

Chapter 30

SCOR Model and the Green Supply Chain

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ABSTRACT

Supply chain management (SCM) is a continually evolving field, relying on breaking down internal and external organizational barriers to gain efficiencies, improve customer support and increase flexibility, thereby resulting in lower costs and increased market share. An emerging area in supply chain practice is green SCM, which integrates environmental management with traditional SCM. Green supply chain management is seen as an important step companies need to take on the road to sustainable practices. SCOR Model (Supply Chain Operations Reference) has been developed by the Supply Chain Council (SCC now merged with APICS) in order to guide companies applying SCM principles. The GreenSCOR model was also developed as an integrated green SCM tool that allows companies to manage their supply chain's environmental impacts, resulting in more efficient operations which have minimal impact on the environment. This chapter will talk about how SCM principles can be modified to reduce the adverse effects of company operations on the environment, especially using the GreenSCOR model.

INTRODUCTION

Supply chain management (abbreviated as SCM) is a continually developing field, relying on breaking down internal and external organizational barriers to gain efficiencies, improve customer support and increase flexibility, thereby resulting in lower costs and increased market share. An emerging area in supply chain practice is green supply chain management, which incorporates environmental management with traditional supply chain management. Green supply chain management is seen as an important stride companies need to take on the road to sustainable practices. SCOR Model (Supply Chain Operations Reference) has been developed by the Supply Chain Council (SCC is now merged with APICS) in order to guide companies applying SCM principles. The GreenSCOR model was also developed as an integrated green supply chain management tool that allows companies to manage their supply chain's

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environmental impacts, resulting in more efficient operations which have minimal impact on the environment. This chapter will talk about how SCM principles can be modified to reduce the adverse effects of company operations on the environment, especially using the GreenSCOR model.

Supply chain management involves all facilities, functions, and activities associated with flow and transformation of goods and services from raw materials to customer, as well as the associated information flows (Russel & Taylor, 2008). SCM can be regarded as an integrated group of processes to “source,” “make,” and “deliver” products. Namely SCM deals with the corporate functions of procurement, production and distribution. SCM can be applied in service industries (hospitals, fast food, supermarkets, retail), petroleum industries, chemicals industries (continuous processes), textile industries (ready to wear clothing) and many others. The specific SCM applications are influenced by type of process (continuous, batch, project, mass production), number of stock keeping units (SKU's) and government regulations among other factors.

Sustainable supply chains are becoming more important as firms focus on the resource consequences of the operations that they carry out. The three P's of sustainability can be listed as People, Profits and Planet. These concepts can easily be applied to supply chain operations as well. As the world population is increasing the waste generated also increases. The growing waste problem can be reduced by applying the principles of 4R many of which are related to the operations of the supply chain:

- **Reduce:** For example, designing concentrated detergent that uses less packaging,
- **Reuse:** Using reusable packaging,
- **Recycle:** Packages used in transportation can be recycled and turned into new packages,
- **Recover:** Energy can be gained from waste.

Creating a sustainable supply chain can start with the design of the products. Products can be designed in such a way so as to consume less materials, result in less transportation costs and be easily disassembled so that parts can be used for remanufacture or refurbishing. As an example, polyester fabric 100% recyclable, polar fleece may be made by recycled soda bottles, also the new BMW i30 interior is made from recycled materials. Firms can generally follow these principles for design for the environment or DFE:

- Use fewer materials.
- Use recycled materials or recovered components.
- Don't assume that natural materials are always better.
- Don't forget energy consumption.
- Extend the useful life of the product.
- Involve the entire supply chain so they share the responsibility in terms of the environmental impact.
- Change designs, some consumers' solutions may require services rather than products, an example could be using laundry services rather than selling washing machines.

We can see Walmart as an example of applying the above principles. Package reduction in certain toy lines reduced transportation costs by \$2.4 M/year which is equivalent to 3800 trees and 1 billion barrels of oil. Stores use solar panels, windmills, and skylight thereby reducing the power consumption. Spoiled food is composted and resold as fertilizer using a 0% waste policy. Stores sell power saving light bulbs such as Compact Fluorescent (CFL) or LED lights.

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