to refill the stores, improved techniques to control stock levels, a reduction in clerical and delivery errors as well as a four-fold improvement in the accuracy of stock information, an increase in stock turnover of 18 percent, reduction of daily ward trips for each pharmacist and an increase in time spent on health care activities. Managing supply chain is very important to the company since the simplification of processes has improved accuracy and service levels as well as simultaneously reducing non-value adding costs.

Woolworths

Another success achieved by Woolworths, which implemented Project Refresh in managing its supply chain (Mills, 2005). It has spent $47 million in this first half year on IT and technology-related supply chain activities. Since Project Refresh began in 1999 it had delivered cost savings 4.03 percent of sales, a cumulative saving of $3.2 billion over the past five and half years. The successful introduction of Stockmart, AutoStockR and cooperation with its suppliers has improved efficiency of the inventory, distribution and service levels which ultimately reduced the cost.

CONCLUSION AND RECOMMENDATION

After analyzing the problem in SCM, we propose some recommendations to achieve sustainable competitive advantage. Firstly, five basic steps in supply chain management i.e. plan, source, make, deliver and return as discussed earlier should be conducted and evaluated carefully and continuously. Secondly, SCM should take into consideration the choice of strategic partnerships not only based on the most
efficient and effective cost structure but also the legal aspect of the supplier to avoid the company being shut down by the government. Trust and relationships with the suppliers should be maintained and finally, the technology innovation in SCM of a company should be developed more advanced, compared or combined with other companies to sustain competitive advantages.

**REFERENCE**


