โมเดลอิทธิพลของการจัดการห่วงโซ่อุปทานสีเขียว ที่มีต่อประสิทธิภาพการทำงานขององค์กร

The Influence of Green Supply Chain Management Practices on Firm Performance

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บทคัดย่อ

ปัจจุบันองค์กรหรือธุรกิจมีการแข่งขันที่รุนแรงและซับซ้อนมากกว่าในอดีต สืบเนื่องจากการแข่งขันและการสร้างความได้เปรียบทางการแข่งขันที่ไม่ได้ขึ้นอยู่กับต้นทุนเท่านั้น แต่การตระหนักถึงสิ่งแวดล้อม ภาวะโลกร้อน รวมไปถึงการเรียกร้องจากผู้บริโภค ทำให้ผู้ผลิตหรือธุรกิจต้องมีความรับผิดชอบต่อสิ่งแวดล้อมและสังคมมากขึ้น ดังนั้นจึงถือเป็นปัจจัยสำคัญในการอยู่รอดของธุรกิจ การจัดการห่วงโซ่อุปทานสีเขียวเป็นเครื่องมือที่สำคัญสำหรับธุรกิจที่นำมาปฏิบัติในองค์กร เพื่อให้เกิดการได้เปรียบทางการแข่งขันจากคู่แข่งทางธุรกิจ และสร้างความพึงพอใจให้กับลูกค้า วัตถุประสงค์ของบทความนี้ เป็นการสร้างกรอบแนวคิดในเรื่องของการจัดการห่วงโซ่อุปทานสีเขียวที่ส่งผลต่อประสิทธิภาพการทำงานขององค์กรในแต่ละด้าน เพื่อให้ผู้ประกอบการในธุรกิจมีความเข้าใจในหลักปฏิบัติการจัดการห่วงโซ่อุปทานสีเขียวและผลปฏิบัติงานที่ถูกต้อง และส่งผลดีกับองค์กรในระยะยาว

คำสำคัญ: การจัดการห่วงโซ่อุปทานสีเขียว ประสิทธิภาพการทำงานขององค์กร

Abstract

Nowadays, the business has highly competittive and dynamic, because it does not depend on cost only. The concern about the environment, climate change and customer concerns impact the environment and society for the survival of the businesses. Green supply chain management is an organizational tool for customer satisfaction and competitive advantage. The objective of this article is to construct a conceptual framework for the study impact of green supply chain management practices on firm performance. This will lead practitioners to a deep understanding of implement this practice for performance and long-term success.

Keywords: Green Supply Chain Management Practices, Firm Performance

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Introduction

As the world is changed from the past for many reasons, and businesses or organizations face complex markets, and many competitors can be able to make cheaper costs (Christopher & Holweg, 2011).The challenge on supply chain management with the globalization of the market in which the products consist of many items that produced all the world and assembly at one location. Therefore, it believed that businesses could not operate on individually or independently; it needs a network (Min & Zhou, 2002). The supply chain (SC), a set of the network which starts from supplier taken the resource (raw material), combines activities and finishes with the transfer of finish goods to consumers. The supply chain in the automotive sectors can be quite complex, which complicated by additional suppliers and customers. Firms or organizations can have hundreds or even thousands of suppliers (Zacharia, Nix, & Lusch, 2011). Therefore, the management of the supply chain is challenging more than before because of supply chains often include multiple firms, multiple countries, how firms manage the supply chain at the lowest cost while satisfying customers (Cohen & Lee, 2020). The issues relating to supply chain practices have been a subject of interest to practitioners and researchers (Zhou & Benton Jr, 2007; Zimon, D., Tyan, J., & Sroufe, R, 2020). to solve the challenge. Many organizations have increased supply chain management (SCM) practices in an organization because of the hope of reducing supply chain costs and securing the business (Li, Ragu-Nathan, Ragu-Nathan, & Rao, 2006; Zimon, et al., 2020) Therefore, the organization has adopted supply chain management (SCM) practices to strengthen their organizational performance. The supply chain management practices in different industrial sectors allow their unique features which distinguished to the applied practices and improvement of SCM theories. There are many supply chain practices in supply chain management. In recent years, awareness of the environment increased in manufacturers. Especially, the southeast Asia including China, Taiwan, India, Malaysia, Indonesia, Thailand, and South Korea, the majority of manufacturers that are consumed in the developing country by cheap labor and low material costs (Lai, Wu, & Wong, 2013; Khan, N., Mustapha, I., & Qureshi, M. I., 2020), which contribute increasing economic growth in the next decade while need to balance the economic growth and the environment (Lee, 2008; Parhi, S. S., Rangaiah, G. P., & Jana, A. K., 2020).

Furthermore, manufacture in Southeast Asia should realize urgently to adopt green practices with their supply chain partner to reduce environmental impact in their product to make competitiveness (Geng, Mansouri, & Aktas, 2017). These practices require that manufacturers work among supply chain partners to enhance environmental performance. The green supply chain management practices implementation is expected to reach environmental performance as assessed by reductions in air emissions, effluent waste, solid waste, and the consumption of toxic materials. There is a concern, however, whether such environmental performance efforts will ultimately translate into improved market share and profitability (Miroshnychenko, Barontini, & Testa, 2017). Ultimately, manufacturing managers are responsible for the overall performance of the organizations for which they work (Green Jr, Whitten, & Inman, 2008). This challenge emerged whether the adoption of environmental results in a win-win situation or environmental and economic tradeoffs for the supply chain partners.

The previous studies have not concluded with these practices lead to better economic performance because the adoption has a negative impact, which requires investment and increases operational cost in the organization. In contrast, recent studies have a positive relationship between GSCM practices and economic performance and the firm's performance (Kuei, Chow, Madu, & Wu, 2013 ; Le, T., 2020). The conflict of the results and the need to gain insights between GSCM practices and performance have motivated this study. Moreover, there is still a lack of significant study of supply chain practices and its performance in developing countries (Austin, 2002; Ali, S. S., Kaur, R., Ersöz, F., Altaf, B., Basu, A., & Weber, G. W., 2020; Nguyen, X., & Le, T., 2020), has not been broadly explored. It is essential to emphasize that supply chain management is complex and to be challenging to implement green supply chain management practices to be the success (Hu & Hsu, 2006). Therefore, this study will be focus on an important issue related to the environment. These studies have been precious. In particular, the automotive sector was interested, a significant driver of the Thai economy with secure infrastructures and multiple networks of small and large, local, and foreign companies all along the car-production supply chain. The automotive industry is a fast-growing industry in Thailand, which has a significant contributor to the Thailand economy. The industry contributed 12% of the GDP, with more than 1.94 million vehicles produced (Thailand Board of Investment, 2017). Thailand automotive industry as the largest automotive producer in Southeast Asia and 12th in the world. As an "Automotive Hub of Asia." The purpose of this study is to explain and understand the influence of green supply chain management practices on firm performance in a developing country based on the case of the Thailand automotive sector. As the contextual problems, which can lead to research questions in the following: 1) How are green supply chain management practices used by companies to achieve firm performance? 2) Which primary green supply chain management practices are implemented to improve firm performance in a balanced way? That is, how can businesses reduce their environmental impact while increasing economic and operational performance? 3) How do green supply chain management practices s affect the economic, operational, and environmental performance of businesses? This conceptual framework will help practitioners or managers understand the green supply chain management concepts and thus develop to success firm performance. Besides, this conceptual framework will be useful for researchers and can be applied to improve the efficiency of the organization.

Supply chain management practices and Green supply chain management practices In the early-1980s, the manufacturing industry has applied the supply chain management practices in its supply chain to maintain competitiveness (Leong et al., 2019). The objective of supply chain practices to enhance a firm's performance while lower cost and customer satisfaction. Therefore, supply chain practice plays a vital role and weapon to business to make competitiveness. Supply chain management practices have been defined as activities practiced among supply chain members, including suppliers, firms, and customers, to promote effective management of its supply chain (Li et al., 2006). (Alvarado & Kotzab, 2001) describe SCM practices focus on core competencies, including communication, long-term relationship, cross-functional teams, and supplier involvement, and environmental and social issues

in business practice for business sustainability (Awaysheh, 2008). The increasing global environmental awareness, green supply chain management (GSCM) has emerged as a supply chain practices and combined with environmental thinking along with the firm of the upstream and downstream supply chain (Walker & Jones, 2012). Green supply chain management (GSCM) emerged, which helps organizations and their partners to achieve performance by reducing environmental risk. The pressure from an external factor, including government and customer, has to lead to force manufacturers to integrate the environment into their practices (Yang, Lin, Chan, & Sheu, 2010).

Moreover, GSCM can generate sustainable competitive advantage, improve long-term performance. The lack of studies between GSCM and performance measurement need for future studies (Hervani, Helms, & Sarkis, 2005). Also, the need for in-depth studies of the links between GSCM and supply chain performance (Zhu, Sarkis, & Lai, 2008). Green supply chain management (GSCM) as integrating environmental thinking into supply chain management started from product design, material sourcing, and selection, manufacturing processes, product delivery, packaging as well as after-sale service. Many works of literature investigate categorize GSCM practices constructs based on different types of activities along the supply chain (Yang et al., 2010). A few studies in Asian countries, Hu and Hsu (2006) developed a critical factor of GSCM practices in Taiwan in the implementation and adoption of these practices. The survey conducted in the electronics industry. The result has shown that four factors consist of supplier management, product recycling, organization and involvement, and lifecycle management. GSCM is a relatively new concept in Southeast Asia (Rao & Holt, 2005). Another study in China country (Zhu, Sarkis, & Lai, 2007). The survey developed GSCM drivers, practices, and performance. The result has shown that an essential factor is regulatory, competitive, and marketing pressures that increased Chinese corporate environmental awareness. To conclude, this study used the classification by Zhu et al. (2008) as a guideline, GSCM practices include internal environmental management, green purchasing, cooperation with customers, investment recovery, and eco-design. More importantly, five practices have been studied in prior research about GSCM (Choi & Hwang, 2015; Gopal & Thakkar, 2016).

Internal environmental management

The internal environmental management refers to intra-organizational activities and practices such as middle or top management support to adopt GSCM practices, environmental compliance programs, and inter-departmental cooperation for environmental improvements (Feng, Cai, Wang, & Zhang, 2016; Zhu, Sarkis, & Geng, 2005) Because of green initiative activities involved with high investment and need to updating production systems. Therefore, management teams need to understand the need of GSCM practices.

Green purchasing

Green purchasing links to upstream (supplier) with the specific requirement of the environment when purchased products or parts from suppliers and collaborating with them to realize its environmental targets and minimize negative environmental impacts (Eltayeb, Zailani, & Ramayah, 2011) of manufacturing, transportation, use, and recycling or disposal. Bai and Sarkis (2010) developed a model for green supplier development, including green knowledge transfer and communication, investment and resource

transfer, and management and organizational practice.

Cooperation with customers

As mention above, GSCM practices related upstream (supplier), could involve cooperation with downstream (customers) which involves information sharing and collaboration between the focal company and their customers, and its purposes to improve visibility and joint planning for the environment (Yu, Chavez, Feng, & Wiengarten, 2014; Zhu et al., 2005)

Investment recovery

The investment recovery factor that involves regaining benefits from the existing investment. Generally, the revenue from the company came from selling the product or service. However, companies could minimize another resource, such as excessive inventories and inventory costs. Moreover, scarps and excess capital equipment could be sold to recover the investment (Zhu et al., 2005)

Eco-design

Eco-design is a beginning process with designing products consist of ecological attributes in process and product as well as the demands from supply chain partners in the company for product design and development (Bai & Sarkis, 2010; Zhu et al., 2005). One such green product is the hybrid car, which reduction petroleum supply. Carmaker manufacturers needed to redesign the new engine to consume less fuel or none at all.

Green supply chain management practices and Performance

The finding of performance on green supply chain management may confuse practitioners when they want to the adopt of green supply chain management practices. For instance, Rao and Holt (2005) studied the positive competitiveness and economic performance of the GSCM in Southeast Asia, In contrast, In contrast, Zhu et al. (2007) found that the economic performance of companies adopting GSCM in China was not very important. After reviewing the empirical studies, The objectives of green supply chain management have three dimensions. Some dimensions are conflicted. In order to increase environmental performance, there must be an additional cost. Base on the completion world, the organization must be adoption practice to make competitiveness, but how can organization adoption supply chain management practices and balance way while conflicted goals will be addressed in this study. The dimensions of green supply chain management performance, comparing and contrast green supply chain practices on firm's performance, including economic, environmental, operational performance as following:

Table 1 Green supply chain management practices and Performance

Type of performance of GSCM	Description	Authors
Economic performance	Related with profitability including the growth of sales, profit and market share	Kuei et al., 2013 Rao, P., & Holt, D. (2005).
Environmental performance	Related with saving energy and reducing waste, pollution, and emissions	Eltayeb, T. K., Zailani, S., & Ramayah, T. (2011)
Operational performance	Related with effciency of the operation such as scrap rate, delivery time, inventory levels, and capacity utilization	Zhu, Q., Sarkis, J., & Lai, K.-h. (2007)

Economic performance

The basic principle of adoption GSCM practices is to reduce waste and relate to environmental. However, GSCM practices can increase the operational cost at the early stage, such as additional manufacturing cost or machine cost, which reduces carbon emissions or energy consumption (Lindemann, Jahnke, Moi, & Koch, 2012). Although, with high cost, the positive between GSCM practices with economic performance are support with much extant literature. For instance, GSCM practices have a positive relationship with economic performance in terms of market share and on their stock prices (Klassen & McLaughlin, 1996) or GSCM practices with a long term orientation could lead to significant sales growth, return on assets, profit and cash flows. Thereby, the study relative to the economic outcome of GSCM will be examined.

Environmental performance

GSCM practices designed to increase environmental performance. Prior studies found the positive impact GSCM practices effect on environmental performance (Zhu & Sarkis, 2004) such as empirical surveys in the Chinese automotive industry found out that support from middle or top management has a significant impact on environmental performance.

Operational performance

Operational performance related to eciency of the operation. GSCM practices easy to facilitate another supply chain management practice to enhance operational performance, such as Just-in-time, Lean systems (Zhu et al., 2007). Moreover, GSCM practices help to improve inventory level, quality, lead-time and customer satisfaction (Ashby, Leat, & Hudson-Smith, 2012)

From previous research can summarize the relationship between the cause and effect factors of the organization's performance. As shown in Figure 1, the green supply chain management practice consists of Internal environmental management, Green purchasing Cooperation with customers, Investment recovery, Eco-design. The result of the organization’s performance, including Economic performance, Environmental performance, and Operational performance.

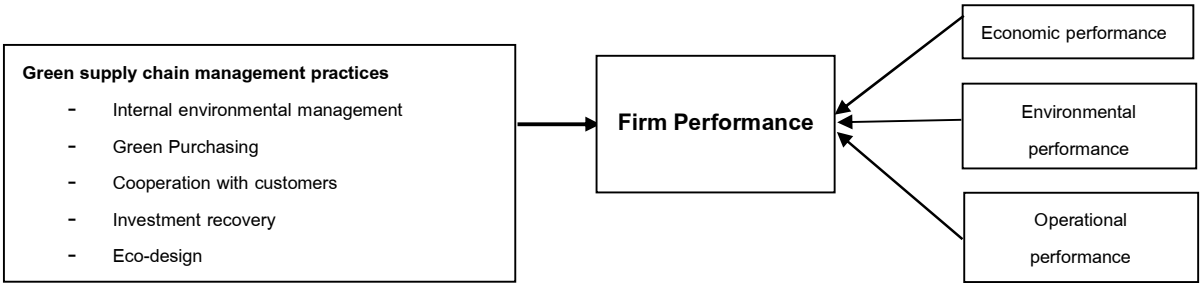

Figure 1 Conceptual Framework of green supply chain practice on firm's performance

Conclusion

Environmental responsibility is one of the main elements of sustainable development and it fosters environmental sustainability. Worldwide businesses implement green practices in order to reduce their environmental impact and improve their financial performance (Miroshnychenko et al., 2017). The significance of this research is to define, emphasize, and validate green supply chain management practices that influence the performance of the automotive industry. GSCM was related to the principle of the green supply chain practice model. Based on a review of the comprehensive literature, this research develops an assessment framework that identifies green supply chain practices and the impacts of the performance of the companies. In order to achieve the goals of the organization in the long term, it is essential to understand the integration of green supply chain management practices and the supply chain management aspects simultaneously. Management will benefit from the effective implementation of green supply chain practices to companies and will sharpen the competitive advantage.

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