

## [MAN 3] EFFECTS OF GREEN SUPPLY CHAIN MANAGEMENT APPLICATION IN SMALL AND MEDIUM-SIZED ENTERPRISE PERFORMANCE OUTCOME

Erwin Rafi Prananto<sup>1</sup> & Nurul Azita Salleh<sup>2</sup>

<sup>1-2</sup>*School of Technology Management and Logistics, College of Business, Universiti  
Utara Malaysia, 06010 UUM Sintok, Kedah  
erwin.rafi@gmail.com<sup>1</sup>*

### ABSTRACT

**Keywords:** *green supply chain management, small and medium enterprise, entrepreneur*

### INTRODUCTION

Environment is one of the most frequently discussed topic in the world today. More and more people are concerned about issues related to the environment such as climate change, air pollution, water pollution, landslide, flood, and other issues that is caused by human activity (Green, Zelbst, Meacham & Bhadauria, 2012). Several people and government try to encourage everyone to making the environment more sustainable. In recent years, small and medium entrepreneurs are aware of the influence of the environment and market competition are hungry for products that are environmentally friendly and they began with environmentally friendly of raw materials, packaging, shipping, up to marketing environmentally friendly (Lee, 2008). The name of this application is called Green Supply Chain Management (GSCM).

According to Chin, Tat and Sulaiman (2015) the concept of GSCM is to integrate environmental thinking with supply chain management. To reduce or eliminate the useless material waste from waste and energy use. Implementation GSCM has a vital role in reducing the impact caused by the activity of the production chain of goods by a company which contributes to the increased efficiency of the performance of an organization. In this context, small and medium enterprise (SME) is characterized by their uniqueness and important factors that identify them as something different from large companies and emphasizes the fact that they are not “little big business” with all the implication that provide an understanding of how these people own and manage their business as an actual business (Durkin, McGowan, & Mckeown, 2013).

In recent years government, environment based organization, and the community has done campaigns to reduce the impact of environmental pollution that is happen around us, keep the nature remain green and can be enjoyed by future generations. Pushing all businesses to apply GSCM into their products which will produce an environmentally friendly company based in addition to their main result is an environmentally friendly product. One of their target for applying GSCM is small and medium enterprises.

## PROBLEM STATEMENT

SME has potential support to the country capital due to their large number of those larger than existing multinationals. However small capital which resulted in a lack of awareness of environment and cannot contribute greatly in keeping their products are environmentally friendly, unlike big companies that have sufficient capital to use environmental friendly materials and production process (Lee, 2008). Lack of information or expertise about creating a sustain supply chain in the small medium enterprise is one of the factor of entrepreneur not yet integrate green SCM into their supply chain. The several factors above make them think whether following green supply chain guidelines make greater profit or harm their because they need to update their technology in their organization (Green et al., 2012).

The environment issue and resource diminish problem nowadays were influenced by economic (Malviya & Kant, 2015) and market action is important to compete in current market which requires a new development in terms of creating an environment friendly product.

Although with a raising awareness, not every organizations fully used GSCM due to low government involvement, while less information regarding how organization can apply GSCM practice within or behind it, also misconception regarding GSCM itself making them slow to uptake. A commitment to bring SCM into green SCM is essential to company involvement to bring it to their supply chain (Jaggernath, 2015) to reduce the ambiguities about GSCM inside the organization and making them awaken by the situation the importance of implementing environment sustainable thinking within them. While in the US economy estimated 10 percent of total cost with the pollution reduction is not as seen as a clear benefit related with a cleaner environment, there's a concern that the firm is loosen their competitive advantage due to implementation of environmental sustainability guidelines may rise their cost (Green et al., 2012).

Green supply chain comprises two crucial factors: environment impact and supply chain management (Lo, 2013), driven by market, regulator demand affecting institutional pressure (Laosirihongtong, Adebajo & Tan, 2013). That makes entrepreneurs need to make decision regarding their product wheatear they necessary integrate sustainable thinking or not yet, also they need to consider some important factor as a business owner. According to Testa and Iraldo (2010) since they don't have any external factors that linked to "stake holders" pressure and internal factors like specific business-led strategic process, this contra with the stimulus that drive development of GSCM practices with diffusion through the supply chain and share it with supplier and customers.

This turn SME and bigger firm with a gap between them and threatened as missing links between SME environmental management and green issue in supply chain management (Lee, 2008). Therefore, the objective of study is:

- To identify the problem in small medium enterprise before apply green supply chain management.
- To examine the opinion of effect of green supply chain management in small and medium enterprise performance outcome.

The significant of this study is to gives understanding to the small and medium entrepreneurs on the meaning of green supply chain management. Beside to explain what is in effect able to integrate green supply chain management into their production lines. Indeed, they are interested and willing to implement green supply chain management and invite other entrepreneurs to participate and integrate green supply chain management into their production lines.

## LITERATURE REVIEW

Evolution of SCM in the twenty-first century into a system that is more sensible of natural environment and the potential bad leverage human activities towards it. (Jaggernath, 2015).

SCM is a flow for making final product from the raw material, manufacturing process, logistics, delivery, and to the hands of customers with a planning, analyzing, coordinating and scheduling which can create a partner in the organization, bring competitive advantages and also benefit for fulfill customer demand and get a profit for what they have been manufactured. It's also involving a drive coordinating such an activity with and across such as product design, finance, information technology, marketing and sales (Jaggernath, 2015). And GSCM according to Laosirihongtong et al., (2013) is an integration of SCM with a sustainable thinking within the organization, require initiate the process from the first time of its production line. To get the maximum benefit and impact of sustainable thinking in develop and manufacture a product in each chain value. There are several factors that limit entrepreneurs to apply GSCM which is:

### **a. Internal factors pressure**

As manager, they are motivated by potential benefits associated with GSCM (Kirchoff, Tate & Mollenkopf, 2016). For lead the managers to done GSCM practices, they need involve an organization that asses and measure their environmental performance to ensure the environmental quality of their product (Darnall, Jolley & Handfield, 2007).

### *Attitude*

Creating a collaboration activity with the buying firm that include sharing environmental information, training, and joint research. In order to maximize efficiency within the supply chain (Sarkis, 2012). In other hand is using less collaborative way by adopt environmental system such as ISO 14001 to “prove” greenness (Tan et al., 2013). However, they limit the possibility of greening the supply chain by themselves with giving a boundary within the organization due to lack of cross-functional relationship (Sarkis, 2012). According to Wooi and Zailani (2010) antithesis to change is one of the common attitude observed among SMEs, as a result of unknown and fear of failure is one of the reason for such an attitude.

### *Business strategic orientation*

Business strategic orientation also have a contribution regarding the affective in implement green SME, when family orientation focused need an decisions that link to the family which like keeping ownership within the family, applying new technology, growth strategy of business and new investor involvement may often see on the board's agenda of business oriented focused, also not express clear preferences between both

of it or concerned at appropriate balance are the issue to balanced oriented. Resulting individual companies more often get their own interest by them self or at heart or they not interest at all. To deal with it greater efforts at collaboration need a strong partner to show “leadership, vision, realism, and competence” yet keep these qualities simultaneously. If it not done well, as an example General Motors (GM) that fail to implement lean manufacturing due to lack of vision of the company heading. Adopt risk-seeking attitude, well informed, while employing the right tools and data for the job is a true supply chain leaders (Jaggernath, 2015).

#### **b. Government**

This is essential in the green supply chain management by SME. There are powerful groups that may influence of the decision making and action of an organization (Zhu, Geng, Fujita & Hasimoto, 2010). When an entrepreneurs don't know how to greening supply chain, the best answer must be from their government. However, some political boundaries influence and limits supply chain and its environment sustainability (Sarkis, 2012).

##### *Infrastructure*

Before the firm can implement, they require to build infrastructure to accommodate into green supply chain management which is a key issue preventing them to uptake it. When the infrastructure investment on supply chains is failed, resulting in preventing a nation's economic competitiveness. Delays and traffic congestion are perpetual burden to unregulated competition of imports with domestically produced product (Jaggernath, 2015).

##### *Law*

Also, a regulation and enforcement within all firm is mandatory, a penalty and fine for disobeying is one of the way to increase greenness of their firm. Example from Japan with their strict environmental laws, they establish a fundamental law for promotion of effective utilization of resource, sound material-cycle society that introduced in 2000 along with various law regulating the collection and recycle stage with a specific characteristic of individual product or goods (Hasimoto et al., 2010).

##### *Subsidies*

In other hand as regulator, they should be giving a subsidy to small and medium enterprise as a motivation and promote SME and gaining the higher implementation of sustainable activity as the expected result. This can be done by government through funding, taxation policy, import duty, and business training (Wooi & Zailani, 2010).

#### **c. External Factor Pressures**

This pressure gaining from many factors, as SME has different challenges compare to larger firm. SME owner or manager operate in a dynamic environment, creating environmental and investment risk (Namagembe, Sridharan & Ryan, 2016). According to Wooi and Zailani (2010) most of the SMEs think there is no competitive advantage and improvement when adopting good environmental practice but it was a financial cost added to the business and cannot be pass on to the customers. But they may implement green practice if they experiencing environmental risk. Also the investment in green supply chain practice is depend on the level of environmental risk perceived that done by the owners or managers firm (Ryan et al., 2016).

### *Buyers influence*

Change in practice of an environmental request and procurement policies can directly affect their attention to environmental issues that by some powerful final buyers that reflect market pressures encourage the greening of supply chain management (Lee, 2008). Although that is not the most critical point in the green implementation.

### *Information*

This essential in implementation of green practice in SME, availability of this occurs by this kind of firms along with existence of the green SME itself. As they often lack awareness and information that making them not aware what is going wrong in the organization (Wooi & Zailani, 2010). Proprietary aspects (security, competitive advantage, etc) availability also impacting their knowledge regarding the guidance (Sarkis, 2012). Internal communication also contributes to organizational weakness (Wooi & Zailani, 2010). According to Sarkis (2012) sometimes due to competitive reasons supplier firms may find it advantageous by not fully provide information, making artificial and purposively developed boundaries. Also lack of sharing between upstream and downstream partners for knowledge and information has been acknowledge as major hitch to adoption of practice and technology. According to Wooi and Zailani (2010) lack of exposure is other common problem that occurs to manager that don't have information on what initiatives has been taken and how success they have been. And system based and business-environment integrated approach benefit are often known by the top management.

### *Resources*

Resource limitations relating with SMEs indicate that the quality and time dimension are critical to ensure waste level are kept low, and productivity performance in high level is attained. Financial performance also critical for small and large company, but lack of monetary safety bring impact in short-term fluctuation that resulting from change is the most important in SMEs. In the human resource part, SMEs somehow have flatter structure that mean the employees job roles and responsible is higher, which is need a well-trained and motivated workforce that paramount and necessitates of effective monitoring (Thakar, Kanda & Deshmukh, 2009). Besides, large number of small companies don't have access to funds, tools, or data to manage their supply chain effectiveness due to using non-universal spreadsheets and incomplete and disjointed database of customer data, shipments, routing, scheduling and production. This making a poor result in supply chain management (Jaggernath, 2015).

### *Economic*

Economic is fundamental in the whole SME supply chain operation and the decision making is influence by it. According to Sarkis (2012) fiduciary and financial responsibilities of the entity are one of the economic limitation example. Regulatory boundaries may play role in the economics of the organization. Even though economic cost also encountered, benefits and saving that may occurs across the supply chain by effective environmental practices. Acquiring buy-in for environmental activities from supply chain partners may be important dimension of limitation of recipients of the benefits and how they accrued. Total cost analysis need to be complete by integrating many tangible and intangible costs and benefits associated with environmental practice that needs to be extended by internal operational management to the supply chain.

### *Technology*

Technology advancement in the SME is require to eliminate the limitation to do environment practice to achieve implementation of GSCM into the entrepreneur business. According to Sarkis (2012) technological infrastructure including information, process, product, or organizational support technology make it impracticable for an organization to manage a green supply chain. Limited of specific technologies or incompatible technologies for managing green supply chain may cause limiting effect. Also many interrelationships among these boundaries. An organizational product concern may be focused on engineering and design function within an organization, in one week, for seccific local market.

### *Effects after applying GSCM*

Green supply chain is bring a bunch of result after implemented into the small and medium firm. There are three primary performance outcomes are applicable to SCM according to Kirchoff, et al., (2016) is an efficiency, effectiveness, and differentiation The three variables are appropriate as green SCM outcome because it represent a combined focus on economic concerns, customer green product acceptance and market position regarding the environment leadership.

Efficiency addresses by both economic and environmental measures and focusses on meeting customer demand to improve customer loyalty and repeat business. Through operation reduction expenses and efficient use of fixed capital throughout the supply chain, efficiency can be accomplish. Effectiveness is the most closely associated with customer satisfaction, there satisfaction can be meet through green SCM practices in the product availability area that require to meet specific environmental criteria, order fulfilment of those items, and high customer service levels. Improvements by achieve environmental quality management, buyer-supplier collaboration on environmental product, manufacturing processes, and design and redesign product in collaboration with customer to comply environmental needs. Differentiation has a relation to green market positioning. Benchmarking and adherence is needed to focus on creating the firm value which having the best practice as a form the competition in offering products and processes that design for having less impactful on the environment by using eco-design for disassembly and reuse to enhance the company reputation.

## **RESEARCH METHODOLOGY**

This research methodology is a systematic way to solve the problem well as examine how science research to be carried out. Also research methodology can explain about the method, process, and procedure needed to collect the data. In this study using qualitative method in semi structured. The qualitative method includes the primer data and secondary data to get the right data. Researcher has done interview with the entrepreneur for get more knowledge and information to complete the research. The interview require to be record to obtain the evidence. The scope of small and medium size enterprise for this study is within Kedah, Malaysia. This study has been focused on problem that occurs on small and medium enterprise that mostly refer to some of the relevant data and information been collected from journal, articles, and so on to accomplish this research. Literature review is the secondary data and which has been used in this research to support the primary data. The analysis data for this study



involves answer development process to questions through interpretation of data. In this study is using “NVIVO 9” software to develop a different variation of question.

## **FINDINGS**

Finding is the basic result in this study that will cover several answers gained from the entrepreneur. The respondent for this interview session was labelled as entrepreneur 1 (E1) and entrepreneur 2 (E2). Based on the result, the entrepreneur 1 (E1) and entrepreneur 2 (E2), mentioned that they not fully understand regarding green supply chain management in small and medium enterprise. Both of entrepreneurs (E1 and E2) have similar opinion of the problem faced by them in the internal, government and external factors. In internal factors attitude inside the firm is not yet implement GSCM due to low demand of environmental product by the customer itself. Decrease the willingness to going green and giving their prior to survive than to apply GSCM. In government sector high taxes and subsidies given by government is still low making entrepreneurs motivation decrease to implement green supply chain management in their firm. The big issue is come from external factors, the buyer influence as customer is still low to using environmental friendly product. Bring low encouragement to entrepreneurs do GSCM. For resource, due to low funding, they cannot afford some things for making their firm more environmentally friendly. And economy as the backbone of the business, great competition and substitution making them need to think other sector to improve and to survive of the business. Also high taxes as stated above support their problem in their business. As an effect they cannot raise the price given to customer to ensure they still come back to their premise and prevent them to close their business.

The finding of this study also having a big impact by apply GSCM practice into their business. Entrepreneur 1 (E1) and entrepreneur 2 (E2) having similar opinion of the effect after applying GSCM. In internal side, they start to sell unused box that came with the product to person that recycle or reuse these box. This to ensure low unused inventory on their premise, and decrease the maintenance of it. In government factor, nowadays entrepreneurs need to separate their garbage such as plastic and paper into different categories. An enforcement of the law done every month and a fine will be give if they disobey. This giving them a knowledge of what type of garbage that can be recycle. In external sector, using a computer as their business bring them into systematic way to produce tax audit, stock, and others that making more profitable. This also reducing their paper usage, so making their business friendlier. For entrepreneur 1 (E1) added that if the affordability of their business supporter that environmentally friendly is get better, they can reduce more on any side from electricity, water, bills and other stuff that take the effect from the usage. Both E1 and E2 agree that the implementation of GSCM affecting their SME outcome performance.

## **DISCUSSION**

The result of this study shown that there are several problem in small and medium enterprise before apply green supply chain management. The attitude problem is parallel with Wooi and Zailani (2010) which is antithesis to change is one of the

common attitude observe among SMEs, due to unknown and fear of failure is one of the reason for such an attitude.

The subsidies by the government is in line with Wooi and Zailani. This study also found that as regulator, they should giving a subsidies to small and medium enterprise as a motivation and promote SME and gaining the higher implementation of sustainable activity as the expected result. This can be done by government through funding, taxation policy, import duty, and business training.

The result about the problem regarding the resources also is in line with Jaggernath (2015) which is that many small companies don't have access to funds, tools, or data to manage their supply chain effectiveness as a result of using non-universal spreadsheets and incomplete and disjointed database of customer data, shipments, routing, scheduling and production that making a poor result in supply chain management. The result of this study also in line with Sarkis (2012) which is regulatory boundaries may play role in the economics of the organization and total cost analysis need to be complete by integrating many tangible and intangible costs and benefits associated with environmental practice that needs to be extended by internal operational management to the supply chain.

The result regarding of the effects is parallel with Kirchoff et al., (2016) which is the efficiency addresses by both economic and environmental measures and focusses on meeting customer demand to improve customer loyalty and repeat business. Through operation reduction expenses and efficient use of fixed capital throughout the supply chain, efficiency can be accomplish. The effectiveness is the most closely associated with customer satisfaction, there satisfaction can be meet through green SCM practices in the product availability area that require to meet specific environmental criteria, order fulfilment of those items, and high customer service levels. Improvements by achieve environmental quality management, buyer-supplier collaboration on environmental product, manufacturing processes, and design and redesign product in collaboration with customer to comply environmental needs. Also differentiation has a relation to green market positioning. Benchmarking and adherence is needed to focus on creating the firm value which having the best practice as a form the competition in offering products and processes that design for having less impactful on the environment by using eco-design for disassembly and reuse to enhance the company reputation.

### **Implication of study**

The implication of this study is entrepreneurs should need to determine finding the solution to increase of the implementation of GSCM in their SME. It also applies more GSCM practice may giving their business more environmentally friendly and gaining a tangible profit from that. From the government, suppliers, customers to the entrepreneurs need to evolve together to create a sustainable environment in a way to preserve nature.

### **Future research**

In this study is focus on the problem faced by the SME before implementing GSCM and the effect of GSCM in their SME after apply it. There are some suggestions that can be done in future research by others. One, using a quantitative method for collecting data, this kind of method can bring more accurate data from the large numbers of entrepreneurs feedback. Two, socialization within the supply chain and the government



for how to implement GSCM in more wider part of their business and everyone can support each other to achieve a goal to making a sustainable business alongside a sustainable environment.

### **Conclusion**

As a conclusion, this study is reveal that there was an effect that entrepreneurs in their SME gone through before applying GSCM and after applying it. A different kind of problem occurs and after apply GSCM they feel the effect that cause of bring that into their SME. Also this increase their outcome performance in their SME, increase their income and profit and still can maintain their love of their nature by implement GSCM practice.

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