

A Conceptual Framework for Robust Supply Chain Management and Just In Time Practices

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ABSTRACT : *In this paper, Supply-Chain Management practices has been investigated as a significant efficiency-increasing outcome in the production processes and as an approach to an optimized Just In Time (JIT) practices. In addition, the role of Supply-Chain Management (SCM) and the Just In Time (JIT) and the proper way of making use of it are discussed. From there, this method is widespread especially in developed countries and noticeable effects of its usage in obtaining performance and high quality in production have been proved in these countries, it is necessary to study different factors of its acceptability. For perusing useful effects of this system, a comparison has been done in planning systems of production/demand, resource finding/shipping and transportation/logistics with Supply-Chain Management and just in time practices are major subjects discussed in this paper.*

KEYWORDS: *Supply-Chain Management Just In Time, Competitive Advantage, Organizational Performance*

I. INTRODUCTION

Global environment brings forward influences on the change of business strategy and organizational goal. Some of these changes are: (a) the firm will enter into competition on various dimensions, not only one dimension that they have to continue developing business performance and widen product lines, (b) the firm has opportunity to operate its business internationally and faces stronger pressure from the competitors which have been operating in some countries, (c) the firm will be able to make adaptation and integrate the work chain internationally operating in a country or having branches in other countries independently [1]. The present competition is pursuing company to be the best that it can survive in this globalization era. The firm of being the best must have good corporate strategy to get the higher competitive advantage. The process of creating competitive advantage is performed on firm to form a unique system and to get higher competitive advantage compared with the competitors and can be conducted by giving the best (as expected) to the consumer efficiently and can be maintained [2, 3]. Competitive advantage of a firm relies on the company's relative position compared with other companies in global or local market. The competitive advantage can be achieved if the firm has ability to present each process of its business operation in the market better than other firms to produce goods and services of high quality with competitive price, that the products it produces can be more competing in quality, price, product and flexibility than the competitors in the market. The competition forces the business leaders to create new models in operating product and information to satisfy the customers' increasing needs. The current customers do not only need the low price and good quality products, but variety of product is also important and the customers also need speed response, innovation and flexibility [3].

Supply chain management is a cross-disciplinary, cross-industry concept designed to maximize the value-added achieved as product and services, information and financials flow through suppliers and intermediary firms to the end user. Therefore, managing the nature and variety in functions performed by supply chain participants produces a major barrier to inter-firm integration. Such diverse functions include purchasing, production planning, warehouse management, distribution, logistics management and marketing. Supply chain roles predominately fall into two categories is defined as "hard" systems or process centered e.g. engineering or production and "soft" systems participants such as marketers who focus primarily on behavioural issues to satisfy customer demand. Rarely do exponents share, relate to or try to appreciate the other's perspective. Without an appreciation or desire to relate to other roles which are necessary for operating between organizations, the ideal of integrated supply chains capturing value-added for the end user remains only a good concept [4]. SCM as a major driver of organizational performance, that the success-strategic vision of SCM is made on the base of effective management leadership that creating and communicating the SCM strategic vision of Company [5]. SCM is an approach to more efficiently integrating various organizations from manufactures, distributors, retailers, and customers.

It means that goods are produced in proper quantity and in proper place to achieve cost from the minimum-overall system and to achieve the expected levels of service [6]. SCM is only a chain of those who handle the flow of product, it is not a new concept. Theoretical study as a foundation of studying and measuring the variables relationship in this research referring to the grand theory of operational management, SCM is a strategic decision making in operational management [7]. The same condition is referred to *Just in Time* (JIT), that to face the global competition, company is required to increase the competitive superiority, both in domestic and global market. To increase the competitive advantage, many companies apply various models of management, one of them is JIT [8]. Many literatures state that JIT is complementer management practice and giving results higher than applying individually. This research was conducted in manufacture industry because manufacture industry is a leader industry in quality inisiative [9]. Some studies state that the success of JIT application in company can improve the quality of product and service produced by the company, reduce operational cost, and increase customer satisfaction that have influence on financial performance [10,11].

Companies that apply JIT is capable to increase product quality performance resulted by improving process and input quality. In manufacture industries, JIT serves as reducing inventory cost and will be able to improve consumer service through levelled production, reducing set up time, and lot sizes. The application of JIT is focused on the attempt of performing production process without expences on simplifying production process in some areas or practices in the organization [10]. Four areas or practices of organizational management in JIT system are kanban control system, lot size reduction, set up time reduction, and JIT schedulling [10]. Many literatures state that JIT serves some usefulnesses such as improving flexibility, productivity, quality, lead time, set up time and customer responsiveness and inventory level [12]. JIT application is closely related to inventory level reduction and improve inventory cycle resulted from increasing profitability. JIT application is also to increase financial advantage through economically costs caused by product quality increasement, unnecessary costs reduction, better coordination and better relationship between customers and supplier [12]. Competition is the core of success and failure of company; it directs the company to decide the appropriate activities that support the organizational performance. Competitive advantage is the creation of unique and better value. The process of value creation can be conducted by reducing company costs or creating product different from other companies. The research result conducted [13] that supply chain problem in increasing organizational performance is in competitive advantage, high competitive advantage can directly increase company performance [14, 15, 16]. There is a gap from research result testing the influence of competitive advantage on organizational performance, that “there is significant relationship between competitive priority and supply chain performance” is received only for high organizational performance but refused for low performance. The researcher states that low organizational performance has low competence in costs reduction, increasing quality and low delivering performance priority [13]. Competitive advantage has insignificant influence to small organizational performance, but significant for large scale organizational performance. That condition is caused by the difficulty and inability for small firm to operate supply chain having risk on high cost and low competitive advantage of the company toward other supply chain partners [17].

II. SUPPLY CHAIN MANAGEMENT, JUST IN TIME AND COMPETITIVE ADVANTAGE

A firm gains competitive advantage by performing strategically important activities more cheaply or better than its competitors. Supply chain management is redefined as a process for designing, developing, optimizing, and managing the internal and external components of the supply system, including material supply, transforming materials and distributing finished products or services to customers, that is consistent with overall objectives and strategies. Analytically, a supply chain is simply a network of material processing cells with the following characteristics: supply, transformation, and demand [18]. The essence of supply chain management is as a strategic weapon to develop a sustainable competitive advantage by reducing investment without sacrificing customer satisfaction [19]. SCM practice is a multidimensional concept included on the beginning and the end of goods supply chain [14]. SCM is a process of creating products and offered to consumers. SCM refers to a complicated chain from the relationship where organizations sustain with partners to gain raw materials, production and offered to consumers [20]. The previous research results indicated the significant influence of SCM to competitive advantage, that there was positive and significant influence between SCM reflected by the indicators of price, delivery dependability, product innovation, and time to market. Good application of SCM in manufacture companies will be able to increase the competitive advantage [21] JIT is useful for inventory reduction, increasing productivity and product quality [11]. JIT can increase quality performance through improvement of feedback process and company problems identification [10]. JIT focus on lot size reduction makes better the feedback process and reduces the product of being damaged because of the problems leading to out of control [10].

Competitive advantage is the key to secure the company's survival. Industrial company is the main base of the kingdom economy in Jordanian. Therefore, industrial companies play an important role to support the industry development causing competition between regional company and the company from other countries, that there is positive and significant between JIT system application and competitive advantage of industrial company in three dimensions of competitive advantage (production cost, product quality and financial performance), that JIT application reduces production cost, and increase product quality and financial performance of industrial company [22]. JIT practice can be great useful for company to reduce production cost, increase performance, and better quality product that furthermore increase company competitive advantage [11]. SCM and JIT practice is to ensure that supply chain and Just in Time support company strategy [7]. Supply chain design, Just in Time, planning, and operational decision play important role in determining the success or failure of a firm [23]. The key to increase firm performance and competitive advantage lies on the firm ability to build integrative link effectively through team work, coordination and collaboration among the business partners. The success of a company is not only determined by the firm performance itself, but also by the whole chain performance [7]. Companies in confronting global competition need to increase competitive advantage most of the time both in domestic market and global market. To increase competitive advantage, many firm apply various management models, one of them is JIT, that integrating more efficient organizations from suppliers, manufacturers, distributors, retailers, and customers through SCM can give positive influence on JIT: (a) to reduce set – up time and load time; (b) to reduce inventories; (c) in increase inventories; (d) to shorten the reaction time to the customer; (e) to eliminate order-production; and (f) to improve space utilization [8].

III. SUPPLY CHAIN MANAGEMENT, JUST IN TIME AND ORGANIZATIONAL PERFORMANCE

Supply chain management (SCM) execution within organisations is understood as the firm's internal and external integration of business processes with suppliers and customers to create value and to improve the total performance of the chain [24, 25, 26]. There is significant relationship between competitive priority and supply chain performance" is received only for high performance company but refused for low firm performance. The researcher argument is that low firm performance has low ability to perform cost reduction, quality increase, and low delivering performance priority [13]. Inconsistence finding with some previous researchers is referred [17] indicating that competitive advantage does not have significant effect on performance in small firms, but positive and significant effect on big firms, because small firms are difficult to operate supply chain having high cost risk and low bargaining power among other supply chain partners. Expanding global competition, emerging new technologies, and improved communications have increased customers' expectations for full satisfaction with products and services they purchase. Consequently, in recent years, many manufacturing and service companies have been challenged to increase their focus on customer satisfaction and quality of products and services. Confronting the challenges of global competition, companies world-wide are forced to find ways to reduce costs, improve quality, and meet the ever-changing needs of their customers. One successful solution has been the adoption of just-in-time (JIT) manufacturing systems, which involve many functional areas of a company such as manufacturing, engineering, marketing, and purchasing. JIT was developed in Japan in the 1950s and subsequently achieved considerable success at Toyota. JIT can be defined as an operating concept designed to eliminate waste. Waste is defined as anything other than the minimum amount of equipment, materials, parts, space, and workers' time, which are absolutely essential to add value to the product or service [27, 28]. JIT implementation in Mexican firms was positively correlated with performance. Plant size, industry, and the type of production process were all found to affect the relationship between JIT and performance. They also found that having a non-Mexican as the top manager at the plant enhanced the effectiveness of the JIT effort [29]. Research which refused the findings was done, that just in time practice towards companies in America and Japan, covering some firms of transportation, electronic, and machine industry, found that there was not significant relationship between JIT and firm performance [30].

IV. SUPPLY CHAIN MANAGEMENT, JUST IN TIME AND ORGANIZATIONAL PERFORMANCE, THE MEDIATING ROLE OF COMPETITIVE ADVANTAGE

Competitive advantage will bring forward impact on firm performance increase, consumer satisfaction, consumer loyalty, and relationship between companies in chain supply particularly related to reliability, responsiveness, flexibility cost and asset. Competitive advantage is the company ability to create advantage position compared with the competitors and strongly depend on the fitness between internal capabilities and external condition change of organization [31]. Empirical evidence indicated that the influence of competitive advantage toward firm performance [13] indicated that (1) there was positive and significant relationship between BEC and company competitive priority both high and low performance, (2) there was significant relationship between company competitive priority to SCS received only for high firm performance but refused for low firm performance, and (3) configuration suitability between BEC, competitive priority, and SCS have

significant influence to business performance. The contribution of SCM to gaining a competitive advantage is embedded in the concept of relative performance, which can be measured by asking management to compare the company's performance with that of its competitors. The high level of SCM practice can play important role to increase competitive advantage and improve organization performance, competitive advantage can positively and significantly influence organization performance [14]. Mediating effect of competitive advantage explains that the larger the company resources the more possible the company gain advantage performance. The more companies integrated with downstream and upstream supply chain partners, the more increase the demand to create competitive advantage above the competitor. Organizations have been confronted with global competition, indicated that competition between regional companies and multinational companies is getting more increase to gaining customers in domestic market and global market. The global competition forces many manufacturer companies increasing their competitive advantage. There was relationship between firm performance and competitive advantage. The study also stated that high performance company will be able to gain competitive advantage [30]. JIT practice (Kanban control system, lot appraisal reduction and JIT scheduling) significantly increased organization performance, but set up time reduction insignificantly on organization performance. Furthermore, firm performance significantly increased company competitive advantage that this research concluded high performance will be able to gain competitive advantage [32]

V. CONCEPTUAL MODEL

Firms competition individually focuses on competition between network business such as supply chain and just in time. This condition creates new phenomenon more popular with network competition era. That condition enforces the business doers creating new model in operating information and product stream to satisfy the customers' increasing demand. Result of the very firm competition pursues company performing better to survive in this globalization period. One way to do better is company applying good corporate strategy to gain competitive advantage. The company forms a unique system and possesses superiority over the competitors by giving the better (as expected) to the customers efficiently and be able to sustain [2,3]. Concentration on product quality gives two positive effects to business, namely effect toward production cost through production process free of defection (cause more competitive product prices) and effect toward income (product excellent can increase consumer satisfaction) [33]. Therefore, quality standard approvable nationally and internationally is needed to be successful in global market competition, ability to satisfy and increase quality is needed [34,35]. SCM & JIT practice can be increase competitive advantage of product and supply chain system created to firm. The firm needs to take into account SCM and JIT to ensure the supply chain supporting firm strategy. If the operation management supports firm strategy comprehensively, supply chain is designed to support operation management, supply chain design, planning, and operation decision play important role in determining the success or failure of organization [7, 23]. There was an inconsistency from research result in testing the influence of competitive advantage effect on firm performance, There is significant relationship between competitive priority and supply chain performance is received only for high levels of firm performance, but refused for low firm performance [13]. The argument that low level of firm performance has low ability in cost reduction, quality increase and low delivery performance priority. Competitive advantage has not significant on performance in small firm but in big firms the competitive advantage indicated positive and significant effect because small firms are difficult in operating supply chain having risk on high cost and low ability to bargaining among supply chain partner [17]. Based on the statement, the conceptual framework can be described as below.

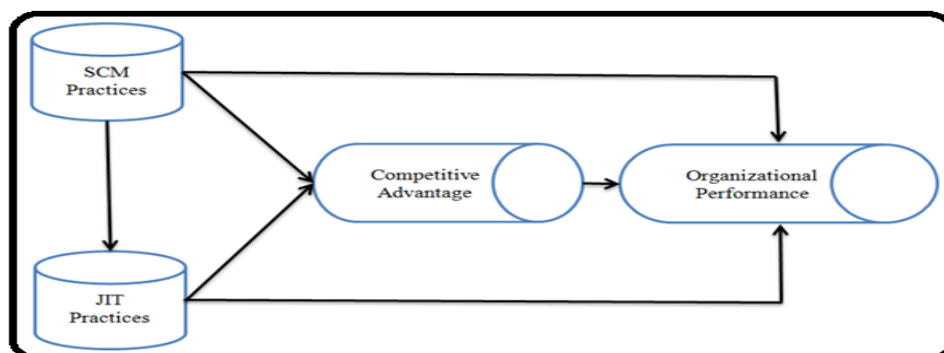


Figure: Conceptual model showing the correlational links.

Effective supply chain management is potential to be a strategy to sustain competitive advantage and increase organization performance caused by the current competition of supply chain management practice [14]. The firms having priority on supply chain management offer new opportunity for firm performance and

competitive advantage with carefully arranging the chain of organization rather than focus on operational issue of organization. Performance appraisal is firm ability to make standards the firm wishes by considering production, cost reduction of materials and handing over limit [36]. Supply chain management practices on supplier strategic partnership can improve supplier performance, reduce time to market. The same condition on information sharing level and quality gives positive influence on consumer satisfaction [25] The link between an organization's competitive strategy and its production operations. The notion is simple enough—namely, that a company's competitive strategy at a given time places particular demands on its manufacturing function, and, conversely, that the manufacturing industry posture and operations should be specifically designed to fulfill the task demanded by strategic plans [37]. JIT provides very little insight as to why the same JIT practices are able to foster competitiveness in one plant but fail to do the same in another plant, Evidence of a positive moderating effect between JIT practices and an infrastructure practice on plant competitiveness exists if the corresponding interaction effect is positive and significant [38]. JIT practice is useful for firm to reduce inventory cost, increase productivity, and better product quality, which at last increase competitive advantage [11]. To create and sustain a global competitive advantage, firms need a systematic approach to exploiting, renewing and enhancing their core capabilities, both in domestic market and global market. To enhance the competitive advantage, many firms apply variety management models, one of them is applying JIT, through more efficient organization from supplier, manufacturer, retailer, and customers, supply chain, capable to give positive influence on JIT: (a) to reduce set-up time and load time, (b) to reduce inventories; (c) to increase flexibilities, (d) to shorten the reaction time to customer; (e) to eliminate over-production; and (f) to improve space utilization [8].

P1: The better of SCM practice, the higher competitive advantage

P2: The better of JIT practice, the higher competitive advantage

P3: The better of SCM practice, the better of JIT practice

The relationship between the practice of SCM covering: customer focus, management leadership, supplier management, human resource management, quality data and reporting, management project, and management process and their influences on financial performance and non-financial performance of firm (operational performance and customer satisfaction). The results presented in this paper show that external customer-firm-supplier relation management positively impacts firm internal contextual factors, which in turn have positive effects on firm performance. This finding suggests that a successful implementation of SCM not only directly improves operational performance, but also indirectly enhances customer satisfaction and financial performance. In addition, higher financial performance is also attributable to better customer value resulting from the achievement of better customer satisfaction [39]. JIT practice in firm can improve the service and product quality, reduce operational cost, and increase customer satisfaction having influence toward financial performance increase [10]. Otherwise, some studies on JIT stated contradictive findings to previous researches, such as study [30] suggested that there was not significant between JIT practice and manufacture performance of some companies in USA and Japan.

P4: The better of SCM practice, the higher level of organizational performance

P5: The better of JIT practice, the higher level of organizational performance

Competitive advantage has positive and significant influence on firm performance [14]. The empirical evidence was supported [13] that competitive priority has significant influence on firm performance, high performance company, but not toward low firm performance. Competitive advantage position as mediates of SCM on firm performance, that good SCM practice is the key of company success [40] Competitive advantage is very important to increase firm performance that the larger the company resources, the more possible the company to gain superior performance. The more companies integrated with upstream and downstream supply chain partners, the more increase in demand that create superior competitive advantage over the competitor. Firm performance has positive influence on competitive advantage compared with the competitors, that good JIT practice can increase organizational performance The mediating role of competitive advantage [10,30].

P6: The higher level of competitive advantage, the higher level of organizational performance.

P7: The better of SCM practice, the higher level of organizational performance the mediating role of competitive advantage.

P8: The better of JIT practice, the higher level of organizational performance the mediating role of competitive advantage.

VI. DISCUSSION

This research presents some statements and research findings derived from theoretical and empirical study. The positive and strongly significant relationship between organizational performance to JIT practices and SCM practices in the plant shows once again the importance of employee participation and involvement for

the successful introduction of new methods and techniques in production organization. This has a two implication. On the one hand, workers must be prepared to be flexible and to perform a wide variety of tasks. At the same time, they must have a positive attitude to facing unexpected problems and be willing to be flexible to adjust to the requirements of the production system. This article fills the gap of influence between SCM practice and JIT practice on organizational performance, by insisting competitive advantage as mediating role to make strong the influence of SCM and JIT practices on firm performance that previous researches indicated inconsistent findings.

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