

Lean Manufacturing as a Strategic Tool for the Sri Lankan Garment Industry: A Concept Paper

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ABSTRACT

Sri Lankan Garment Industry first emerged with a significant impact to the economy in late seventies with the relaxation of Sri Lankan trade barriers. It is responsible for considerable amount of industrial establishments, major portion of employment and industrial exports. But Sri Lankan contribution to the world apparel market is considerably low. This implies that there exist a good opportunity to be pursued in the industry. During the period from late seventies to the date few garment manufacturing companies were able to develop their own customer basis the majority of the manufacturers, small and medium scale in specific are yet to develop a strong competitive advantage. With the elimination of Multi Fabric Agreement and uncertainty in tariff releases as GSP Plus, the industry is threatened to be vulnerable to external forces due to weak competitive basis it has. Among the causes for losing competitive advantage, the major reasons have been identified as poor lead times, poor labour productivity and product quality. Strategy, direction and scope over the long term to develop competitive advantage has identified as Lean manufacturing after considering various schools of thought such as Generic strategies, Blue ocean theory and Strategy Clock. After analyzing different tests, Strategic Option Evaluation Tests of evaluating suitability, acceptability and feasibility was adopted. Hence this study is designed to analyze the data collected from a stratified sample through Delphi question rounds to find the ability of using lean as a strategy to develop competitive advantage to Sri Lankan garment producers.

KEY WORDS: Garment Industry, Lean Manufacturing, Strategic Option Evaluation Test

INTRODUCTION

Sri Lankan export market was dominated by traditional products such as agricultural products, spices and minerals throughout the past. The garment industry then made its first significant appearance in 1970s and continued to grow to become the major export in Sri Lankan economy. According to the Survey of Industry (2008) of Department of Census & Statistics of Sri Lanka, 23% of total establishments and 53% of people engaged in industries are fallen in to the Apparel manufacturing sector. On the other hand at the moment garment sector contributes 46.2% to the total exports of Sri Lanka (Central Bank of Sri Lanka, 2009).

This indicates that the garment industry plays a vital role in improving the trade balance, reducing unemployment, development of the economy, etc.

According to the International

Trade Statistics 2009 of the World Trade Organization Sri Lankan contribution to the world garment exports was as low as 0.02% in 1990 and 0.15% at 2000. According to the same, Sri Lankan contribution to the international textile and garment exports in 2008 was only 0.074% with a drop in growth rate from 4.77% in 2007 to 2.42% in 2008.

This information reveals that there exists a market which is sufficient enough to support the growth of the Sri Lankan garment industry for a foreseeable future.

Even though the industry holds a substantial potential it is important to develop a competitive advantage over its competitors which is still lacking in the Sri Lankan garment industry. Majority of the garment manufacturers depended on Multi Fabric Agreement (MFA) till the complete elimination of MFA in 1st January 2005. It has been identified that manufacturers who are internationally competitive can increase export volume significantly with the elimination of MFA (Weerahewa and

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Ariyawardana, 2003). The high cost of production is the key hindering factor of competitive advantage in the industry. According to the studies, labour cost in the industry is as high as 15% to 20% (Fonseka and Fonseka, 1998). This disadvantage was neutralized to some degree with the tax concessions as Generalized System of Preference (GSP). But the sustainability of this is highly doubtful due to both micro level inefficiencies such as not maintaining healthy working environment according to the respective standards and macro level policy decisions. Sri Lankan garment industry faces a number of other challenges contributes heavily towards the incapability of developing competitive advantage (Dheerasinghe, 2008). But according to the latest reviews on the industry, absence of an indigenous fabric base, lack of designing capabilities, low productivity and high concentration on few markets and finance costs are the most crucial factors that impede the garment industry at present (Yarns and Fabric Exchange, 2010). Further, the Chairman of the Joint Apparel Association Forum (JAAF) highlights that many companies might not be able to absorb the higher cost and they may have to move out of the industry or cut expenditure (Wickrematunge R., 2009). Nearly seventy factories have been closed down during the 4th quarter of 2008 and 1st quarter of 2009 due to the recession because they could not compete with other garment manufacturers (Berenger, 2009).

One plausible strategy to gain sustainable competitive advantage lies in the diversification of customer-base while achieving improvement in production efficiencies, product quality and just-in-time response towards the customer demand (Dheerasinghe, 2008, Kelegama, 2005, Weeraratne, 2004, Ariyawardana, 2003).

This implies that the Lean manufacturing will be a possible solution to overcome the current problems faced by the garment industry in Sri Lanka. Higher flexibility, higher quality, lower costs and

shorter lead times will allow the Sri Lankan garment industry to diversify its' customer base, improvement in production efficiencies, product quality and just in time response.

Although the lean manufacturing addresses issues like higher production cost, lower labour productivity and higher lead times that are crucial to the garment industry it is still a new concept to Sri Lanka. Hence, most of the Sri Lankan garment factories do not practice lean manufacturing principals. Research have been carried out to determine the suitability of lean manufacturing for the construction industry of Sri Lanka (Senaratne and Wijesiri, 2008; Nissanka and Senarathne, 2008) but no evidence of such studies with respect to the garment industry. So this research basically aims to identify the possibility of adopting lean manufacturing system in the Sri Lankan garment industry as a strategic tool in achieving a competitive edge in the world apparel market. Hence this research is basically focused on analyzing the following research questions.

01. What are the options available for Sri Lankan garment manufacturers to gain competitive advantage over their competitors?
02. Does lean manufacturing provides the sufficient capabilities to gain a substantial competitive advantage?
03. If so, is lean manufacturing a plausible strategy to be adopted by the Sri Lankan garment manufacturers?

By looking at the above research questions following research objectives have been derived.

RESEARCH OBJECTIVES

01. Evaluation of Lean manufacturing as a tool for developing competitive advantage in a strategic point of view.

02. Identification of the sources of developing competitive advantage for the Sri Lankan Garment manufactures.

The main purpose of this is to check whether the competitive edge provided by the lean manufacturing is relevant in exploiting the sources of competitive advantages of Sri Lankan garment manufacturers.

03. Evaluating the ability of using Lean manufacturing as a strategic tool to develop competitive advantage for the Sri Lankan garment industry

LITERATURE REVIEW

Strategy by definition is the direction and scope of an organization over the long term, which achieves advantage in a changing environment through its configuration of resources and competencies with the aim of fulfilling stakeholders' expectations (Johnson, Scholes, and Whittington, 2005). Porter through his generic strategy framework has identified overall cost leadership, overall differentiation and focus as three basic strategies of an organization (Porter, 1980). He argued that the organizations which have a larger market share can develop a strategy based on lower cost (cost leadership) due to economies of scale and organizations which have a smaller market share can develop a strategy of differentiation based on small niches which they operate. Observations of the low profitability in organizations which have a moderate market share were explained by the concept of stuck in the middle where there is no viable generic strategy. This theory of competitive advantage was challenged by many scholars. It has been argued that mix of strategies may be more useful than a single generic strategy (Miller, 1992). Researchers who support the Blue ocean theory argue that both lower cost and differentiation as possible strategies (Chan and Mauborgne, 2005). According to the blue ocean theory, a continuous process

of value innovation with various utility, price and cost positions will open uncontested markets where competition is irrelevant. This value innovation concept which is contradictory to competitive theories has ignited an intense debate between two groups of scholars. However, Burke, Stel and Thurik (2009), state that both competitive strategy and blue ocean theory overlaps in their concepts while blue ocean theory prevails to become long term viable and dominant strategy of firm. The same researchers argue that there cannot be any pure blue oceans, though there are many blue oceans with red patches in it. But there are numerous arguments against this theory. Most frequently subsequent researchers question the validity of this theory by claiming that the authors being more descriptive than perspective (Pollard and Wayne, 2005). On the other hand, Faulkner and Bowman (1995), describes high/medium price with low/medium perceived product/service benefits as strategies designed for failure. This model also describes a hybrid and focus differentiation strategy which hints simultaneous implementation of two or more generic strategies.

Lean manufacturing can be identified alongside the above mentioned models on developing competitive advantage as a comprehensive model which incorporates the idea of simultaneous application of multiple generic strategies and value creation. By definition, lean manufacturing refers to a manufacturing philosophy of achieving the highest quality, lowest cost and minimum lead times by eliminating waste in the transformation of inputs into outputs (Abdullah, 2003). Many researches show that lean manufacturing as a viable strategy to achieve competitive advantage (Lewis, 2000).

Although Porter (1980), argued that time along with cost and quality are two sides of a coin where one cannot optimize time/cost and quality simultaneously, set of scholars, backed by the practical

implementation in Toyota motor cooperation argued that it is possible to achieve highest quality, least cost and minimum manufacturing lead times with the reduction of waste which was described as “stuck in the middle” by Michael Porter. This method of manufacturing is named as lean manufacturing in the late 80s and early 90s in the publications such as “Triumph of the Lean Production System” (Krafcik, 1988), “The Machine That Changed the World” (Womack et al., 1990). The concept has fully developed to a manufacturing philosophy and a culture by Toyota motor cooperation which was identified as Toyota production system and bench marked as a world class operator in lean manufacturing. With the environment becoming more complex, dynamic and unpredictable most of the major multi nationals are gradually adopting this system to produce high quality, least cost products with minimum lead times.

Stream of scholars have pointed out that even an implementation of simple lean model can lead to superior improvements in production systems (Koskela, 2000). Lean manufacturing can also be used to develop competitive advantage in difficult environments (Klieř, 1994). A study carried on Bangladesh garment industry revealed that lean production system can be used as a successful tool to achieve higher productivity and low cost if effectively implemented. Size of the company and length of the practice of lean concepts had low correlation with the improvements compared to effectiveness of the implementation process (Ferdousi and Ahmed, 2009). This implies that the lean manufacturing will be a possible solution to overcome the current problems faced by the garment industry in Sri Lanka. Higher flexibility, higher quality, lower costs and shorter lead times will allow the Sri Lankan garment industry to diversify its’ customer base, improvement in production efficiencies, product quality and just in time response.

Researchers have taken various approaches to evaluate strategy and its potential to become a success. One such approach is to use the modeling aspects of operational research to evaluate the level of performance (Dyson, 2000). But most studies rejects the idea of only using firm’s profitability and adopt a trait approach of comparing excellent and non-excellent firms to derive basis to evaluate the strategy (Chakravarthy, 1986). In 1999, Johnson, Scholes and Whittington developed a strategic option evaluation test for effective and efficient implementation of strategy. Accordingly, three tests, suitability, acceptability and feasibility are used to evaluate the successful implementation of strategy. This model has been adopted to test the ability of implementation of lean construction in the field of construction in Sri Lanka (Senaratne and Wijesiri, 2008).

Suitability: checks whether the selected strategy addresses the organizational context in which the organization operates, where the strategic option will be determined by the environment, strategic capability and expectations and purposes the organization exists. A strategy can be concluded as suitable if it is able to either eliminate a weakness or exploit strength with respect to the concept of core competencies.

Acceptability: check how much support the strategy gets by the stake holders by evaluating, to what degree the core principles and believes of the selected strategy is accepted by the organizations’ stake holders. One argues that the lean principles are increase output value through systematic consideration of customer requirements, Build continuous improvement into the process, Reduce variability, Reduce cycle times, Simplify by minimizing the number of steps (Koskela, 1992). Hence by considering different viewpoints, main principles of lean manufacturing can be identified as follows

- a. Clearly understand and specify the activities in to value adding and non – value adding activities based on customer’s perspective
- b. It is important to eliminate waste
- c. The best way to eliminate waste and reduce the cost is reducing the lead time thus creating a flow of value creation
- d. Adopt the just in time (a market pull system instead of market push)
- e. Peruse perfection by continuously improving the whole system by eliminating waste as they uncovered (Kaizan)

Apart from this stream of scholars argues that it is important to implement a system which suite the strategic objectives of the business but it is equally essential to adopt a system which will make the changes sustain and improve continuously (Berger, A., 1997).

Feasibility: Checks whether the organization has the necessary strategic capabilities to implement the selected strategy in a practical way. Since this test is measuring a single organization and its ability to successfully implement the selected strategy, it is difficult to conduct this strategy upon a generic industry as a whole (Senaratne S., Wijesiri D., 2008).

RESEARCH METHODOLOGY

A stratified sample will be obtained from a sample frame of the registered garment manufacturers in either Board of Investment of Sri Lanka (BOI) or Clothing Industry Training Institute.

Suitability: This will be evaluated by inspecting the existence of seven types of waste in the selected sample. A questioner will be given to the sample and it will have the option of mentioning the additional or any other type of waste which may not included in the questioner. Seven type of waste have been identified by the lean

manufacturing as over production, defects, unnecessary inventory, inappropriate processing, excessive transportation, waiting and unnecessary motion (Shigeo, Shingo, 1981).

Acceptability – Same questioner which was adopted by S. Senaratne and D. Wijesiri (2008) will be adopted given the fact that the principles they adopted refers to the same principles identified in this industry.

Delphi method will be adopted to collect the data from the selected sample (Senaratne S., Wijesiri D., 2008). Plant visits and interviews (Ferdousi F., Ahmed A., 2009) will also be used to triangulate the data gathered. First round of Delphi questions will be distributed among the participants to gather data about the type of waste which can be identified in the garment industry. Seven (07) types of waste which previously identified in measurement will be listed in the questions and there will be an option to enter any unidentified waste. The possibility of finding the identified waste in factories will be measured through a five point Likert type scale. Second round of Delphi questions will be directed at checking the degree of acceptability of lean principles and Kaizen principles by the selected sample through five point Likert type scale.

DATA COLLECTION AND ANALYSIS

The data collected in the first round of Delphi survey will be analyzed with the statistical procedures of cumulative frequency to identify the major waste type responsible for the majority of the waste and inefficiencies based on the 80 – 20 rule due to the interval type nature of the data.

For the second round of Delphi questioner a statistical procedure of measuring central tendency and variability (Standard deviation) of interval type of data will be used to describe the population.

Factor analysis and a Reliability analysis will be carried out to validate the results.

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