INVENTORY MANAGEMENT PRACTICES: A KEY SUCCESS TOWARDS SUPPLY CHAIN PERFORMANCE AMONG INDUSTRIES IN MALAYSIA

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Abstract. Today, logistics networks and supply chain are seen as a matter of survival and competitive advantage. Effective supply chain management has become a potential way nowadays to improve performance through matching supply chain practices and competitive advantages in the competitive world. There are many researches were conducted on the area of supply chain practices and its implication towards supply chain performance. However the researched finding seems contradicting. These contradicting finding may results from different reasons such as the level of management commitment, the costs incurred and also due to its level of workers skills. Inventory management across the supply chain is a big challenge for improving coordination among value chain. Controlling inventory is need of the hour as it formulates the business success/failure as competition is intense, growing day-by-day. This research conceptualizes and develops the role of inventory management strategies and inventory management practices in fostering supply chain performance. The relationships among different factors are going to be tested in proposed framework using Structural Equation Modeling (SEM) to improve the performance of the supply chain. The insight from this proposed framework will help supply chain managers in implementing inventory management strategies and practices to enhance the overall performance of supply chain.

Keywords: Supply Chain Performance, Inventory Management Strategies, Inventory Management Practices, Structural Equation Modeling (SEM) .

1.0 Introduction

Too much inventory and not high enough customer service is very common, but unnecessary. Inventories should neither be excessive nor inadequate, the objective of inventory management is therefore to determine and maintain the optimum level of investment in inventories which help in achieving the required objective [1]. [2] identified supply chain practices as ; inventory turn, gross margin and profit, average in-stock inventory and ability to measure inventory while [3] identified four major primary constructs of competitive advantage as inventory management, customer satisfaction, profitability and customer base identification. [4] revealed that in their survey across 156 companies in India, surprisingly showed that, inventory management is low on the agenda compared to customer service, order fulfillment and quality. The right approach to inventory management can produce dramatic benefits in customer service with lower inventory, no matter how complex company network is. Therefore, [5] suggested that implementation of supply chain management (SCM) practices have greater impact on achieving competitive advantage as well as improving firm's performance.

The differentiate between actual stock with the quantity recorded in the system often occur in Hicom Honda (M) Sdn. Bhd. It is often detected when companies carrying stock take. Inventory shrinkage was create a huge negative impact to a manufacturer that's leads to reduction overall profitability.

The question is, how much error is acceptable? If record shows a balance of 683 of part X and an actual shows 652, is this within reason? Suppose the actual count shows 750, an access of 67 over the record; is this any better? Inadequate inventory has the opportunity cost of lost business resulting in low revenues and excess inventory has the opportunity cost of blocked funds and obsolescence of goods

(Sahay et. al., 2001). This problem can be proved by the record that has been summarized from Stock Take Variation Report December 2012 at Hicom Honda (M) Sdn. Bhd.

Item Group	Recorded Stock	Actual Stock	Variance	**Variance Percent**
CKD Thailand	1,318,832	1,121,535	-197,297	**-15%**
CKD Japan	760,197	650,259	-109,938	**-14%**
CKD Vietnam	1,609,674	1,230,967	-378,707	**-24%**
Multi Source	761,467	719,082	-42,385	**-6%**
Local Part	1,734,925	1,869,903	134,978	8%

(Source : Hicom Honda (M) Sdn. Bhd.)

Table 1.1.1: The variance between recorded stock and actual stock of Hicom Honda (M) Sdn. Bhd for December 2012.

Table 1.1.1 above shows the record of stock take at Hicom Honda (M) Sdn. Bhd for December 2012 and also highlighted the variation between recorded stock and actual stock. For CKD Thailand, the variation shows the actual stock is 197,797 units less than recorded stock which is 15% less. For CKD Japan shows the actual stock is 109,938 units less than recorded stock which is 14% less in variation. While CKD Vietnam shows the variation of actual stock is 378,707 units less than the recorded stock which is the variation is 24% less. For Multi Source, it shows the actual stock is 42,385 units less than recorded stock which is 6% less. But, for Local Parts shows the actual stock is 134,978 units more than recorded stock which is 8% variation. The variation shows there is inventory shrinkage occur in Hicom Honda (M) Sdn. Bhd mostly for CKD Vietnam which is 24% shortage.

According to [6], every production system must have agreement, within some specific range, between what the record says is in inventory and what actually is in inventory. Therefore, to keep the production system flowing smoothly without parts shortages and efficiently without excess balances, record must be accurate. He added that there are many reasons why records and inventory may not agree; the legitimate removal may have been done in a hurry and simply not recorded, parts are misplaced, turning up month later, arts are often stored in several locations, but records may be lost or the location recorded incorrectly, stock replenishment orders are recorded as received, when in fact they never were and a group of parts is recorded as removed from inventory, but the customer order is cancelled and the parts are replaced in inventory without cancelling the record.

Based to the above data in Table 1.1.1 , inventory management problems can interfere with a company's profit and customer service. [1] notified that inventory management consists of everything from accurate record-keeping to shipping and receiving of products on time, therefore, an inventory management that is properly maintained can keep a company's supply chain running smoothly and efficiently. Therefore, organizational leaders should possess and showcase certain leadership style to manage and lead such a difficult task environment, at the same time managing suppliers and customers, ensuring smooth flow of information between organizations and its partners and modifying certain organizational internal process [7].

It is expected that the originality of this study will be judged through its contribution in the extending to the body of literature in the area of inventory management problem related to the specialized in supply chain performance. In the practical aspect, this study may shed light on the industries to find a solution regards to inventory management. The information from this study will give an overall benefit to all

parties in the company and industries to understand the impact and suitable method to reduce or which is better to prevent inventory problem.On the part of the students and graduates, they will get a broad opportunity to expand for future research in the area of inventory management. From the institutional perspective, this study will benefit them in term of assessing their curriculum as to whether it meets the industry expectation and requirements. This research is to study inventory problem occur in the industries. The objective is to identify the factors, methods and impacts that can affect firm's supply chain performance due to inventory strategy and practices. Respondents consist of individuals who were involved directly and indirectly in the management of inventory in the selected industries.

2.0 Studies Related To Inventory Management

The success of supply chain management (SCM) is dependent on adopters developing specific capabilities including designing flexible organizations, developing a trusting relationship with its suppliers, seeking total supply chain collaboration, enhancing communications to reduce uncertainty and inventory levels, outsource non-core competencies, implement build-to-order manufacturing, reduce inventory and reduce cost [8]. There are numerous studies have been undertaken towards inventory management. In a simple words, [9] defined inventory management as controlling the business stock or controlling the flow of goods and services as per their demand while [1] proposed that inventory management as methods that company use to organize, store and replace inventory, to keep an adequate supply of goods at the same time minimizing cost. In manufacturing, inventory management is even more important to keep production running. Every minute that is spent down because of the supply of raw materials was interrupted costs the company unplanned expenses. In this way, inventory management is more than a means to control costs; it becomes a way to promote the business.

The main objective of inventory management is to keep the inventory level of each element of the supply chain stable enough so as to satisfy the requirement of the customers by ordering products from its immediate supplier of the supply chain [10]. As suggested by [9], for proper inventory management, services of middle-men or intermediaries are required which is often known as supply chain. Inventory holding plays an important role in modern supply chains. A survey of logistics costs in Europe identified the cost of inventory as being 13 per cent of total cost of logistics [11]. A similar study in the USA, found inventory cost significantly higher at 24 per cent [12]. Further is was quoted that proper inventory management improves the responsiveness of supply chains which in lieu adds to the organizational performance [13]. Therefore [9] stated that the overall supply chain should be structured to meet the needs of different products and customer groups so as to ensure effective inventory turnover. The alignment of supply chain strategy, inventory management and product characteristics are extremely important for the successful operations of a company [14].

[15] found that for organizations to outperform needs to focus on four key areas ; (1) delivery performance; (2) flexibility and responsiveness; (3) logistics cost ; and (4) asset management. [16] identified five perspectives for performance measurement: financial, customers, internal processes, innovation and improvement, and employees. Due to this, company must focus and take into serious the inventory control and management towards their business. [3] found that staffs working in many organized stores are not well qualified to understand supply chain practices, competitive advantage, and organizational performance. Therefore company must keep in mind all the business dynamics for better organizational performance.

[17]stated that improvement in inventory turns are the responsibility of many functional managers, due to that deep knowledge of the functional activities, an inventory of the skills necessary, as well as the impact of the various skills on functional efficiency and effectiveness are required. Worldwide , be in-class companies have invested in enabling infrastructure and technology to realize their logistics

and supply chain vision into a reality, these include integrated cost models for decisive inventory management, technology for handling supply chain throughput and information systems capable of fostering visibility across organizational boundaries by using supply chain practices such as cross-docking, Collaborative Planning, Forecasting and Replenishment (CPFR), Direct-to-Home (DTH) delivery, bar–codes and Radio Frequency Identification (RFID) [18]. Studies show that modern manufacturing practices such as Just-in-Time [19], Quality Management [20], Vendor-Managed Inventory (VMI) [21] and Information Technology [22] affect overall supply chain performance.

The implementation of proper inventory management does not come without a risk factor and organizations should review the benefits and drawbacks of inventory management as the implementation and the impact of these practices can vary from organization to organization and from country to a country. In one survey regarding inventory management conducted at Jimmy Market & Deli by [23], the result stated that among the barriers for proper inventory management are : 1) maintaining the stock – the owners never consistently stocked items that were not part of the core stock; 2) inconsistent stocking; 3) keeping the owner motivated to keep the produce section stocked; 4) high fixed and variables cost to operate; 5) no experience with inventory management and 6) frequently indifferent to suggestions on ways to improve inventory management such as writing down a list of items that need to be restocked, or other suggestions for inventory control.

3.0 Need Of The Study

Inventory management across the supply chain is a big challenge for improving coordination among members of value chain [24]. [25] have observed that inventory management is an important strategy for improving competitiveness as [1] mentioned, inventory needs proper control because it becomes the largest assets of a business. Previous studies have come across a few direction for future research. [9], suggested that future research can be done by taking into account dimensions like quality management, shared goals and objectives, SCM ethics, transportation management, warehousing management, commitment and collaboration. Future researchers can also under taken regarding inventory management from the perspective of wholesalers and retailers for medium and large scale industries. According to [3], the study revealed, retailed practitioners indicated that they understand the important of supply chain practices but have diverse views regarding matching of practices, competitive advantage and organizational performance. This leads to the gap at the point where customers inputs are needed to be translated into strategies. The retailers should keep in mind all the business dynamics for better organizational performance.

While, [21], in his study shows that for effective implementation of Vendor Managed Inventory (VMI), the management should focus on managerial aspects such as better inventory management, supply chain integration, production planning and control, vendor development, automation of processes, employee involvement, investment in information systems and infrastructure and effective marketing process. Due to that, [21] suggested future researcher can further analyze the importance of these factors for different sectors under different business environmental conditions by using Structural Equation Modeling (SEM) approach. Meanwhile, [25], confirmed the need for implementing quality management as an integrated system instead of just a loose set of quality practices. This is particularly interesting as many firms are focused on tools and practices instead of creating a quality management infrastructure that will lead to long-term positive results. Role of suppliers also been highlighted in assuring low defects levels in incoming materials not only effects quality downstream, it also affects inventory management practices as the need for safety stock to hedge against this type of variation is obviated.

Till date, studies are not initiated to examine the relationship of inventory management strategies and inventory management practices towards the moderating factor of Total Quality Management (TQM)

to further enhance supply chain performance. Therefore, a need was felt for identifying inventory variables and moderating factors which is TQM that can effects overall supply chain performance in the industries.

4.0 Testable Hypotheses

On the basis of in-depth analysis of existing review of literature and its meaningful conclusions, authors develop the following testable hypotheses in order to make the study more reliable and responsive. A detailed description of hypotheses are as hereunder : *Hyp 1: proper inventory management strategies brings in entire supply chain performance, Hyp 2 : effective inventory management practices is positively associated with supply chain performance, Hyp 3 : managers and workers doesn't significantly differs with regard to applying inventory control strategies, Hyp 4 : effective of total quality management in inventory management fosters the supply chain performance*

5.0 Proposed Theory

[26], defined systems theory as theory that explain systems as a set of two or more elements where the behavior of the elements can give effects to the other behavior and systems as a whole and each of the elements are independence. Therefore, systems theory provides the idea of, behavior of such a systems is inter-dependence among the elements that form the organizations. [27], stated that the operational aspects of the systems is depending to the systems elements itself which include the elements of input, transformation, output, control, feedback, boundaries and environment. This study aims the supply chain management as a system, performance as output after went through transformational process and supply chain strategies as input.

5.0 Methods

Methodology is a research method that used to acquiring data or information through research process. Research that planned carefully is important to ensure the research that carried succeed to achieve the research objectives or aims. Research design provides an overall for the collection and analysis of data of a study [28]. In this study, a population survey based on [29], the population is all industries in Malaysia. In order to get a sample in this study, the researchers will get the information from selected industries and retailers. Research conducted in the form of questionnaires. Questionnaires used for the purpose of obtaining information and data concerning the respondents. [30], argues that the study questionnaire to obtain data is the best way of gathering information. The questionnaires collected will be digitised using Statistical Package for the Social Sciences (SPSS) software. Two types of analysis will be used; descriptive statistics and correlation analysis. Descriptive statistics will be adopted to describe phenomena and to describe the study sample via mean, median, range, and frequency of data SPSS. In term of correlation, Structural Equation Modelling (SEM) using AMOS 4.0 version will be used to test hypotheses and validate confirmatory factor model.

7.0 Conclusion

This study provides substantive support for previous findings in the inventory control literature and fresh insight about inventory management. Present study reveals that business economy and efficiency can be enhanced due to effective and frequent inventory control. This study will also investigate the relationship between inventory management strategic and inventory management practices towards supply chain performance. The result of this finding will help organization in assessing their level of inventory control and also will be a guideline what they need to do in order to outperform their organizational performance by using a proper inventory management practices as a tool. Hopefully this study will able to fill in the knowledge gap in the area of inventory management especially the proper

technique of inventory control in assisting the organizations to outperform their performance and make them closer to achieve business excellence.

7.0 References

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