



Traditional & Green Supply Chain Management – A Review

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Abstract: Now-a-days, with increasing demand towards more eco friendly, organizations have become more responsible for their products and overall sustainability. To emulate in today's challenging business environment, companies have to focus on GSCM that have great impact on enhancing on their performance. This paper aimed to introducing the concept of GSCM and its implication for TSCM. This paper also gives the basic difference between TSCM and GSCM. This study is introduced find out what is TSCM and how to redefine the basic structure of TSCM, also explore major factors included in GSCM. GSCM is research area focused on the product to become more environment friendly. This paper conceptualizes the influences of the adoption of GSCM practices in organizational performance. This paper exposes the introduction of GSCM by taking Wal-Mart as an example.

Keywords: TSCM- Traditional Supply Chain Management, GSCM- Green Supply Chain Management.

1. INTRODUCTION

Supply chain management is cross-functional approach. The management of activities that procure materials and services, transform them into intermediate goods and final goods or products and deliver them through a distribution system to point of production consumption. [Bowersox DJ, Closs DJ, Cooper MB 2007]. Business activity can posed a significant threat to the environment in terms of carbon monoxide emission, discarded packaging materials, scraped toxic materials, traffic congestion and other forms of industrial pollution. [1] The concept of GSCM is to integrate environmental thinking into supply chain management. The green supplier selection is an important issue in improving environmental related performance. Environmental management or green supply refers to the way in which innovations in supply chain management and industrial purchasing are considered In the context of environment.

Activity included in green supply chain management are reuse, recycle, remanufacturing and reverse logistic. Carvalho Etal (2010) Rao and Holt (2005) and Van Hok and Erasmus (2000) expressed that in "GSCM" is an important organizational philosophy, which plays a significant role in promoting efficiency and synergy between partners. It facilitates environmental performance minimizes waste and save cost in order to achieve corporate profit and to set market share objective. It also improves the ecological efficiency of organizational and partners. Traditional supply chain management usually concentrated on cost and control of finale product, but hardly considered its ecological effects. In comparison, GSCM is green, integrated and ecologically optimized and take into considerations and the human toxicological effect as well. Companies considered ecological as the most important criteria for the product and production to ensure economic profitability and sustainability.

Traditional Vs. Green Supply Chain Management [10]

Sr. No.	Characteristics	Conventional SCM	Green SCM
1	Objective and value	Economic	Economic and Ecological
2	Ecological optimization	Integrated approach is high	Ecological Impact,
3	Supplier selection criteria	price switching suppliers short term relations	Ecological aspect, long term relations
4	Cost	Low	High
5	Speed and flexibility	High	Low

1.1 Traditional SCM stages includes-

1. Component/raw material supply.
2. Manufactures
3. Wholesalers/ distributors
4. Retailers
5. Customers

1.2 Objective achieved through Traditional Supply Chain Management:-

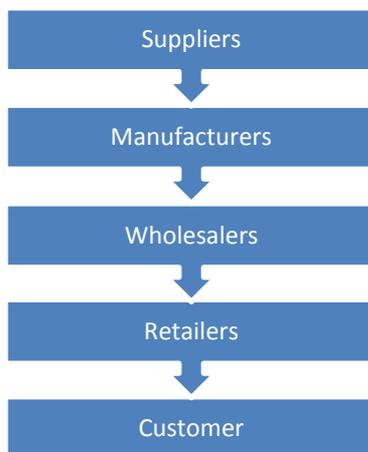
1. Inventory can be optimized or minimized.
2. The whole cost of supply chain can be reduced.
3. Delivery time of the product to the final consumer can be improved.
4. Flexibility can be enhanced.



A traditional SCM is defined as an integrated manufacturing process where in the suppliers supplies raw material or semi finished goods to the manufacture and are manufactured or assembled into finale product and then the finished goods are sent to the wholesalers to retailers and finally delivered to the customers. It is a network consist of all parties involved i.e. supplier, manufacturer, distributor, wholesaler, retailer, customer etc directly or indirectly, in producing and deliver products or services to ultimate customers - both in upstream and downstream sides through physical distribution, flow of information and finances. [2] The appropriate design of the supply chain depends on both customers need and role played by the stages involved. Traditional SCM has usually concentrated on economy and control of the final product, but hardly considered its ecological effects. It is necessary to make performance measurement by key performer indicators in supply chain because it can be helpful to analyze entire chains ability to meet customer need under permanent control of company boundaries.

There are some criteria are used to measure supplier performance they are as follows:-

1. Level of innovation content by its technology and openness to new research.
2. Production capacity (flexibility, technical assistance).
3. Physical distribution capacity.
4. Quality system (certification obtained, quality standard used).
5. Facilities offered by company location.
6. Financial and managerial strength able to offer stability and cost structure on long term.
7. Information systems capability which means the possibility to use enterprise resource planning (ERP).
8. Integrity by environment compliance and ethics. [Lee 2006 & Ted 2011]



Redefined Structure of Traditional Supply Chain Management

Traditional Supply Chain also includes a supplier, manufacturer, wholesalers, retailers and customer. But the main objective of extending the traditional supply chain is to considered the in between and eventual environmental

effect of all products and processes known as Stewardship. After the lifecycle of the product get over, the product is finally collected from customer and after the collection, if some components are found to be good enough to use, it is directly sent to the retailers and those are not further forwarded for dismantling. In finale dismantling of the product, if some part are found to be used are forwarded directly in manufacturing processes and finally those which are not of any use are disposed of a recycled such that it is used as raw material.

2. GREEN SUPPLY CHAIN MANAGEMENT

“The alignment of sourcing, manufacturing, distribution, transportation and remanufacturing / recycling processes with the goal of reducing a companies carbon foot print”. GSCM is evolved from SCM. As competition intensified in the 1990s, the increased awareness of green practices has triggered firms to act in an ethically and socially responsible manner in their supply chain management [3]. SCM practices include a set of approaches and activities utilized by a firm to effectively integrated supply and demand for improving the management of its supply chain [4]. By adding a “green” component in the SCM practices, GSCM practices encompass a set of green activities in procurement, manufacturing, distribution and reverse logistics [5]. The short term strategic goals is to reduce cycle time and inventory and thus increasing productivity, where as the long term goals is to enhance profit through market share and customer satisfaction [6].

Companies that implement GSCM practices benefitted from cost savings (conserving materials, reduced energy and water used), better public image and decreased environmental liability. Uchida and Ferraro found that firms combined environmental and organizational practices can create competitive advantage to enhance profitability, access to new market, strengthen customer relationships and gain competitive edge. As such, some firms may also mimic environmental practices that successful leading firms have adopted. This means businesses should focus on long term profitability that could simultaneously reduced the environmental and societal risks. Therefore GSCM practice is in rank position to leverage sustainability performance in terms of economic, environmental and social.

2.1 Objectives of Green supply chain management-

1. Main focus of GSCM is to make business orientation eco-friendly.
2. To achieve competitive advantage and high performance through GSCM practices.
3. To integrate the GSCM into corporate polices and strategy for smooth operation.
4. To make a significant difference in approach.
5. To show how important it is to conserve environment and sustain the natural recourses and show to what extent is the business activities depend on environment.



2.2 Benefits of Green Supply Chain management-

1. Reducing the consumption of toxic chemicals.
2. Less waste.
3. Sustainability of natural resources.
4. Lower Cost.
5. Increased efficiency.
6. Product Differentiation.
7. Brand Reputation.
8. Reducing risk.
9. Employee morale.
10. Ethics.

2.3 Implementation of Green supply chain management

1. Start with daily operation.
2. Recycling.
3. Product Design .
4. Change in raw material.
5. Manufacturing.
6. Reduce energy consumption.
7. Environmental initiatives.
8. Renewable energy.
9. Reduction of waste.
10. Use of environmentally friendly products.

2.4 Barriers of Green supply chain management-

1. Customer preference.
2. Suppliers adapting to change.
3. Cost of implementing processes.
4. No concrete way to measure return on investment.+

3. CASE STUDY

Case Study on Walmart- Green Supply Chain

3.1 Summary:-

Supply chain management has been the corner stone to Wal-Mart's success and remains their primary competitive advantage in the retail / department store industry. There are number of logistic function which allows Wal-Mart to be the logistic leader, the focus will be first on Wal-Mart's companies newly adapted strategy of making logistic processes "Green" and more eco friendly. Wal-Mart's CEO Lee Scott gives the company to 3 ambitious goals- to be supplied 100% by renewable energy, to create zero waste and to sale products that maintain Wal-Mart's resources and the environment.

3.2 Introduction:-

Founder and original CEO initially decided to be the best retailer in the world. His initial strategy was to target low income families from rural areas by offering significantly lower cost when David Glass took over in 1988, Sam Walton's mission was truly realized through the use of technology in distribution and supply chain logistic, which allowed Wal-Mart the opportunity to cut cost and lower prize for end customers Lee Scott took over in 2000 to steer Wal-Mart towards sustainability. Lee Scott's business model to strengthen SCM processes by going "Green" was a strategic decision that positively impacted Wal-Mart's

growth, distribution techniques and corporate identity. His knowledge of distribution systems and push for sustainability has transformed the company into an eco friendly power house that continues to cut cost and remain at the frontier of distribution systems technology.

3.3 Motivation and Background:-

Sam Walton strategically choose his successor David Glass to lead the company in 1988. From 1988-1999, CEO David Glass transform the company from just a retailer into a retailer distributor, using technology to develop Waltons original goal staying in line with his core values when Glass succeeded Walton, he believed that "technology would ultimately drive this business to be the size that it is" which was the fundamental difference that sets his approach apart from that of Waltons. (Turock,2004) . Lee Scott took control of Wal-Mart in 2000 with a newly adopted strategy of making logistic process with reduced cost. "Green" logistics, at its core, means implementing system that can indepently monitor overseas suppliers to make sure they meet social and eniromental standards.

3.4 Implementing Green:-

In 1989 in response to letters from customers about an environmental concerns, the company launched a campaign to convenience its suppliers to provide eco friendly safe products in recyclable or biodegradable packaging. But in the past Wal-Mart deals with the environmental issue defensively rather than cooperatively, proactively and as opportunities for profit.

When vendors claim they had made environmental improvements to products, Wal-Mart began promoting the product with green colored shelf tags. By the early 1990s, the green tag program disappear all together and environmental issues slipped off of the Wal-Mart's list of strategic priorities.

In the words of Lee Scott, "We recognized early on that we had to look at the entire value chain. If we had just focused on our own operations, we would have limited ourselves to 10% of our effect on the environment and eliminated 90% of opportunities that's out there" (Palmbach, 2007)

In late 2005 Wal-Mart president and CEO Lee Scott gave his first presentation broadcast to over 1.5 million employees in over 6000 stores and each of its suppliers. In his speech, Lee Scott laid out 3 very ambitious goals in which he vowed Wal-Mart would:

1. Be supplied 100% by renewable energy in the very near future.
2. Create zero waste.
3. Sell products that sustain Wal-Mart resources and the environment.

Clearly, Wal-Mart is trying to differentiate itself in an area where it was once considered a laggard. He also discussed following goals:

Increase fuel efficiency in Wal-Mart's truck fleet by 25% over 3 years and doubling it within 10 years.



Reduce greenhouse gases by 20% in 7 years.
 Reduce energy use at stores by 30% 7 years.
 Cut solid waste from US stores and Sams clubs by 25% in 3 years.

Buying diesel electric and refrigerating truck with a power unit that could keep cargo cold without the engine running, saving nearly \$ 75 million in costs and eliminating estimated 400000 tons of CO₂ pollution in one year alone.

1. Making a 5 year verbal commitment to buy only organically grown cotton from farmers and to buy alternate crops those farmers need to grow between cotton harvest.
2. Promising by 2011 to only carry sea food certified wild by the marine stewardship council, a group dedicated to preventing the depletion of ocean life from over fishing.
3. Buying and selling 12 weeks worth of restriction on hazardous substances (ROHS)-complaint computers from Toshiba.
4. Although this may seem like a very large list for a company to accomplish, each of these are attainable and place Wal-Mart in great competitive position for the future.
5. While Wal-Mart is building valuable network of government agencies, non profits, employees and suppliers to "Green" its supply chains, the company is using a network approach to lower overall carbon and environmental food print in order to increase profitability while increasing margin.
6. While some stakeholders and management become increasingly confident about the new sustainability initiatives, history dictates that there is reason to worry. Many critics argue that Wal-Mart green initiative is simply unsustainable. As with many companies attempting to make their business strategies more green, a front cost becomes unavoidable and are simply not worth the investment. Wal-Mart needs to spend upwards of \$ 500 million per year in order to achieve the goals mentioned earlier in the study. However, it is important to note that Lee Scott stated in 2007, "tangible profit generated by Wal-Mart sustainability strategy in the first year of implementation where nearly equal to profits from several Wal-Mart supercenters.

As the Wal-Mart attempts to scale up network and improve upon "Green" initiatives, the company faces 3 possible obstacles:

1. Increased cost.
2. A sub optimal product assortment.
3. Criticism of factory labor conditions.

4. CONCLUSION

The concept of supply chain has emerged in all production processes starting from raw material procurement to the delivery of finished product. Changes in state of environment, subsequent public pressure and

environmental logistics have come to enforce the shift in manufacturing and business practices. Now it has become important to analyze the entire life cycle effect of all processes and products. Therefore further product recovery mechanisms should be included. Therefore the concept of SCM needs to be remodeled in a Green context. By adding green components in the SCM practices, GSCM practices encompass a set of green activities in procurement, manufacturing, distribution and reverse logistics. By implementing GSCM companies can be benefited cost saving (conserving material, reduced energy & water used), better public image and decreased environmental liability. Therefore GSCM practice is the best practice to leverage sustainability performance in terms of economic, environmental and social.

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