

## Chapter 12

# The Roles of Lean and Green Supply Chain Management Strategies in the Global Business Environments

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### ABSTRACT

*This chapter introduces the roles of lean Supply Chain Management (SCM) strategies and green SCM strategies in the global business environments, thus explaining the theoretical and practical concepts of SCM, lean SCM strategies, and green SCM strategies; the importance of lean and green SCM strategies; and the interfaces of lean and green SCM strategies in terms of implementing green and global supply chain strategies, implementing green and lean supply chain strategies, and implementing lean and global supply chain strategies. Lean supply chain and green supply chain strategies help firms to maximize the improvement of lean production in operations management. Applying lean SCM strategies and green SCM strategies in the global business environments will significantly enhance organizational performance and achieve business goals in digital age.*

### INTRODUCTION

Firms in the twenty-first century grapple with an ever-changing world (Mollenkopf, Stolze, Tate, & Ueltschy, 2010). Three supply chain trends create an increasingly complex business environment: the initiatives of green SCM, the utilization of lean processes, and globalization. The globalization of supply chains involves production, inventories, suppliers, and customers in modern business (Christopher, 2005; Manuj & Mentzer, 2008). Globalization enables increased revenue generation through entry to new markets and provides an access to suppliers that can provide materials and inputs more efficiently than domestic sources.

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SCM is a business process integration that allows organizations to exploit the competitive advantage of SCM and gain better organizational performance by lowering manufacturing costs and increasing profits (Mitra & Singhal, 2008). SCM enhances organizational performance by integrating the internal functions and linking them with the external operations of suppliers and supply chain networks. Main benefits of SCM are the lower production costs, increased output and shorter production lead times (Agus & Hajinoor, 2012). Lean production is implemented throughout the supply chain from customer to raw material (David & Heineke, 2005). Lean production enables organizations to achieve economic benefits, thus improving quality, costs, and cycle time in operations management (Cudney & Elrod, 2011).

Lean production is an integrated activity in SCM and is designed to achieve high-volume flexible production utilizing minimal inventories of raw materials (Agus & Hajinoor, 2012). Lean production has its origins in the teaching and writings of total quality management (TQM) and just-in-time (JIT) (Cudney & Elrod, 2011). Kasemsap (2014a) stated that creating lean production of JIT, total productive maintenance, TQM, cellular manufacturing, and human resource management helps organizations to increase organizational performance in modern business. Concerning lean production, Six Sigma, organizational learning, and organizational innovation are positively correlated with organizational performance in digital age (Kasemsap, 2013).

Lean SCM and green SCM focus on minimizing waste and inefficiency within supply chains (Farish, 2009). Managing the green supply chain is an important issue for industry (Sarkis, 2012). Environmental issues within corporate organizational boundaries have been a concern for decades (Sarkis, 2012). Environmental issues have ranged from reactive concerns to legislation and regulatory pressures to more proactive concerns that include building competitive advantage and developing a strong corporate environmental image. Greater importance of interorganizational relationships has caused organizations to consider building competitive advantage by management of their supplier and customer partnerships and networks. The evolution in management and business focus resulted in development of the supply chain and SCM fields (Sarkis, 2012).

This chapter introduces the roles of lean SCM strategies and green SCM strategies in the global business environments, thus explaining the theoretical and practical concepts of SCM, lean SCM strategies, and green SCM strategies; the importance of lean and green SCM strategies; and the interfaces of lean and green SCM strategies in terms of implementing green and global supply chain strategies, implementing green and lean supply chain strategies, and implementing lean and global supply chain strategies.

## **BACKGROUND**

The concept of SCM was introduced in the early 1980s (Harland, 1996). SCM is a theory grounded in the field of logistics. SCM is considered as a collection of practices for managing and coordinating the transformational activities from raw material suppliers to customers (Heikkila, 2002). SCM is viewed as an organizational response by organizations to business pressures in their supply chain environment (Cravens, Piercy, & Shipp, 1996). SCM is defined as a long-term oriented, inter-organization arrangement, involving cooperative relationships (Grant & Baden-Fuller, 2004; Das, 2006). SCM involves integration, coordination and collaboration across organizations and throughout the supply chain of such functions as distribution planning, demand forecasting, purchasing, requirement planning, production planning, warehousing, material handling, inventory, packaging, order processing, and transportation

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