

Barriers to SCM implementing

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ABSTRACT

Purpose: This paper explores the barriers faced by Malaysian manufacturing companies in successfully implementing the Supply Chain Management (SCM). The study has highlighted some pertinent factors performing the barriers that are most frequently reported by the studied companies. Sixteen companies, from service and manufacturing companies were studied over a period of two years to assess their SCM practices through survey and interview processes.

Design/methodology/approach: This part discusses the research design and methodological issues upon which the research is based. The explanation includes two types of research methods, short survey and follow-up interviews that were identified as being suitable to achieve the aims of this study, which is to identify the current problem of SCM practices within the Malaysian SMEs. Research design is a framework or plan for research used as a guide in collecting and analysing data.

Findings: The results showed that the barriers are depending on the types or group of companies business; such as either it is an SME or a big company. The barriers inhibiting the practice of SCM can be summarized in the following factors: partnership with suppliers, limited expertise, management commitment, understanding of SCM, supported technologies and customer satisfaction. The findings are also compared with the results of a similar study on SCM in other country.

Practical implications: Some suggestions are also offered, which is believed to be a good strategy to the companies to manage the SCM that will lead to sustainable competitive advantage and hence improve their market share.

Originality/value: There are interesting barriers between the companies in Malaysia and other country in the respect of SCM implementation. These findings can be used by both Malaysian and other companies to work together or review the SCM strategies that will lead to sustainable competitive advantage and hence improve their business performance.

Keywords: Barrier; Supply Chain Management; Malaysia; SMEs

1. Introduction

The Malaysian government is well aware that manufacturing sector constitutes a very important element of the industrial community, and considers that strong manufacturing companies can help assure that industrial foundations in Malaysia are firm. In the era of globalization nowadays, many companies (including Small and Medium-sized Enterprise (SME) companies) are urged, and striving for ways to effectively implement the Supply Chain

Management (SCM) to achieve competitive advantage and minimise the manufacturing operation costs. SCM offers organisations the approach to maintain their competitiveness in the global/world market and the approach has also been inspired the organisations to improve their quality control, preserving quality product, enhancing industrial networks and customer satisfaction. Hence, one of the key factors in upgrading competitiveness is considered to be increasing quality performance to a world-class standard, through SCM perhaps.

Malaysia is an equatorial country, which has a uniform temperature throughout the year. This country is well gifted with natural resources such as agriculture, forestry and minerals. Malaysia aims to become a fully developed industrial nation especially in food supply by year of 2020. Malaysia also wants to become a Halal hub for food supply and distribution networks. Hence, effort is now being focused on transforming Malaysia into a truly industrial economy, strengthening and widening the industrial base. It also focused on maintaining competitiveness of manufactured products in the world market. This would enhance the local manufacturing companies, to be a vital engine for the Malaysia's economic growth, especially SMEs.

In 1996, Malaysian SMEs accounted for 22.1 percent of manufacturing sector output and 29.6 percent of employment. However, in year 2005, these shares have increased to 29.6 percent and 31.3 percent respectively, with and comprising more than 90 percent of manufacturing enterprises in Malaysia are SMEs [1]. This SME manufacturing companies are seen as a reflection of entrepreneurial spirit; generators of employment; potential sources of increasing total savings; and also engines of economic growth. According to the government's plan, the focus of improvement programs will be on service and product excellence. Some of the main policy thrusts will reinforce quality implementation techniques such as SCM practices. However, the adoption of robust quality techniques, practices or process, such as good manufacturing practices (GMP), lean manufacturing, online SPC, six sigma and supply chain network are relatively rare in SMEs, and they are increasingly becoming more important in the survival of SMEs manufacturing companies. Malaysian SMEs manufacturing companies should realize that if they want to stay ahead in their business mean that they have to adopt the latest available quality practices.

Therefore, there is a need to study about the current supply chain practices and its barrier, in order to help Malaysian manufacturing companies manage and solve their supply chain problems. Increasing global competition has urged and forced companies to look outside for reliable and potential suppliers or networks in order to achieve supply chain goal, e.g. reduction in costs, product quality improvement and customer satisfaction. Companies are directly impacted from the customer's critical dimensions or satisfaction of cost, price, quality, delivery, flexibility, marketing and profits. A well developed supply chain networks will encourage a joint approach to problem solving and lead to reductions in costs, improvement in quality and export of products [2].

The objective of this article is to highlight the barriers in effectively implementing SCM practices. Knowledge gained from this study would be useful to the companies that are planning to implement SCM. This paper begins with a brief review on the concept, definition and benefits in implementing SCM. It later discussed the results of a study conducted within two years of the study with the selected companies. This article is also highlighted the finding of Critical Success factors (CSFs) based on the application of QFD method. Finally, the authors culminate the paper by proposing some recommendations that could be implemented in order to improving the company business competitiveness and performance.

2. Supply chain practices

Supply Chain Management (SCM) is the process of planning, implementing, managing and improving the operations of the supply chain and its value in entire networks. Before the word of SCM are using in the world of management, all activities in the supply management system such as management, movement of products and services was known as logistics. Roman's army was the first organization who develops the logistic in their management system such as supply system, collective centre (warehouse), stock of magazines, roadway system, shop for repairing telephones, engineering service centre, coordination and extensive planning. Traditionally, organisation views customers or suppliers as an entity in business rather than considering and persuading them for more potential in becoming a business partner. Beginning some four decades ago, organization started to view themselves as closely linked functions whose joint purpose was to serve and fulfil their customers need. This internal integration was often referred to as material logistic management or distribution management [3].

Materials management is a grouping of management function, which is supporting the entire cycle of materials flow, from the purchase and internal control of production materials to the planning and managing of works in production process to the warehousing, shipping, and distribution of finished product to the end user [4]. According to Lawrence & Ed [3], those firms that successfully integrated these functions would improve and sustain their performance. However, there are many organizations were still constrained by other functions in their organizations, which were not integrated, leakage and weak, such as product development and customer's or supplier's unresponsiveness. These types of constraints prevented the organization from quickly responding to any change in demand or supply or both, which can delay their business activities towards meeting the needs of their customers. Recently, many organizations realized and emphasized to further integrate their materials management functions. Therefore, many organizations began to effectively looking and adopting supply chain management practices as one of their key to improve profits, distribution channels and customer satisfaction.

SCM is a cross-functional approach between multi-level organizations in managing the movement of raw materials from an organization or a manufacturer to one another, and the movement of finished goods out of the organization and/or manufacturer toward the end user. Figure 1 below represents the fundamental of SCM flow in manufacturing companies. The SCM activity started at the movement of first raw materials, supplied by the first provider/manufacturer to the other manufacturing organizations; reproduced or repositioning inventory among different plants and distribution centres; and delivering finished product to the end users [5].

The arrows in Fig.1 represent the transportation services or the products movement that are applied to connect all the multiple supply chain entities in a channel or network. The process started from the initial raw materials to the ultimate consumption of the finished product which is involve of interaction between suppliers, manufacturers, distributors, retailers and customers [4]. SCM spans all movement and storage of raw materials; work-in-process inventory; and finished goods from the point of origin to the end user or consumer.

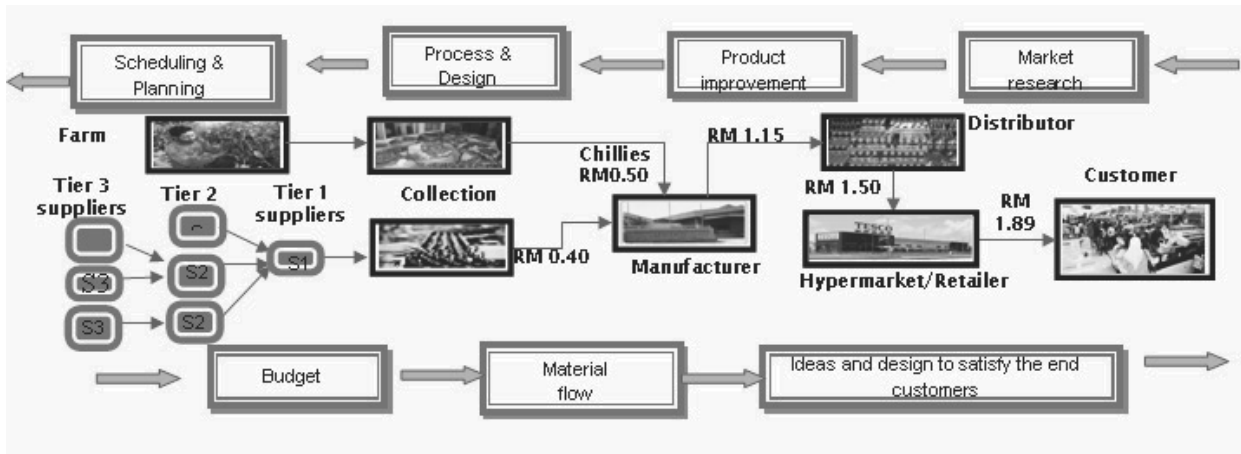


Fig. 1. Fundamental fFlow of Supply Chain Management (SCM)

Table 1. The CSFs of Supply Chain Management

Indicator		Supply chain management Factors										
A. Relationship Code and Score												
3: Means strong relationship												
2: Means medium relationship												
Blank space means no relationships												
B. Number in brackets												
= weighted scores												
= relationship score X Importance score												
e.g: 2 (9) 2: relationship score (9): Importance score												
Primary needs of customer	Secondary needs of customer	* Importance score (Please refer Soln (2005))	18. Responding to Market Fluctuations	7. Effectively usage of CAD, CAE, & CAM systems	1. On time (JIT) delivery to customers	14. Effectively practice customer complaints management	8. Responding to engineering changes	17. Responding to unexpected customer demands	2. Reasonable logistic costs	3. Partnerships with suppliers	19. Top management commitment	9. Company wide quality program
Before-Sales Support and information Availability	1. Ease of ordering	4.5								2 (9)		
	2. Fast acknowledgement of orders	3.5			2 (7)			1 (3.5)		2 (7)		
	3. Availability of information (price, product availability, delivery date etc)	4.5	2 (9)		1 (4.5)		2 (9)	2 (9)		2 (9)		
Delivery	1. On-time delivery	4.8			3 (14.4)		1 (4.8)	1 (4.8)		3 (14.4)		
	2. Complete Delivery	4.5								2 (9)		
	3. Products received in good condition	4.3		2 (8.6)								2 (8.6)
Product Quality	1. Quality of products	5										3 (15)
Reasonable Cost	1. Low product and delivery cost	4							3 (12)			
After-Sales Support	1. Ease of product returns	4.7				3 (14.1)					2 (9.4)	
	2. Speed of product and communication	4.5				2 (9)				2 (9)	2 (9)	
	3. Proactive support	3.5								2 (7)	2 (7)	
Column Scores (sum of bracket scores)			9	8.6	25.9	23.1	13.8	17.3	12	64.4	25.4	23.6
IMPORTANCE RANK (TOP 5)					2	5				1	3	4

It was also defined as a facility network to manage the raw materials, change it into some middle goods and then into a finished goods. The finished goods will be delivering to the customers through the distribution system or network [6]. SCM therefore encompasses the planning, management, enhancing and sustaining all activities involved in sourcing, procurement, communications, technologies and logistics of supply chain management activities. It also includes coordination and collaboration with all stakeholders and partners. Each entity/company is dependent upon its predecessor to keep the entire systems or networks working properly. If there any entity/company in that system fails, the entire systems or networks could be affected.

Efficiently managing the whole supply chain will bring the company toward achieving their goal. The important thing to achieve an efficient and effective SCM is through integrating all entire supply chain networks. This can be done as a process of combination or collection of all supply chain entities. The companies should know the basis of integration before the supply chain entities could be combined. The basis of integration can be clarified by collaboration, partnerships, trust, sharing information, technology and risks, and a fundamental shift away from individual managing the process(es), to managing integrated chains of processes in entire networks [7]. From that, the companies can design a robust integration among its supply chain members within the networks, which are suppliers, intermediaries, manufacturers, retailers, third-party service providers, distributors and customers. According to Ballou [8], the supply chain integration can be started from product design, and incorporate all steps along the process toward the ultimate sale of the items, or perhaps including the services after the sales.

There are three types of SCM implementation, currently practiced by the manufacturing companies. These types of SCM practices are lean supply chain (LSC), agile supply chain (ASC) and hybrid supply chain (HSC) [9]. The choice of using these SCM practices is to guide the manufacturing companies in managing their business totally based on their particular business activities.

3. Methodology

This part discusses the research design and methodological issues upon which the research is based. The explanation includes two types of research methods, short survey and follow-up interviews that were identified as being suitable to achieve the aims of this study, which is to identify the current problem of SCM practices within the Malaysian SMEs. Research design is a framework or plan for research used as a guide in collecting and analysing data. Sekaran [10] discusses research design as an organised plan, systematic, data-based, critical and scientific investigation into a specific problem, undertaken with the objective of finding answers or solutions to it. Choosing a research design depends heavily on the type of information desired, the availability of resources, the capability of researcher and the ability to manipulate the independent variables.

Research method is a system or procedure for conducting the research process. Mainly, the data collection methods in this study consisted of qualitative method. According to Kincheloe [11],

qualitative method strategy is specially suited for small-scale analysis approaches in which allow the researcher to get first hand information about the problem being studied. One method of collecting data in qualitative method is to ask respondents for information on the issues of interest to the researcher [10]. It allows the researcher to come face-to-face communication, meeting or interview. Therefore, it was hoped that the interview approach should help the authors to obtain insights and deeper understanding of the current issues studied. In the preliminary data collection, the survey was conducted by means of short survey; and it was enhanced by follow up face to face interviews. As suggested by Moser [12], to achieve the best results, the use of more than one mode of approach should be considered wherever possible.

Results from the short survey create the basis for the development of the authors understanding and develop motivation to conduct further interviews. However, this paper only focused on the results of interviews conducted. An unstructured interview was considered by the authors, because the authors do not enter the interview setting with a planned sequence of questions. According to Sekaran [10], the objective of the unstructured interview is to express some issues, so that the study can formulate a good idea of what variables need further in-depth investigation.

Interviews were arranged with senior company representatives who had a good knowledge of the company's activities and its approach to quality and business excellence, in order to enhance the findings. The interviews were conducted in both languages, Bahasa and English, depends on interviewee preferred. Each interview session lasted two to three hours, and several visits were made to each company. The visits were held during the two fieldwork periods, both between January to March 2007 and 2008. Data from face-to-face interviews were recorded by note taking. Notes were typed into computers as soon as possible after the interview to ensure that all the details were fully understood. If some of the information was still unclear it was confirmed by a follow-up phone call or through the email. The data collected from interviews was analysed through qualitative content analysis. The data were also analysed through the Quality Function Deployment (QFD) approach [13]. QFD is a useful technique that could be used to determine the significant factors as regards to a product/service manufactured. QFD approach was first used in 1972 at Mitsubishi's Kobe Shipyard and achieved notable success in satisfying the needs and expectations of their customers. QFD is a system for translating consumer requirements into appropriate company requirements at each stage of the product/service development cycle. QFD is not just a quality tool; it is a planning tool for developing new or improving existing products/services [14]. Therefore, the data analysed through QFD is appropriate to distinguish the CSFs to implementing the SCM in Malaysian companies. These factors are considered helpful to be highlighted in this article.

4. Result and discussions

The studies were conducted over a tight time period between 2007 and 2008. Based on the primary study which was involved eleven SME companies in 2007, the study revealed that factors

such as limited expertise in implementing the SCM, higher costs, lead time problems, network development and achieving customer satisfaction are the major barriers against the SCM implementation. Meanwhile, in later study (2008) which were involved another five large manufacturing companies, the study has proven that lack of understanding the SCM concepts, lack of cooperation with other parties in the supply chain development, management supports and data transformation, are currently pertinent issues in implementing SCM. These studies have suggested that lack of expertise and interest by other parties in the SCM, are the major issues and may have a direct impact on the companies ability to effectively adopt SCM practices, particularly if they lack of management supports to lead this programmes. As of interest, this study is also support the results of the study by Quayle [19], in which revealed the majority of SMEs in the UK felt that they had insufficient understanding of SCM and consequently needed external expertise, as well as technology matters and issues. This study is also showed some similarities to the ones conducted by Meehan and Muir [18]. It is hoped that this findings serves as a comparison between companies of different demographics characteristics, namely between those located in developed countries such as the UK, and those in a developing country such as Malaysia. Although possibly lacking in sufficient detail, this comparison could help suggest possible factors behind failures in SCM for the companies. There is not much literature specifically devoted to highlight the barriers for implementing SCM in companies.

According to Mayer, Davis, and Schoorman [16], supply chain integration involves all the members in that entire chain. They are a group of suppliers, manufacturers, distributors, service providers, retailers and customers or end user. This group members need to take the word of trust as their key to achieve the integration in their reliable chain. Trust exists when one member has confidence and willingness to share the risks in an exchange partner's reliability and integrity. Without trust in all members, the problems in information sharing either forecast accuracies or adoption of technologies will be influencing the entire chains and the SCM system cannot be run efficiently. In a short view, this paper is also intended to highlight some findings (see Table 1) on the CSFs for effectively implementing SCM in Malaysia. The analysis was based on ideas gathered in Soim [13]. Table 1 highlights the CSFs for SCM in Malaysian SME Companies, which involve partnership with suppliers, on time delivery to customer, top management commitment, companywide quality program and effectively practice customer complaints management.

The SCM implementation would help and increase their business profits. Through the observation of the literature, there are several constraints that emerged in the implementation of SCM which can make the SCM system run inefficiently. According to Vaaland and Heide [15], SMEs manufacturing companies are less concerned with methods supporting the development of SCM on software application; integration relationship between members in supply chain; and adaptation of new technologies. Manufacturing companies should take initiative to overcome these constraints by giving more concern on SCM implementation. The employee also should be trained how to ensure the quality of the information for doing a proper forecasting. Besides that, the companies must be sensitive toward

the new technologies either software or hardware to make sure that the companies are always up to date.

According to Al-Mudimigh, Zairi and Ahmed [17], in their study, found several factors contributing toward the SCM implementation. The major challenges and barriers cited by them included value chain optimization and its performance, strategy, ability to share the information, vision and directions of SCM, process management, partnership approach, IT integrated infrastructure and speed. In a more recent study, Meehan and Muir [18] found the following contributing factors leading to effective SCM implementation: lack of skilled individuals to drive supply chain development; lack of power in the supply chain, lack of interest by other parties in the supply chain development programmes; lack of leadership skills and lack of experience in managing improvement programmes. They had also suggested that the SMEs should manage the internal dimensions of their supply chain that could be linked and integrated with the external developments.

Likewise, Quayle [19], who studies SCM implementation in the UK SME manufacturing companies, identified ineffective adaptation from traditional adversarial relationships to the modern collaborative technologies i.e. internet based supply chain practice, as a key problem in improving the competitiveness and performance of SCM implementation.

This study is also showed that, one of the constraints is lack of quality data in doing forecasting. In order to perform a proper forecasting, prediction must be based on huge amount of sample data. Besides that, the data are always change due to the fluctuation of market demands, so it must be re-evaluate and refine in order to match reality and provides easy decision making. In supply chain, the activities and its result are always depending on certain data, accurate system and reliable software. These requirements can be solved by collecting more sample data. However, it is hard to collect the business data without cooperation from suppliers, service providers and customers. Therefore the integration should be wisely applied in supply chain networks to make and collect all information needed along the chains. From that, all members or networks can trust and share the information to properly manage their production without any inventory waste or time consuming.

It is also challenging to get the members on board in the internet or online system because they are noticeably reluctant toward the new technologies. The hardware installations are also costly and time consuming. Besides that, the members refused to cooperate in the supply chain because, the SCM does not offer the companies equal and immediate benefits. That why, many companies are not simply jump for the integrated supply chain bandwagon. The reliable vendor is the most significant partner to effectively operate the supply chain. Smart [20] examined the role of the emerging internet-based electronic marketplaces in supporting the SCM, and concluded that the key barriers to internet business application were related to the problem of providing genuine benefits to suppliers and technical limitations. Therefore, the manufacturer should play a main role to meet, discuss and convince the decision-maker in those vendors/members, and the outlines are clearly prepared for them about the benefits of supply chain technology. The members should be informed by the company about the positive result in running the SCM systems and also about the business investment.

The technology is required to bring supply chain and them, onto the online system, in order to make them easier in getting and sharing the forecast as well as planning information.

5. Conclusions

This article discusses the implementation of SCM in manufacturing companies. SCM is a management system, which is started from the process of purchasing raw materials; followed by product manufacturing process(es); and finished it with delivering the product to the end customers or users. There are many methods in implementing SCM that can help the manufacturing companies operate their SCM efficiently. Besides that, a good planning, strategy, infrastructure and management team are compulsory to improve the efficiency of SCM implementation and achieves the competitive advantages. Through the adoption the new technologies in SCM system such as Internet, the companies can easily collect the forecast information, know the current market price and helps in doing a proper forecasting. SCM integration also plays an important role in improving the SCM system through the cooperation; partnerships; and information or technology sharing.

The study showed that there are interesting barriers between the companies in Malaysia and other country in the respect of SCM implementation. These findings can be used by both Malaysian and other companies to work together or review the SCM strategies that will lead to sustainable competitive advantage and hence improve their business performance. The result is also revealed that the barriers are depending on the types or group of companies business; such as either it is an SME or a big company. For this study, the barriers inhibiting the practice of SCM can be summarized in the following factors: partnership with suppliers, limited expertise, management commitment, understanding of SCM, supported technologies and customer satisfaction.

This study suggests that the companies' performance could be improved through effectively implement the SCM and reduce the problems that occurred in the SCM implementation. These problems can be solved by focusing on SCM development and exposed the employee to the SCM implementation. Besides that, trust is the main point in the SCM integration, which are relating to the human elements. By implementing SCM efficiently, the manufacturing companies can achieve their goals. This paper offers some pertinent issues to further study or research looking to effectively implement and develop SCM practices in Malaysia. Future work can be focused on how to practically minimise the barriers in implementing the SCM.

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