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Full Length Research Paper

Examining supply chain practice in Egyptian sme firms

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This research examines supply chain management practice in SME firms in Egypt. A well designed survey include several items explaining the main characteristics of supply chain management which distributed to over three hundred executives working in different industry in Egypt. The response rate was over 64% representing all different industries. Statistical analysis was used to analyze the data and test the four major hypotheses in this study. The results indicate significant difference in only one hypothesis. Recommendations of this study include the following first Egyptian manufacturing companies specifically public sector should build strong IT infrastructure in order to facilitate the information sharing internal and external the firms especially, with customers. Second Egyptian manufacturing companies should ensure and facilitate the relationship between suppliers and retailers in order to increase information flow within the supply chain. Third Egyptian manufacturing companies specifically public sector that suffer from a lot of barriers facing application of lean manufacturing system in their companies, so, they should benchmark the successful lean manufacturing systems from private sector in order to enhance their lean abilities and their trading partners abilities also as to enhance performance of supply chain in the public sector manufacturing companies.

Keywords: Supply chain, SME and Firm.

INTRODUCTION

Many researchers have studied supply chain management practices. Tan, Lyman and Wisner (2002) studied supply chain practices from a strategic perspective. Jeong and Hong (2006) studied supply chain practices of small and medium-scale enterprises (SMEs from a business growth perspective. Wong, Arlbjorn and Johansen (2005) examined supply chain practices in toy supply chains. Sahay and Mohan (2003) looked at supply chain practices in Indian industry. McMullan (1996) studied supply chain practices in Asian Pacific companies.

According to the above studies and for many others, it can be concluded that there is a lack in literature review on supply chain management practices in Egyptian manufacturing companies which leads to indicating the following supply chain practices in order to be used for formulating the research hypotheses and the research questionnaire for collecting data.

Therefore, supply chain management practices can be categorized as the following:

Customer relationship practices mainly focused on:

According to Simchi-levi, Kaminsky and Simchi-levi (2004), they argued that the ability to offer what the customer wants and needs is a basic requirement to which supply chain management contributes by creating availability and selection. Also, they mentioned that Marshall Fisher called it the market mediation function of the supply chain (This function is distinct from the supply chain physical function of converting raw materials into goods and shipping them through the chain to the customer). The costs associated with the market mediation function occur when there are differences between supply and demand. If the supply exceeds demand, there are inventory costs throughout the supply chain; if demand exceeds supply, there are lost sales and possibly lost market share. If product demand is predictable, as in functional items such as milk, market mediation is not a major issue.

Clearly, efficient supply chains for functional items can

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reduce costs by focusing on reducing inventory, transportation, and other costs. This is the strategy Campbell Soup and Procter & Gamble employ for their supply chains. However, when dealing with fashion items or other high-variability items, the nature of demand can create large costs due to lost sales or excess inventory. These high-variability products require responsive supply chains that stress short lead times, flexibility, and speed over cost efficiencies. Conformance to requirements is also achieved through attention to customer access, the ability to easily find and purchase a product. For companies such as McDonald's, Starbucks, and Walgreens, access involves prime real estate. Providing mail, phone, and Web access in addition to or instead of retail stores can enhance the customer's ability to purchase the product conveniently. Finally, access includes the perception of providing the consumers with a store or Web site layout that makes it easy to find and purchase the product they are seeking.

Using a pull production system

According to Simchi-levi, Kaminsky and Simchi-levi (2004), they said that in a pull-based supply chain, production and distribution are demand driven so that they are coordinated with true customer demand rather than with forecast demand. In a pure pull system, the firm does not hold any inventory and only responds to specific orders. This is enabled by fast information flow mechanisms that transfer information about customer demand (e.g., point of sale data) to the various supply chain participants.

Involving customers in process/product design

To explain how organizations involve customers in process/product design, customer relationship management should be discussed.

Thatte (2007) defines customer relationship management as "the entire array of practices that are employed for the purpose of managing customer complaints, building long-term relationships with customers, and improving customer satisfaction" (Li et al., 2006, p. 109).

According to Thatte (2007), he investigated different studies in customer relationship management, which are: Noble (1997) and Tan et al. (1998) consider customer relationship management as an important component of supply chain management practices. Croxton et al. (2001) regard customer relationship and supplier partnership practices as key supply chain management practices.

An organization's customer relationship practices can affect its success in supply chain management efforts as well as its performance (Scott and Westbrook, 1991; Ellram, 1991; Turner, 1993). Successful supply chain management involves customer integration downstream and supplier integration upstream, considering that each entity in a supply chain is a supplier as well as a customer (Tan et al., 1999).

In this global competition and mass customization era, personalized attention and better relationship management with individual customers is of utmost importance for organizational success (Wines, 1996). Good relationships with trading partners, including customers are a key to successful supply chain management efforts by organizations (Moberg et al., 2002). Customer relationship has long been recognized as an internal component of an organization's marketing strategy to increase sales and profits (Bommer et al., 2001). Close customer relationship allows product differentiation from competitors, helps sustain customer loyalty, and increases the value to customers (Magretta, 1998). Immediate customer relationship activities have played a crucial role in developing effective SCM strategies (Wisner, 2003).

Information sharing

Thatte (2007) defined information sharing as "the extent to which critical and proprietary information is communicated to one's supply chain partner" (Li et al., 2006, p. 110).

According to Thatte (2007), he investigated different studies in information sharing, which are: Mentzer et al. (2000) mention that shared information can vary from strategic to tactical in nature. It could be pertaining to logistics, customer orders, forecasts, schedules, markets, and more. Information sharing refers to the access to private data between trading partners, enabling them to monitor the progress of products and orders as they pass through various processes in the supply chain (Simatupang and Sridharan, 2002). Simatupang and Sridharan (2005) list data acquisition, processing, storage, presentation, retrieval, and broadcasting of demand and forecast data, inventory status and locations, order status, cost-related data, and performance status as some of the elements that comprise information sharing. They add that information sharing pertaining to key performance metrics and process data improves the supply chain visibility thus enabling effective decision making. Information shared in a supply chain is of use only if it is relevant, accurate, timely, and reliable (Simatupang and Sridharan, 2005). Information sharing with trading partners enables organizations to make better decisions and to take actions on the basis of greater visibility (Davenport et al.,

2001).

Continuous improvement

Basu and Wright (2008) defined continuous improvement or kaizen as it is an approach has been adopted in industry and means gradual and unending improvement in efficiency and/or customer satisfaction. This philosophy is doing little things better so as to achieve a long- term objective.

Aoki (2008) discussed the following studies in continuous improvement, which are: Bateman and Rich (2003) classify continuous improvement into two approaches according to the length of time over which the improvement activity is focused; the longer one is continuous improvement; the shorter one is process improvement. In the case of process improvement, short-term (one or two week) programs that consist of break-through kaizen events are implemented in a focused area. In terms of the time frame of activity, Japanese kaizen is longer than process improvement. First of all, Ohno (1988), the Founder of Toyota production system, stated that "improvement is both eternal and infinite." This suggests that the concept of kaizen in Toyota is not a program with a limited time frame, but a process of activities that are implemented continuously. Continuous improvement is one of the two pillars of Toyota's basic philosophy and means not only creating a lean system that contributes to cost reduction, but also learning from mistakes and pursuing innovation (Kajiwara, 2002). Liker (2004) notes that the concept of kaizen in Toyota is a kind of corporate culture that supports continual organizational learning.

Lean system

Jacobs and Chase (2008) defined lean system as an integrated set of activities designed to achieve production using minimal inventories of raw materials, work-in process, and finished goods. Lean is also based on the logic that nothing will be produced until it is needed.

Li (2002) defined lean system as the practice of driving out the unnecessary costs, time, and other wastes from the entire supply chain.

And he mentioned that lean embodies a system that uses less of all inputs to create outputs similar to the mass production system, but offer an increased choice to the end customer. He also clarified the logic behind lean thinking in supply chain management as organizations jointly identify the value stream for each product from concepts to consumptions and optimize this value stream regardless of traditional functional or corporate boundaries.

Lean system practices mainly focused on:

Increasing organization's Just-In-Time capabilities.

Basu and Wright (2008) defined Just in time approach as it requires materials to arrive from dedicated suppliers on the factory floor at the right stage of production just when required, and when the production process is completed it is shipped directly to the customer.

They confirmed on the importance of increasing organization's just in time capabilities for achieving successful supply chain as just in time is concerning with: scheduling of activities and resources which has to be exact, communication with suppliers that must be precise, having reliable suppliers who are able to perform according to exacting timetables, materials that have to arrive on time and meet the specifications, machines that have to be maintained for having no down time, operators who cannot make mistakes, reaching to no allowance for scrap or rework and finished products that have to be delivered on time to customers.

Ballou (2004) concerned with just in time scheduling and he defined this concept as an operating philosophy which is an alternative for using of inventories in order to meet the goals of having the right goods at the right place at the right time. He identified that it can be used as a way for managing the materials supply chain so it can be explained according to supply chain as "A philosophy of scheduling where the entire supply chain is synchronized to respond to the requirements of operations or customers."

Selecting suppliers based on quality

Lo, Sculli and Yeung (2006) mentioned that suppliers' selection based on quality can be maintained through two main aspects, which are: a) quality system of suppliers (select a supplier based on its implemented systematic procedures of daily operations to ensure the quality of its delivery) and b) quality culture of supplier (select a supplier based on its established organizational culture toward continuous improvement).

Cheraghi, Dadachzadeh and Subramanian (2001) stated that selecting suppliers is based on the ability of supplier to meet the quality standards of products.

METHODOLOGY

According to the above mentioned supply chain management practices, the following research hypotheses will be indicated as follows:

H1: There is no significant difference among Egyptian manufacturing firms regarding the supply chain management practices.

H1a: There is no significant difference among Egyptian manufacturing firms regarding customer relationship

ANALYSIS

Variables		Sig. *p*	significant	Accept or reject null hypotheses
Dependent	Independent			
Customer relationship	Company ownership	.118	Not significant	Accept null Hypotheses.
Information sharing	Company ownership	.008	Significant	Reject null Hypotheses
Continuous improvement	Company ownership	.913	Not significant	Accept null Hypotheses
Lean system	Company ownership	.011	Significant	Reject null Hypotheses

practices.

H1b: There is no significant difference among Egyptian manufacturing firms regarding information sharing practices.

H1c: There is no significant difference among Egyptian manufacturing firms regarding continuous improvement practices.

H1d: There is no significant difference among Egyptian manufacturing firms regarding lean system practices.

In this research, it is used the following conditions in order to accept or reject the null hypotheses:

- If the probability is less than the preset alpha level (.05 which is used in this research), so, the results are statistically significant or that they are significant at the .05 level or that $p < .05$. So, we can reject the null hypothesis of no difference.

- If the probability is greater than the preset alpha level (.05 which is used in this research), so, the results are statistically not significant or that they are not significant at the .05 level or that $p > .05$. So, we can accept the null hypothesis of no difference.

Therefore,

- There is no significant difference among Egyptian manufacturing firms regarding customer relationship practices.

All the Egyptian manufacturing firms publicly and privately produce according to customers` wants and needs so they depend heavily on the pull system production.

- There is significant difference among Egyptian manufacturing firms regarding information sharing practices.

As public sector differs from private sector in the information technology capabilities in each one also the degree of information transparency between channel partners differs from public to private sector which returns to the culture of the organization and top management support for information sharing.

- There is no significant difference among Egyptian manufacturing firms regarding continuous improvement practices.

All the Egyptian manufacturing firms as public and private sector having gradual and unending improvements but they differ in their span, information technology used in continuous improvement process and the nature of relationship between the suppliers and the organizations.

- There is significant difference among Egyptian manufacturing firms regarding lean system practices.

The Egyptian manufacturing firms as public and private sectors differ in lean system practices because of lean thinking which based upon the culture of the organizations, and differ also in just in time capabilities among the firms beside that the Egyptian manufacturing firms differ in the standards of quality for supplier's selection.

MANAGERIAL IMPLICATIONS

Based on the findings and results of the analyzed data, the following managerial implications will be introduced to the Egyptian manufacturing companies, these implications mainly concern with information sharing practices and lean system practices as they differ among Egyptian manufacturing companies which indicate that there is a gap between public and private sector concerning implementation of these practices:

1- Egyptian manufacturing companies specifically public sector should build strong IT infrastructure in order to facilitate the information sharing internal and external the firms especially, with customers.

2- Egyptian manufacturing companies should ensure and facilitate the relationship between suppliers and retailers in order to increase information flow within the supply chain.

3- Egyptian manufacturing companies specifically public sector that suffer from a lot of barriers facing application of lean manufacturing system in their companies, so, they should benchmark the successful lean manufacturing systems from private sector in order to enhance their lean abilities and their trading partners abilities also as to enhance performance of supply chain in the public sector manufacturing companies.

Public sector should invest in effective training programs for lean system practices in order to enhance employees` performance and increase the lean learning inside the public Egyptian manufacturing companies in order to have lean culture as a long-term objective in the Egyptian manufacturing companies.

RECOMMENDATIONS

This study focuses on supply chain management practices in Egyptian manufacturing companies.

Therefore, other researchers can study in the following fields:

- Supply chain integration in Egyptian manufacturing companies.
- The relationship between information sharing and supply chain performance.
- Lean supply chain: as an exploratory study.
- The relationship between ERP and supply chain flexibility.

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