Faculty of Technology Management and Technopreneurship

SUPPLY CHAIN MANAGEMENT UTILIZATION BASED ON SCM DRIVERS IN MANUFACTURING INDUSTRY

Jachan a/l Matthew

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JACHAN A/L MATTHEW

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DECLARATION

I declare that this thesis entitled "Supply Chain Management Utilization based on SCM drivers in manufacturing industry" is the result of my own research except as cited in the references. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any other degree.

Signature : .....

Name : JACHAN A/L MATTHEW

Date : .....

APPROVAL

I hereby declare that I have read this thesis and in my opinion this thesis is sufficient in terms of scope and quality for the award of Master of Science in Technology Management.

Signature : .....

Supurevisor Name : PROFESOR MADYA DR
NORFARIDATUL AKMALIAH OTHMAN

Date : .....

DEDICATION

I dedicated this thesis to my beloved parents Matthew M.J s/o Joseph and Rachel K.T d/o Joseph for their endless love and support. To all my siblings Annie, George, Philip, and Valson for being my inspirational to take on this journey.

ABSTRACT

Supply chain management (SCM) plays a significant role in enabling manufacturing industry to gain competitive advantage. However, very little attention has been paid to SCM utilization in manufacturing industry. Therefore, the objective of this study is to determine the SCM utilization in manufacturing industry. This study focus on the management aspects of SCM and provides a theoretical framework to understand company's performance through SCM in achieving competitiveness. The research design which was based on the established and recommended procedures in literature was utilized to determine the nature of the methodology. A quantitative approach through questionnaire development was utilized. Data collection was distributed randomly to 200 respondents among manufacturing industry in Malaysia. 150 completed questionnaires were returned and used to measure the relationship between SCM drivers and competitive advantage. The relationship between SCM and competitive advantage are tested and the inventory, transportation, information technology, and pricing are strongly related to the competitive advantage in manufacturing industry, meanwhile the results show that outsourcing and facility are not strongly related to the competitive advantage. The findings of this study contributed both to the academic and pragmatic realms. This study adds to the literature on SCM. The results have been essential to measure the implications of SCM in manufacturing industry.

ABSTRAK

Pengurusan Rantai Bekalan (PRB) memainkan peranan penting dalam industri pembuatan untuk mendapat kelebihan daya saing. Walau bagaimanapun, penggunaan PRB dalam industri pembuatan mendapat sedikit perhatian. Justeru, objektif kajian ini adalah untuk melihat penggunaan PRB dalam industri pembuatan. Fokus kajian menjuruskan kepada aspek pengurusan PRB dan menyediakan rangka kerja teori untuk memahami prestasi syarikat melalui PRB dalam mencapai daya saing. Reka bentuk kajian yang berdasarkan kepada prosedur dan saranan dalam literatur telah digunakan untuk menentukan metodologi. Pendekatan kuantitatif melalui pembinaan soal selidik telah digunakan. Pengumpulan data secara rawak telah diedarkan kepada 200 responden di kalangan industri pembuatan di Malaysia. Sebanyak 150 soal selidik yang lengkap telah digunkan untuk menilai hubungan antara pemandu PRB dan kelebihan daya saing. Hubungan antara PRB dan kelebihan daya saing diuji dan inventori, pengangkutan, teknologi maklumat, dan harga amat berkaitan dengan kelebihan daya saing dalam industri pembuatan. Sementara itu, keputusan menunjukkan bahawa penyumberan luar dan kemudahan tidak berkaitan dengan kelebihan daya saing. Hasil kajian ini menyumbang kepada bidang akademik dan pragmatik. Kajian ini menambah kepada literatur PRB. Keputusan telah dilakukan untuk mengukur implikasi PRB dalam industri pembuatan.

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LIST OF ABBREVIATIONS

SCM	-	Supply chain management
R&D	-	Research and development
SC	-	Supply chain
IMP3	-	Ninth Malaysia Plan and the Third Industrial Master Plan
MLC	-	Malaysian Logistics Council
UNIDO	-	United Nations Industrial Development Organization
E & E	-	Electrical and electronics
FMM	-	Federation of Malaysian Manufacturers
GDP	-	Gross Domestic Product
MIDA	-	Malaysia's exports of manufacturing products
SPSS	-	Statistical Package for Social Sciences

CHAPTER 1

INTRODUCTION

This chapter provides an overview of supply chain management (SCM) in the manufacturing industry. This chapter includes a background research, problem statement, research objectives, significance of the study and summary of the research. This research has underlined the importance of research on the drivers of SCM in developing countries, especially in the Malaysian manufacturing industry, as SCM could help the manufacturing industry to remain competitive and achieve a competitive advantage. Several contributions of this study are discussed in the next section, followed by an explanation of the terms used in this study.

1.1 Research background

The term SCM was used early in the 1980s for developing management and concepts in the manufacturing industry. In terms of definition, Agus (2011) defined that SCM included the management of supply and demand, supply of raw materials, manufacturing and assembly, storage and inventory tracking, order management, sales across all channels, and delivery to the customer. Many definitions have been used to explain the term SCM because of the frequency with which the term "Supply Chain Management" is used in the present conditions, it can be assumed that this is well understood by the adoption of the concept of managerial practices.

The idea of SCM has been used for many years to maximize customer value and achieve a sustainable competitive advantage (Ubaidallah et al., 2008). In recent years, there have been varied numbers of advances and developments in the field of SCM and techniques (Burgess et al., 2017). Similarly, supply chain with advanced and development can be able to more effectively operate the supply chain in manufacturing industry (Qi et al., 2017). One of the reasons is that with the decline in the trade barriers and increase in the open markets, competition has become more intense and, therefore, the manufacturing industry ought to be more competitive and cost effective. Initiatives to facilitate this could be achieved through SCM. In theory, the utilisation of SCM will lead to competitive advantage through differentiation and lower costs (Porter, 2011).

The importance of SCM can be seen in the manufacturing industry, especially in business process reengineering when there is a problem with delays, the managers have to overlook what causes the delay. Therefore, it must be ensured that the SCM is implemented to minimize the delays (Mazlan and Ali, 2006). Those who are in middle management need to take action in each level of the upstream and downstream suppliers responsible for ensuring that the products and services are delivered at the time as scheduled.

In the manufacturing industry, SCM has emerged as the most important lever to remain profitable (Martinez and Simchi, 2007). For example, in 1990, Dell revolutionised the computer industry with SCM with the direct-to-consumer service and because of this, Dell has saved $ 1.5 billion in operating costs. SCM also includes the value which lies within the portion of the entire SCM. Besides that, analysing and identifying all the non-value activities across the entire SCM for removing the non-value activities is important.

Manufacturers rely on SCM through a network of production units, in order to achieve customer satisfaction. Recently, there have been many developments and improvements in the SCM in the rapid global competition (Groznik and Maslaric, 2010). The manufacturing industry needs to be more cost effective to produce products with reasonable prices and must be able to cater to the competitive markets.

In Malaysia, SCM plays a significant role in the manufacturing and service sectors (Agus and Ahmad, 2017). However, the Malaysian manufacturing industry is facing many challenges, such as globalisation and increasing competition, because many Malaysian manufacturers want to improve their performance in the manufacturing industry (Kamariah and Udin, 2009). Therefore, SCM is very pivotal in the manufacturing industry in Malaysia (Sambasivan and Jacob, 2008). Besides that, manufacturers also have to be flexible to identify new potentials to be competitive in the manufacturing industry.

Competitive advantage has been chosen to be relevant. A company's activities will influence the competitive advantage and, subsequently enhance its quality of product and business performance (Gottschalg and Zollo, 2007). Firms find new ways to achieve the competitive advantage. In fact, SCM is a continuous to advance in the manufacturing industry to achieve the competitive advantage. Manufacturers can get ideas through the utilisation of SCM to change the business process in their firm, and the company must have a plan for effective SCM to achieve the competitive advantage.

1.2 Problem statement

SCM is incredibly vital in the business world and is extensively used in the manufacturing industry. Thus, it is more to the reality then the concept of SCM which determines the importance of SCM even though it could not be fully achieved (Fredendall and Hill, 2016). The utilization of SCM means to be effective user as in many firms today

that are depend on supply chain networks (Christopher et al., 2017). The concept of improving products and services through SCM reduces the production time and price (Jin, 2004). Studies have highlighted the importance of SCM in the manufacturing industry (Yew et al., 2005). In order for the manufacturing industry to be competitive, the management needs SCM to compete with other firms. An organisation's success can be contributed by competitive advantage through the effective utilisation of SCM (Hassini, 2008). Therefore, if SCM is utilised in the manufacturing industry, manufacturer could achieve competitive advantage through a good SCM.

However, many firms in the manufacturing industry compete with other firm to achieve customer satisfaction in the unsteady global competition (Chavosh et al., 2011). To achieve competitive advantage, manufacturers must focus on SCM to remain competitive (Groznik and Maslaric, 2010). Besides that, Arumugam et al. (2011) pointed out that, the number of competitors in the business environment is more challenging due to the increasing competitors nowadays. It is important to improve their business operations through the utilisation of SCM in the manufacturing industry to achieve competitive advantage. Moreover, to compete with global competition, manufacturers need to utilize SCM in the manufacturing industry. This because the market is complex and intense and there is a lot of competitiveness amongst other manufacturers therefore extensive knowledge of SCM is required (Alvarado and Kotzab, 2001). Consumers are seeking reliable products to buy both locally and internationally (Naina Mohamed and Borhan, 2014). The understanding of SCM has become necessary perquisites for maintaining competitiveness and improving profitability in the manufacturing industry.

Furthermore, it is important for manufacturers to adopt SCM due to challenges and competition in manufacturing industry. Among the challenges found that inventory levels at different stages of the SCM will increase due to disruptions (Marley et al., 2014). The

various needs of customer may increase cause the manufacturer to be unable to cope with the changes but through a contract with good outsourcing service, the customer demand can be fulfilled (Babazadeh et al., 2013). In transportation, manufacturers face several challenges in logistics and transportation in the firm (Stank and Goldsby, 2000). Murray (2000) argues that it is less information on the status of SCM in the manufacturing industry. Facility determination is critical to the SCM, and it is important for commercial success and to achieve competitive advantage in the manufacturing industry (Davis, 2011). Finally, the increase in competition has caused the market to become more competitive and firms face challenges in cutting the cost in pricing (Nepal et al., 2015). Therefore, further studies on the implementation of SCM in the manufacturing industry are very important to improve the performance in the manufacturing industry.

The Malaysian manufacturing industry is facing global competitive pressures by becoming more technologically advanced and pushing into higher markets with more value-added products (Yusuf and Nabeshima, 2009). The manufacturing industry in Malaysia is under increasing pressure to deliver quality products and services (Agus and Shukri Hajinoor, 2012). In order to compete successfully in today's challenging business environment, the manufacturing industry in Malaysia should be able to effectively utilise SCM . The distribution of products and services to customers is pivotal for manufacturers in the manufacturing industry to achieve competitive advantage through the utilisation of SCM.

Therefore, manufacturers could face barriers in structural low levels of manufacturing technology and skilled work if SCM not well utilized (Bilici et al., 2017). Furthermore, research on SCM utilisation towards the competitive advantage is still lacking (Shi et al., 2017). Therefore, this research will look into the SCM utilisation due to the challenges and how manufacturers can cope with utilising SCM, and whether or not

SCM will contribute to their competitive advantage. The purpose of this research is to determine the utilisation of SCM in the manufacturing industry in Malaysia. This is because, if SCM is not well managed, the organisation will face quality and information failure, which could result in issues such as low productivity and overstock (Lee et al., 2004). Therefore, this research will look into the SCM utilisation in the manufacturing industry in Malaysia. The next sections will discuss the research objectives.

1.3 Research objectives

The overall aim of this study is to assess the context and status of SCM drivers in the manufacturing industry. SCM drivers is important to manage supply chain in organization and has a valuable effect on customer satisfaction (Al Kattan et al., 2010). This study is important to identify the successful utilisation of SCM drivers in the Malaysian manufacturing industry, and concentrate more on management and the entire manufacturing industry. The objectives of this study are:

1. To explore the awareness of SCM amongst manufacturers.
2. To determine the SCM utilisation based on the SCM drivers.
3. To determine the relationship between the SCM drivers and competitive advantage.

1.4 Research questions

This study has identified the important elements of the SCM drivers in the Malaysian manufacturing industry. It also examined the relationship between the SCM drivers and the competitive advantage. This research would seek to answer the following questions:

1. Are manufacturers aware of SCM in the manufacturing industry?
2. What is the relationship between the SCM utilisation and the SCM drivers?

3. What is the relationship between the SCM drivers and the competitive advantage?

1.5 Significance of the study

This study may help to encourage the manufacturers to improve the organisations activities by utilising the SCM. An organisation may improve its performance through SCM drivers. Furthermore, this study conduct aims to determine the utilisation of SCM drivers in the manufacturing industry to be successful in the current intensive market conditions. Due to few researches have been carried out in the manufacturing industry related to SCM, this study is vital to the contribution to the content knowledge. Apart from that, through this study, the researcher may contribute ideas in regards to the management of the manufacturing industry and how to deal with the SCM by using the SCM drivers that have suggested by the researcher.

1.6 Summary of the research

Chapter 1 begins with the discussion of the SCM background of the study. It is followed by introduction, problem statement, research objective, and the significance of the study. The introduction is about SCM in the manufacturing industry. Besides that, this chapter discusses the most critical and crucial part of the study, which is the problem statement. It highlights that SCM faces several challenges and unsteady competitive in the manufacturing industry. Lastly, the objectives of this study and research questions have discussed followed by the significance of the study.

Chapter 2 begins with a discussion of the background of SCM. It is followed by the drivers of SCM, which is defined as the quality of work to deliver a good customer experience (Simchi-Levi et al., 2008). The independent variables are derived from the SCM drivers based on the past journals from the author (Shahzadi et al., 2013). Thus, the independent variables are discussed based on past literature. In the same way, this study