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Improving Supply Chain Management Process with Key Drivers of Quality Matrix

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ABSTRACT

The system improving process of the business using the supply chain controlling and management is based on the key drivers of the quality matrix. These quality matrixes are normally used to gain competitive edge, gain maximum market share and increase the profit of the organization. The purposes of the key drivers' matrixes are to control and manage the supply chain, inventory, and transportation system, improve communication. The role of information technology is to transfer the information of the firm. All of these key drivers of matrixes have different functionalities to meet the firm's goals. The decisions are the roles, locations, capacity, inventory, transportation and facilities system in term of supply chain controlling for the success of the firm and support the firm from local to international market.

KEYWORDS Supply chain management, Inventory, transportation system, information technology and facilities.

INTRODUCTION

The process of the Supply Chain Management system (SCMS) is to improve the efficiency of the organization with the support of the key drivers of quality matrix. Organizations are using the supply chain key drivers to increase the efficiency and performance with the support of the facilities, inventory, transportation system, information technology, sourcing, pricing and quick response time for supplier side. These all key drivers are interlinked and work together to run the system of the organization with efficient ways [1]. The chain of the supply management is important in an organization as it supports the whole system of the organization or firm. Now a day, there are many business entities and business processes which are involved in the activities of the supply chain controlling and management (SCCM), which includes suppliers, information technology system, manufacturer processes, quality testing ensuring department, distributors and retailers [4]. The business processes are connected with the support of forward and backward integration in effort to perform different operations and networks to run the system of the firm smoothly [3].

Most of the well reputed companies such as Honda, Toyota, Nestle, Wal mart's and many other are still using the effective system of the supply chain controlling and management in local as well as in the international market are also considered as the successful factors of the business environment [9]. Most important factors in the supply chain controlling include the presence of the human resource development and work force. Human resource development and work force includes the employees, top management and suppliers. Both of them play a very significant role in the firm or organization [6]. It can be stated that complete firm or organization is based on these work forces to perform their functions in the system [2]. The research objectives of this paper are to control the system of supply chain and manage it according to the firm's requirements. Secondly, to analyses the subunits of supply chain such as inventory, transportation system, information technology and other related facilities to increase the efficiency of the system.

MATERIALS AND METHODS

Most of the firms are begin with make a competitive strategy and then decided what their supply chain processes are ought to be. The process of the supply chain control and determine that how the chain of the supply should perform with the respect to efficiency and responsiveness. The process of the supply chain must use the six quality matrixes are considered as the cross functional drivers of supply chain [5].The aim purpose of making the competitive strategy is to be reliable, low cost retailer, range world wide of masses consumption of goods and products. Firm such as Honda, Toyota and Hyundai are use the three logistics and three cross functional driver of

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supply chain process system use to run the system smoothly and increased the maximum level of market share.The ability of the supply chain is to share the demand knowledge and information required large investment, on the other hand the outcome has improved with the help of supply chain process in both the ways such as responsiveness and efficiency. The process of the supply chain also makes equal right balance between the responsiveness and efficiency to make its competitive strategy and supply chain strategies are in policy and agreement [7].

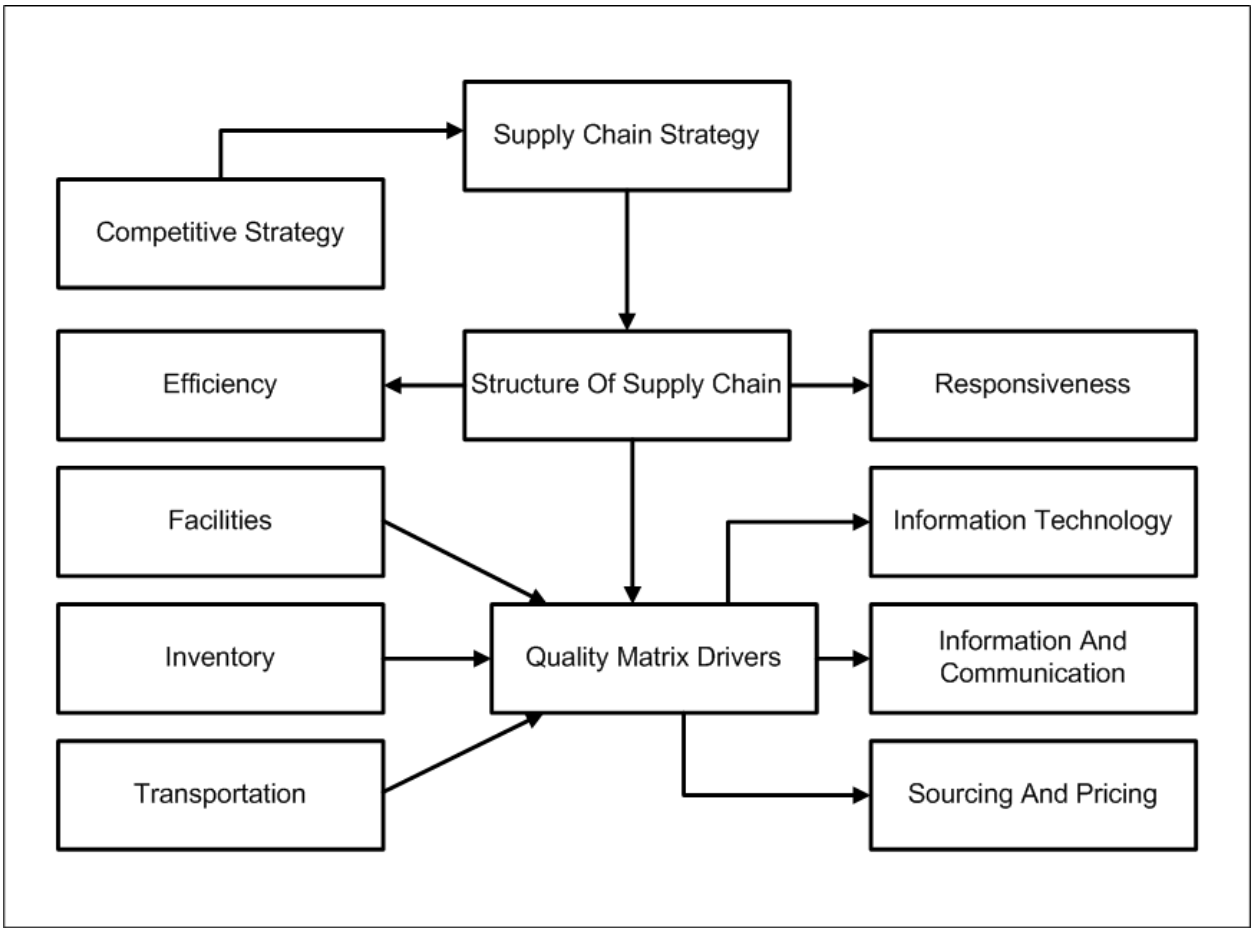

Figure 1 Supply Chain Process of Quality Matrix Drivers

The process of the supply chain controlling in international market with the support of the scope of strategic fit improves the performance of the supply chain. This strategic fit have two major dimensions first one is place on the side of horizontally, this strategic fit is considered across on different supply chain stages. That are starting from supplier and moving all the direction along with customers [8]. Other one is the vertically, where the scope of the strategic fit is apply form competitive strategy, product development strategy, supply chain strategy, and marketing strategy support to increase the efficiency and process of supply chain [8].

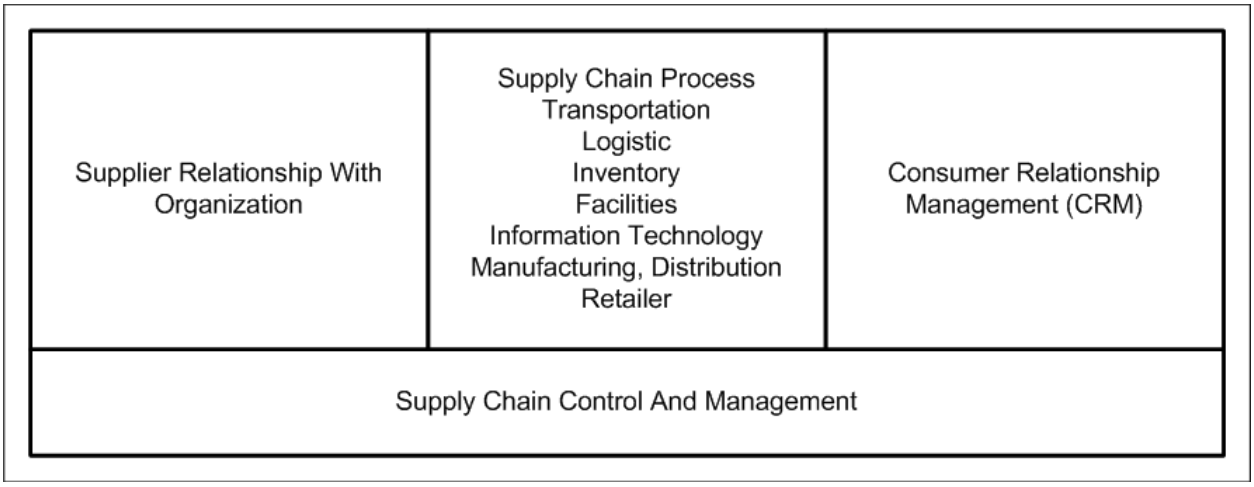

Figure 2 Supply Chain Control System

This is the simple model to control the SCM on behalf of supplier relationship with organization. The relationship of supplier are connected with supply chain process such as transportation, logistic and inventory system, facilities, information technology and communication, manufacturers, distributors, and retailers of the firm, finally the consumer relationship management feedback is dependent upon the system to control the management of supply chain. It is also observed that all of these activities are work together for achieving the organization goals [10].

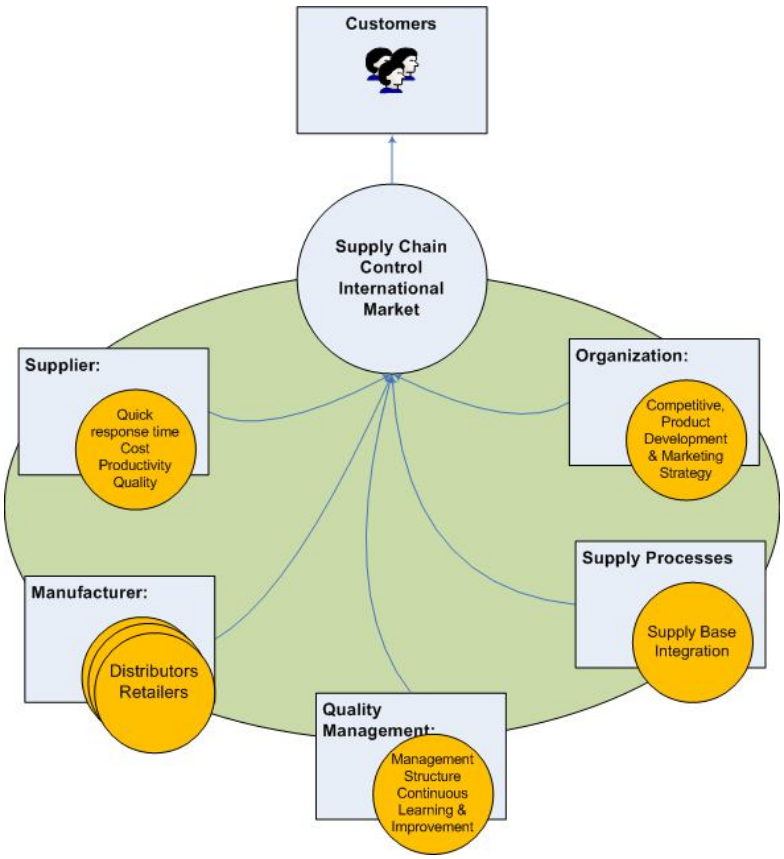

Figure 3 Supply Chain Controlling in International Market[5]

RESULTS

All the data was collected from secondary source, and was converted into quantitative data, which was easier for researcher to apply various tests on the data, it is analysed that deep consideration of the topic "improving supply chain management process with key drivers of quality matrix" is adopted, whereas the secondary source involves internet, newspapers, books, articles, magazines and journals [9]. All the data collected was transformed into graphic aid i-e regression test and different percentages were evaluatedand assessed which supported our study, making easier forthe researcher to understand the research material in effective way.

RegressionThe main purpose of linear regression is to calculate and estimate the value of coefficients in linear equation, involving and contributing one or more independent variables that finest computes the value of dependent variable with the support of 1. "The model summary table shows the value of R=.741, R square=.508, adjusted R square=.502 and standard error of the estimate is 1.342. The main both are interlinked with the dependent and independent variables that were entered into regression model had a mutual Pearson correlation of (R =.741) with dependent variable i.e. quality matrix drivers. The value of R Square the coefficient, (.508), shows that the variable describes (81.8%) variance of quality matrix drivers". Modal summary presents the main variables used in the research paper. They are supply chain, controlling and management, supplier, customer relationship management and quality matrix driver. Thesevariables show variances in the regression analysis and support the study.

Table 1 Model Summary7

Model Summary				
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	.741[a]	.508	.502	1.34265

a. Predictors: (Constant), Supply Chain Control and Management, Supplier, Customer Relationship Management
Quality Matrix Drivers

Table 2 Anova

ANOVA[b]						
Model		**Sum[2]**	**df**	**Mean[2]**	**F**	**Sig.**
1	Regression	940.047	3	546.682	81.835	.000[a]
	Residual	501.250	146	5.488		
	Total	1441.297	149			

a. Predictors: (Constant), Supply Chain Control and Management, Supplier, Customer Relationship Management

b. Dependent Variable: Quality Matrix Drivers

The ANOVA table analysis majorly divided into two main components one is the regression and the other one is residual. The values of the sum2 of regression of 1441.297, degree of freedom=3, mean2 546.682, sig =.000, residual of sum2 are 501.250, degree of freedom=146, mean2 =5.48 and show the F value 81.83%; this dependent variable can be used to predict quality matrix drivers.

Table 3 Coefficients

Coefficients						
Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
		B	Std. Error	Beta		
1	(Constant)	4.753	.756		6.124	.000
	Supplier	.809	.081	.642	9.979	.000
	Supply chain Control and Management	.301	.079	-.271	3.821	.000
	Customer Relationship Management	-.029	.070	-.025	-.412	.000

a. Dependent Variable: Quality Matrix Drivers

It can also be seen in the table of standardized coefficient that the value of the customer relationship management had the highest Beta as=-0.025, Significant at .000 levels, describing the variance in the quality matrix drivers. The second important predictor was found in this study i-e supply chain control and management with Beta Value =-0.271.

Relationship between Response Time and Facilities

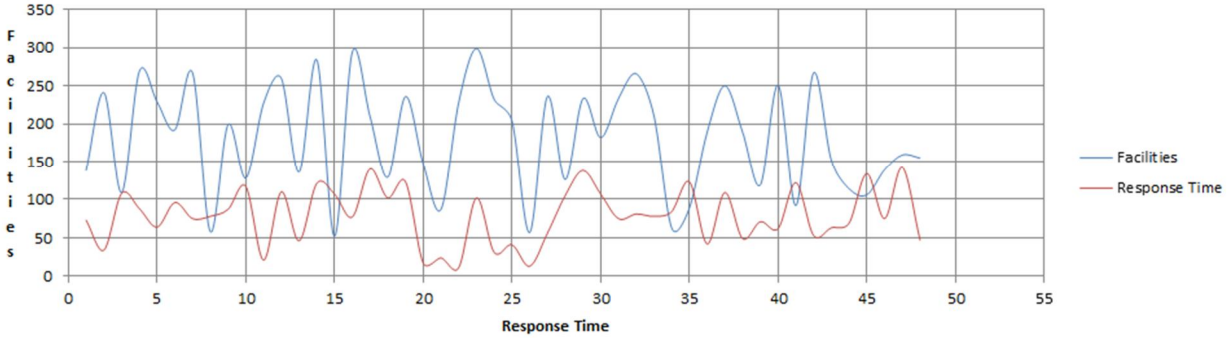

Figure 4 Response time and Facilities

The relationship between the response time and facilities both are integrated with each other, the facilities of the firm are placed on x-axis and response time is on y-axis. The response time is calculated in terms of minutes and facilities are in numbers.

Relationship between Inventory cost and Facilities

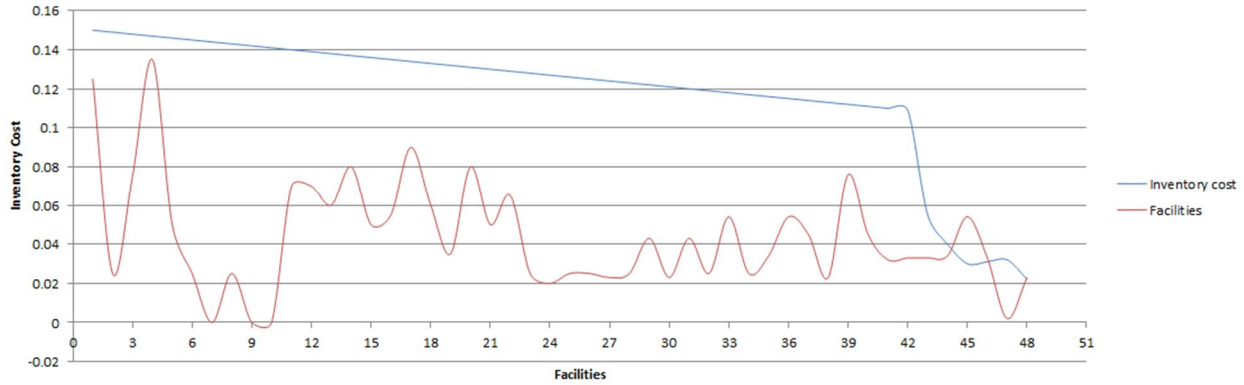

Figure 5 Inventory Cost and Facilities

The relationship between the inventory and facilities are associated with each other, the cost of inventory are calculated in currency and considered as the important part of the firm. Inventory cost is placed on the x-axis and facilities of the firm are placed on y-axis. The above information is mentioned in the graph.

Relationship between Transportation cost and Facilities

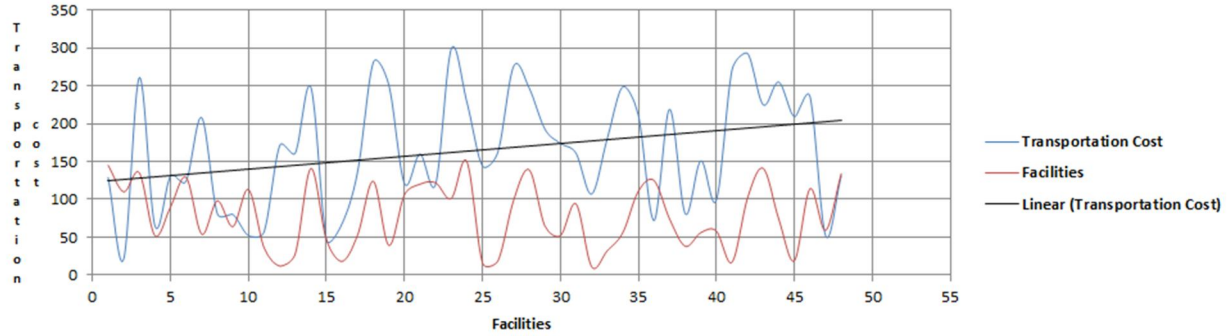

Figure 6 Transportation Cost and Facilities

The relationship between the transportation cost and facilities both are correlated with each other, that is considered as the important resources such as transportation cost and facilities of the firm process of the supply chain.

DISCUSSION

Most of the well reputed firms and organizations are focusing on the good relationship with supplier; it is very difficult for the firm to change the supplier rapidly, and is not consider a very good idea as the firm has to have several challenges. Selecting the supplier is again a very difficult task for the firm because the decision of the selection of supplier is very tough as the budget, response time, quality structure and management of the products or goods is dependent upon the suppliers. Mostly, the top management, executives and the well qualified employees and the centralized and decentralized decisions after making proper analyzing and investigations of the organization's products or goods produced. Various meetings with different groups of suppliers are very important as the selecting the supplier is very big task and a very difficult decision. The key drivers of the supply chain quality matrixes are based on the facilities, inventory, information technology, communication, sourcing, pricing and transportation. Facilities include the physical location of the firms. Secondly, the network of supply chain is mainly controlled by the two components. One is the production site and the other one is storage sites. Both the components have a dynamic role in the firms and their decision of the roles, locations, capacity and facilities support the system of supply chain. The process of the inventory is based on three steps. First step is related to the raw material of the products in the firms, second step is about the work in process for manufacturing of the products, and third step is that the finished goods are made for the consumers. The process of the controlling of supply chain is managed by the feedback of the consumers. The transportation system of the supply chain basically moves the products and services from one place to another. Information and communication, both of these components are used to travel the ideas within the firm and outside as well. Pricing determines that how much the firm will cost for goods and services that its make available in the process of controlling the supply chain. Pricing directly affects the behavior of the consumers and is responsible for the sales and market share of the firms.

Conclusions

The processes and systems of the supply chain are based on the quality of the raw material provided by the supplier to the company. The company then processes the raw material and transforms into the finished good. The system of the supply chain is controlled by the top level management. They are responsible for the centralization and decentralization of the decisions in order to effectively control the supply chain processes. The key drivers of the quality matrix proceeds the processes of the supply chain management, which mainly includes transportation, communication, inventory, facilities, and advancements in the communication technology. These all drivers are consistently working together to gain a competitive edge against the competitors , get hold of maximum market share and increase the profit by increasing the sales of the goods produced by the organization. The role of information technology is very important; its main role is to support the processes of the supply chain management by transferring the information from one department to another. It is analyzed that the highly developed companies have consistently advanced their department of the information technology so that the processes can be done more accurately by increasing the efficacy of the systems. The aspect of communication is very significant. There are mainly two main types of communication, firstly is the internal communication which mainly focuses communication with in the organization such as within the employees, the second type of communication is the communication outside the organization which is mainly the communication with the customers, it includes the feedback of the customers concerning the product or service provided by the company. Their feedback is very important as it is considered as a component to improve the quality of goods and services. It is concluded that the all the components of the key drivers of the quality matrix supports and speed the processes of the supply chain and also control the management of the suppliers. Many firms have and are concentrating on the key drivers as it the one of the techniques to enter in the international market. It is analyzed that the firms are continuously learning the culture, beliefs, norms, values and likes and dislikes of the foreign country that they are about to enter, in order to be successful in the international market.

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The authors declare that they have no conflicts of interest in this research.

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