

## LITERATURE REVIEW: ANALYSIS OF GREEN SUPPLY CHAIN MANAGEMENT (GSCM)

Muhammad Hilman Fikri<sup>1</sup>, Solawati Nainggolan<sup>2</sup>, Julianto Hutasuht<sup>3</sup>  
[hilmanfikri@umnaw.ac.id](mailto:hilmanfikri@umnaw.ac.id), [sholawatinainggolan@gmail.com](mailto:sholawatinainggolan@gmail.com), [julianto@umnaw.ac.id](mailto:julianto@umnaw.ac.id)

<sup>1</sup>Faculty of Economics, University of Muslim Nusantara Alwashliyah Medan

<sup>2</sup>Yayasan Pendidikan Keluarga (YPK) Medan

### Abstract

Generally, in the current era of globalization, distribution and logistics have played an important role in the growth and development of world trade. Moreover, increasingly fierce business competition requires companies to restructure their business strategies and tactics, especially in terms of distribution and logistics. The essence of competition lies in how a company can implement the processes of creating products or services that are cheaper, have a better quality, and are faster to obtain (cheaper, better and faster) than business competitors.

### Introduction

Starting from La Londe and Masters (1994), it is stated that a supply chain is a series of companies that flow goods to downstream. In general, companies that often practice this supply chain are manufacturing companies that make products and deliver them to the final consumers through the supply chain - from producers with raw materials and the components, assembling products, wholesalers, retail agents, and transportation companies, all of them are members of the supply chain (La Londe and Masters, 1994).

Still with the same concept, Lambert, Stock, and Ellram (1998) define the supply chain as an alliance of several companies which deliver goods or services to the market. In this case it can be underlined that the two concepts of the supply chain above include the final consumers as a part of the supply chain. Another opinion explains that Supply Chain Management is a supply chain that includes all activities related to moving goods from the raw-material stage to the final user (Zigiaris, 2000, p.2).

According to Naslund, 2010 defines Supply Chain Management as a network management of relationships in a company and between interdependent organizations and the business units consisting of material suppliers, purchasing, production facilities,

logistics, marketing, and related systems that facilitate forward and reverse flow of materials, services, , finance and information from producers to end customers with the benefits of providing added value, maximizing profits through efficiency, and achieving customer satisfaction.

There are several definitions above, Mentzer (2001) defines a supply chain as a series of entities consisting of three or more entities (both individuals and organizations) that are directly involved from the upstream to the downstream in the flow of products, services, finance, and / or information from source to the customer. Mentzer (2001) also categorizes supply chains into three types based on the level of complexity, they are:

- a. Direct Supply Chain: Consists of one company, one supplier, and one customer that involved in the upstream-downstream flow of products, services, finance, and / or information.
- b. Extended Supply Chain : Includes multiple suppliers of a liaison supplier and several customers of a liaison customer, all of whom are involved in the upstream-downstream flow of products, services, finance, and / or information.
- c. Ultimate Supply Chain: Includes all organizations involved in the upstream-downstream flow of products, services, finance, and / or information. This supply chain category is the most complicated category that applies to the complex supply chains.

Supply chain management can integrate environmental management practices into the entire supply chain management in order to achieve green supply chain management and maintain a competitive excellence and also to increase business profits and market share objectives.

(Seman et al, 2012, p.2) Zhu and Sarkis define Green Supply Chain Management as a management that ranges from green purchasing to an integrated supply chain from suppliers to factories to customers and reverse logistics, which “closes the loop” . Meanwhile, according to another opinion, Green Supply Chain Management is an integration of environmental thinking into supply chain management, including product design, source materials and selection, manufacturing processes, final product delivery to consumers and end-of-life management of products after their utilization period.

(Srivastava, 2007, pp. 53 - 80). Green Supply Chain Management improves work operations by using environmentally and friendly solutions that are able to:

- Increase the agility: GSCM helps reduce risk and accelerate innovation;
- Increase the adaptability: GSCM analysis often produce innovative processes and continuous improvements;
- Promote the alignment: GSCM involves negotiating policies with the suppliers and customers, which results in better alignment of business processes.

Adding the Green concept in causing the involvement, influence and relationship between SCM and the natural environment (Hervani et al., 2005). In the global economy, automotive companies are growing rapidly in the Asian region. These automotive companies include Toyota, Honda, General Motor, Ford, Daimler Chrysler, Suzuki, Hyundai and Fiat (Kumar and Bali, 2010).

In the economic activity, strategies to increase business performance are used to obtain economic benefits, minimize environmental impacts and increase the efficiency of resource consumption. GSCM emerged as a company's strategy to achieve this goal (Zhu and Sarkis, 2006; Lai et al., 2011). Therefore, GSCM made comprehensive considerations to focus on environmental protection and resource conservation issues with integrated information, logistics and energy flows throughout the supply chain (Ying and Li-Juni, 2012). Organizations have started implementing GSCM to increase profit and market share, by reducing environmental risks and increasing responsiveness to customer demands through a variety of products and services (Green et al., 1998; Murray, 2000) and also to gain a competitive advantage (Humphreys et al. , 2003; Shu and Zhang, 2004; Lee et al., 2009).

There are 3Rs of environmental principles in the circulation of economic activities, they are: Reduce, Reuse, and Recycle to utilize resources and also to provide protection for the environment (Ying and Lijun, 2012). The objectives of the economic circle are to reduce waste and pollution, increase collaboration, manage resources efficiently (e.g: natural resources, materials, information, and labor), achieve the environmental, economic, and social improvements (Yu et al., 2015; Blood-Rojas, 2017).

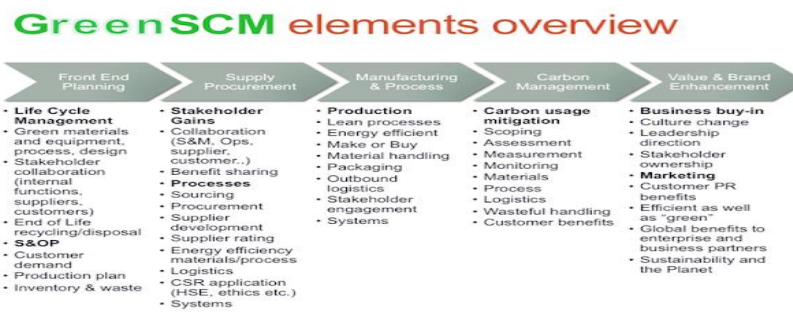


Figure 1. GSCM Supporting Elements

There are several activities in supporting green supply chain (Green Supply Chain Management):

### 1. Green Operation

Traditionally, environmental issues have attracted the attention of companies in various areas of operational management. The scope of research ranges from studying operational issues such as green product and process development, lean and green operational management, to remanufacturing and closed-loop supply chains (Bai and Sarkis 2010; Corbett and Klassen 2006; Kleindorfer et al. 2005). The environmental perspective on operations leads to a variety of terminologies with varying scopes. One term that has emerged from the literature is "green operation." Relates to all aspects which related to the product manufacture, use, handling, logistics and waste management when the design has been completed (Srivastava 2007).

Philosophical discussion on green operations. Greener operations are conceptualized as consideration for environmental owners in the decision-making process by Sarkis (1995) and Gupta and Sharma (1996), while Kleindorfer, Singhal, and Wassenhove (2005) define sustainable operations around the use of environmental practices, in particular: eco-friendly design and green manufacturing.

There are three types of green management practices:

1. Planning based on the organization,
2. Operational, dan
3. Communication approach (González-Benito dan González-Benito 2006).

Green Operation has a dominant thing in changing green performance and operating performance because it is in the consumptive aspect of resources and waste. According to

Schrettle et al. (2014), green operations management is the main supporting factor of sustainable companies.

According to Ervin et al. (2013), that companies in this case need to move in understanding the obstacle of green management in companies. According to Walker, Di Sisto and McBain (2008), the obstacles of environmental management tend to be varied according to the organizational context. According to Massoud et al. (2015), companies with ISO 9001 tend to be more motivated to adopt environmental management initiatives. Terziovski, Power and Sohal (2003) found that organizations pursuing ISO 9001 certification can provide improvements to the organizational performance.

## 2. Green Procurement

Traditional buying mainly focuses on three criteria:

1. Cost
2. Quality
3. Shipping.

In this case green procurement (GP) is also as an environmental purchase, apart from other things, in this case it also considers all environmental issues regarding to the supply chain management decisions (Yook et al., 2017; Zailani et al., 2012). Min and Galle (2001) define green purchasing as “the awareness of environmentally purchasing practices that reduce sources of waste and promote recycling and reclamation of purchased materials without negatively affecting the performance requirements of these materials” (p. 1222).

Green procurement is the purchase of eco-friendly products and services, contracting and setting environmental requirements in contracts. Green procurement of steam from pollution principles and activities. Also known as green or environmental purchasing, green procurement compares the price, quality and environmental impact of a product, or contract. Green procurement policies are right for all organizations, regardless of its size (Coddington, 2013).

The procurement department has the ability to control operational costs in the company. Procurement is essential for the success and smooth operation of the industry. (Lamming R and J Hampson, 1996). Companies should look at the procurement process and set goals in doing business while reducing their environmental impact in order to solve the global warming problem. The manufacturing industry in carrying out its responsibility towards the environment requires cooperation from organizations in the green supply chain, starting from suppliers (upstream) to consumers (downstream).

Green procurement become the basis for environmental policy making at both of the EU and Member State levels (Tukker et al., 2008). Since the 1992 International Conference on Environment and Development in Rio de Janeiro, there has been awareness of the role of green procurement in supporting sustainable consumption patterns. Wang (2009), states that as the effects of environmental problems in the world population conditions become clearer, the emphasis on environmental awareness becomes more pronounced.

### 3. Environmental Orientation

The problem of low environmental performance causes the importance of applying a broader concept of sustainability, where the concept of sustainability in a company is GSCM. GSCM is a guideline for all factors and all elements in the supply chain to pay attention to the environment or not to have a harmful impact on the environment (Setiawan et al., 2011: 27). The research results on the application of GSCM have an effect in improving environmental performance has been done by (Ninlawan et al., 2010, Savita and Dominic, 2016), there is a positive effect of the GSCM variable on environmental performance, which means that companies that apply the GSCM concept have a high level of environmental performance compared to companies that do not apply the GSCM concept. According to Ricky, et al. 2012, the implementation of GSCM requires a guiding factor or pressure factor from both internal and external parties, because the pressure factor will trigger a good and sustainable implementation.

### 4. Marketing Performance

Marketing performance is a consequence of a whole total marketing activities done by the organization and also as reciprocal employee performance for the organization from a series of marketing management. Reciprocity of employees to the organization is very important, where employees are people who are at the forefront of an organization and able to produce information for the organization. This has a strong effect on the organization, which is able to change managerial attitudes and behaviors for the better. Miller, 1994. According to Sumarwan, 2011 targeted marketing performance achievement requires marketing capabilities to implement the chosen marketing strategy optimally.

Yuhui, Gao 2010 considers that the measurement of performance models which can provide a relationship between financial and non-financial performance is needed. There are five dimensions in measuring marketing performance, they are (market share, customer satisfaction, customer loyalty / retention, brand equity, and innovation). The following are list of previous studies as the reference for this research.

## Discussion

Green Supply Chain Management (GSCM) is an effort to include environmental issues in the context of supply chain management (A.A. Heryani, M.M Helms and J. Sarkis, 2005). GSCM involves the entire supply chain starting from suppliers, manufacturing companies, consumers, and also reverse logistics in a closed-loop supply chain (Q.Zhu and J Sarkis, 2004). GSCM is a company environmental management model that has been widely adopted in manufacturing companies. This is intended to reduce or minimize negative impacts on the environment.

The GSCM concept is to integrate supply chain management with environmental saving thoughts, which includes product design and development processes, supplier selection and procurement processes, manufacturing processes with clean technology, distribution of final products to consumers, until the recycle process as the final process of the product (V Jain, 2014). Various types of manufacturing industries have implemented GSCM as a corporate development strategy to meet consumer demands on environmental issues. Ninlawan, et al. describes the implementation of GSCM in the electronics industry. Management performance measurement that applies GSCM to the automotive industry which experience uncertain conditions due to the changes of consumer demands. The changes of consumer demands generally can at least be seen in markets in China and Asia (R.J. Lin, 2011). The GSCM Green Supply Chain Management (GSCM) practice focuses on the following:

1. Internal environment in the form of management characteristics,
2. Green purchase, cooperation with the customers,
3. Eco-friendly design and packaging,
4. Investment recovery. This aims to improve the aspects which affect the environment.

Green Supply Chain Management (GSCM) is done towards the differences in the series of activities carried out by organizations to minimize environmental and resource impacts (Sarkis et al., 2005), Green Supply Chain Management (GSCM) The process of using eco-friendly inputs, then these inputs changed according to production needs, and the remaining

products can be recycled or reused at the end of their cycle, resulting in an eco-friendly supply chain. The industry is expected to adjust marketing performance to consumer demand in the market for products and product processes by looking at the company's marketing performance, that is multidimensional marketing performance (Chakravarthy 1986; Morgan & Strong 2003) and (Clark 2000; Clark & Ambler 2001). ; Morgan, Clark, & Gooner 2002; Vorhies & Morgan 2003). According to Homburg (2007, p. 21) marketing performance includes the effectiveness and efficiency of an organization's marketing activities related to market-related objectives, as revenue, growth, and market potential. Marketing performance is a general factor used to measure the impact of a company's strategy. The company's strategy is directed for producing marketing performance (such as sales volume), market share, and sales growth and financial performance (Ferdinand, 1999).

Market performance is defined an effort in measuring the level of performance including sales turnover, number of customers, profit and sales growth (Voss and Voss, 2000). Market performance is the ability of an organization to transform the organization in facing challenges from the environment with a long-term perspective. Although green practices already exist in Indonesia and developed countries, the implementation of GSCM has not been significantly done in developing countries (Gonzales et al., 2010). According to Rahman, 2012. The implementation of green supply chain (GSCM) in Malaysia can be seen from the increasing number of ISO 14001 certifications which show that Malaysian companies aim to survive in an uncertain condition which is very competitive at this time in their business activities.

### **Conclusion**

The supply chain as a strategic function in order to gain a competitive advantage has a positive relationship between supply chain management and marketing (Mentzer, Stank and Esper, 2008). Supply chain management focuses on information sharing and collaboration, and marketing is carried out in activities towards adding value, product differentiation, value products using elements such as brands, services provided to customers, packaging and so on. Research conducted in Taiwan on the capabilities of GSCM in the electronics industry. Forming four groups in GSCM activities:

1. GSCM oriented poor cluster;
2. Green marketing oriented cluster;
3. Green oriented supplier cluster;
4. Green supply-oriented cluster.



From examining the differences in performance between company groups and the capability dimensions in GSCM, it was found that the green marketing group was better oriented towards marketing performance (branding, sales, increasing market share, customer satisfaction and loyalty) and economic performance (profitability) (Shang, Lu and Li, 2010).

There are four instruments in green marketing:

1. Market analysis (segmentation and positioning);
2. Integrated communication communication, message strategy, branding and green certification);
3. Provision of a strategy;
4. Pricing strategy (costsevaluation, demand, legal barriers, competence, and the coherence of the company's mission), (Dahlstrom, 2011)

There is a relationship between SCM and green marketing, a green supply chain based on the regulations set by the government, companies in this case are not only oriented towards improving environmental performance, but also the recognition of corporate image, competitive advantage and marketing activities (Rao and Holt, 2005).

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