Application of Lean Thinking in Supply Chain Management by the Small and Medium Sized Manufacturers in China: A Status Survey

Kwok Hung Lau, School of Business Information Technology and Logistics, College of Business, Royal Melbourne Institute of Technology University, Melbourne, VIC, Australia

Jue Wang, School of Management, College of Business, Royal Melbourne Institute of Technology University, Melbourne, VIC, Australia

ABSTRACT

With increasing pressure for higher wages and growing competition from other developing countries such as Vietnam and Mexico, China can no longer rely heavily on cheap labor supply as a competitive advantage to secure her position as the world’s largest manufacturing base. Other competitive edges, such as lean manufacturing and lean supply chain management that help cut cost and reduce waste, have to be explored. Using a self-administered questionnaire survey, this study investigates the current status of lean thinking application in supply chain management by the small- and medium-sized manufacturers (SMMs) in China. It also explores if there are benefits in the application and the challenges faced by the SMMs in implementation. The findings suggest that application of lean thinking in China is not widespread. For those firms that have applied lean thinking, the major benefits obtained include reductions in cost, waste, inventory, labor, and cycle time. The major difficulties encountered lie in the accurate communication of the requirements between workers and managers and the collaboration with supply chain members. Proper application of lean thinking in supply chain management can bring substantial benefits to the manufacturing industry. Managers can use this research to benchmark their lean thinking application and revise their supply chain strategy accordingly.

Keywords: Competitive Advantage, Lean Production, Lean Supply Chain Management, Lean Thinking, Supply Chain Strategy, Waste Reduction

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INTRODUCTION

Efficiency and responsiveness can be regarded as the primary goals in supply chain management (SCM) (Chopra & Meindl, 2010). To achieve these two objectives, waste elimination and flexibility enhancement are the keys. They help reduce operating cost and enforce continuous improvement thereby increase overall efficiency and responsiveness. With growing recognition of the significance of SCM (Houlihan, 1987), the notion of “lean supply chain” – a derivative of “lean thinking” (Womack & Jones 2003) – has been proposed. As a philosophy developed from “lean production”, lean thinking was put forward by Womack, Jones, and Roos (1990). Lean production, or lean manufacturing, itself is originated from “just-in-time manufacturing” or “Toyota Production System” introduced by the Japanese automobile manufacturing company Toyota (Browning & Heath, 2009; Cox & Chicksand, 2005). Nowadays, lean production usually refers to a collection of principles governing waste elimination and value creation (see for example Womack & Jones, 2003) that have been applied in different industries, organizations, and countries (Calloway, 2004; Holweg, 2007).

The success of the Japanese automobile manufacturing companies such as Toyota and Honda in the last few decades has provided strong evidence of the benefits derived from lean production (Calloway, 2004). Similar successful examples of lean thinking application can also be found in other businesses or industries such as passenger airplane manufacturing (Horng, 2007). In SCM, some of the key elements of success include “flow”, “integration”, “sustainability”, “cost”, and “service” (Handfield & Nichols, 1999; Simchi-Levi, Kaminsky, & Simchi-Levi, 2008). In many ways, lean thinking can be regarded as an enabler of recognition of these essentials. Application of lean thinking in SCM has been witnessed all over the world. In the UK, many food and farming supply chains have applied lean thinking (Cox & Chicksand, 2005). In the US, companies such as Buck Knives, New Balance Athletic Shoe, and Ariens Co. have enjoyed improvement brought by lean management (Kator, 2007). As consumer markets become increasingly competitive, unpredictable, and volatile in recent years, cost minimization, flexibility, and resource optimization are the strong incentives for supply chain members to adopt a lean approach (Weber, 2009).

With low labor cost and rich supply of skilled workers, China has literally become the largest global factory in the last two decades manufacturing for many companies in the developed countries which have outsourced or offshored their production to China (Langley Jr., Hoemmken, van Dort, Morton, Strata, & Riegler, 2007). This has helped foster a rapid economic growth in the country and significantly increased her influence in the international economic and political arenas. However, this advantage is continuously diminishing because of the increasing pressure from the workers for higher wages and a growingly competitive global economic environment. The recent series of strikes at the factories of many foreign-invested companies in China, such as Foxconn and Honda, is a clear sign of the mounting pressure from the workers for better remuneration and working conditions (Barboza & Tabuchi, 2010; Gu, 2010). The impact is deep and widespread as it affects all industries and manufacturing companies, domestic and foreign-invested alike, suggesting that the days of cheap labor in China are numbered. On the other hand, other fast developing countries such as Vietnam and Mexico have become strong competitors in the supply of cheap labor and raw materials. These ever-increasing threats have urged many Chinese manufacturers to explore other means of competition. Improvement in global supply chain management and performance through the application of lean thinking is one of the ways to develop a new competitive edge. This is particularly important to the manufacturing firms in China as most of them are small- and medium-sized manufacturers (SMMs). They usually do not have resources to research into new production technologies or develop new products to maintain competi-
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