SUPPLIER MANAGEMENT PRACTICES AND THE PERFORMANCE OF MANUFACTURING FIRMS IN KENYA

[1]Mwangi Nancy Waithira, [2]Prof. Muturi Willy Mwangi, [3]Dr. Noor Ismail Shale

[1, 2, 3] Jomo Kenyatta University of Agriculture and Technology

Abstract: **The purpose of the study was to assess the influence of supplier management on the performance of manufacturing firms in Kenya. The specific objective of the study was to establish the influence of supplier management on performance of manufacturing firms in Kenya. The study focused on the transaction cost analysis theory. The study used cross sectional survey research design. Cross sectional design was justified on grounds that data of different manufacturing firms will be collected at a defined period. The study's target population included supply chain managers in charge of procurement department in manufacturing firms in Nairobi County. The 499 supply chain managers in manufacturing firms were the population for this study. The sample of this study consisted of 222 supply chain managers in manufacturing firms in the Nairobi that were stratified and randomly selected from a list of 499 supply chain managers in manufacturing firms operating in Nairobi in Kenya. This study relied on both primary and secondary data sources. Secondary data was collected for performance of the selected manufacturing firms for the period of between 2012 and 2016. This study utilized a questionnaire to collect primary data. Inferential statistics such as correlation analysis and regression were used to test for the relationship of the variables. The findings revealed that supplier management practices used in this study were significant predictors of performance of manufacturing firms in Kenya. This revealed that there is a significant positive influence of supplier management on the performance of manufacturing firms in Kenya. The study concluded that supplier management plays a significant role in the overall performance of the manufacturing firms in Kenya. The study recommended that manufacturing firms should invest in supplier management to enhance their performance**

Keywords: **Firms' Performance, supplier management, Supply Chain Automation, Supply Chain Optimization.**

I. INTRODUCTION

Supplier Management plays an important role in the reduction of costs and the optimization of performance in industrial enterprises (Caeldries, 2008). Supplier Management is a comprehensive approach to managing an organization's interactions with the firms that supply the products and services it uses. SRM is understood as the sourcing policy-based design of strategic and operational procurement processes as well as the configuration of the supplier management (Kleinbaum, 2008).

According to Kosgei and Gitau, (2016) supplier relationship management is defined as a comprehensive approach to managing an enterprise's interactions with the organizations that supply the goods and services it uses. The goal of Supplier Relationship Management (SRM) is to streamline and make more effective the processes between an enterprise and its suppliers just as customer relationship management CRM is intended to streamline and make more effective the processes between an enterprise and its customers. SRM includes both business practices and software and is part of the information flow component of supply chain management (SCM). According to Cheng (2009), the most common supply chain management practices are supplier selection, evaluation, segmentation and development. These practices are fueled

by some attributes such as trust, commitment, corporate culture, information sharing and the drive to meet obligations among the parties in the chain (Field & Meile, 2008). The chain is however faced with challenges which affect a smooth practice supply chain management. Moore (2012) emphasizes that the relationship that is created in the new paradigm of supplier relationship management creates value in two ways which are; firstly, instances of collaboration have the ability to create value in working relationships which in the long run enhances the value that isderived from each partner.

Proper management of the supply chain has been known to diminish the potential risks and uncertainty that may be incurred by a firm, lead to the optimization of the inventory levels and process cycle time this performance is increased through satisfied customers and increased profit margins (Moore, 2012). In the case of manufacturing firms, the purchasing function must receive enough consideration with the consideration increasing as the cost of outsourcing and purchasing assume a greater portion of the total cost of the manufacturing process.

Taking into account as aforementioned the significance of supplier relationship management, the management of the SRM system is receiving attention (Stevens, 2011) and until in the recent past, most of the attention has been on specific subjects such as purchasing strategy, supplier selection, collaboration and development but studies have been meager on the relationship and networking aspect (Field & Meile, 2008). Research that has been done in the recent past has brought to view the fact that manufacturing organizations is a unit or actor in its own supplier network. More specifically, the business of the company should be viewed from the perspective of a network considering the product value they bring about has its origins in the upstream network of suppliers (Stevens, 2011).

The understanding and practicing of supply chain management has become an essential prerequisite for staying competitive in the global race and enhancing profitably, (Gold, Seuring, & Beske, 2010). Most organizations have begun to realize that it is not only enough to improve efficiencies within an organization but rather making the supply chain management competitive among others will greatly improve their chances of survival.

This is because competition is no longer between organizations, but among supply chains. Intensified competition and globalization of markets over the last decade has contributed to challenges associated with ensuring that goods and services that meet customer requirements are provided in an efficient and effective way (Cooper, & Ellram, 1993) Practicing of supply chain management with key focus on supplier relationships is an essential prerequisite for staying competitive in the global race and enhancing profitably in the market. Gold, Seuring and Beske (2010) found out that there was a great opportunity for organizations to improve its performances through proper use of SRM strategies and therefore recommended that organizations should show more commitment in SRM by having systems to monitor, appraise and evaluate performance at a strategic level.

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2. LITERATURE REVIEW

The theory of constraints is a management philosophy that seeks to increase manufacturing throughput efficiency or system performance measured by sales through the identification of those processes that are constraining the manufacturing system (Goldratt & Goldratt, 2004). Theory of constraints is based on the principle that a chain is only as strong as the weakest link or constraint and to elevate and manage the constraint as necessary (Kairu, 2015). The difficulties in the theory of constraints are: very long lead times, large number of unfulfilled orders or they are executed with much extra effort (overtimes), high level of unnecessary inventories or lack of relevant inventories, wrong materials order, large number of emergency orders and expedition levels, high levels of devolution, lack of key customers engagement, frequent changes or absence of control related to priority orders, which implies on schedule conflicts of the resources (Ceniga & Šukalová, 2014). The theory is founded on the belief that an organization that maximizes the output of every machine will not perform as well as one that ensures optimization of the flow of materials and value created through its operational performance (Sproull, 2012).

Theory of constraints emphasizes focus on effectively managing the capacity and capability of these constraints if they are to improve the operational performance of their organization. This can be achieved by tea processing firms applying appropriate inventory control systems. Companies have struggled to invest in the technology and organizational structures needed to achieve to-date systems synchronization that enable coordinated inventory flows (Fawcett, Ogden, Magnan, & Cooper, 2006). The Theory of Constraints methodology proposes that operational performance is dependent on the application of inventory control systems in tea processing firm (Cox & Schleier, 2010). Theory of constraints is a methodology whose basis is applied to production for the minimization of the inventory. In reality, it is difficult for a tea firm to forecast with precision the consumption of its specific product at a specific region with sometime prior to production and supply of the same product (Noreen, Smith & Mackey, 1995).

Under Theory of Constraints, performance measurements are based on the principles of throughput, inventory dollar days and operating expenses (Umble, Umble, & Murakami, 2006). Theory of Constraints measurements are based on a simple relationship that highlights the influence of inventory control system on progress toward the operational performance. The proof of effectiveness for any inventory control system is the degree to which it improves operational performance of business firms. For tea processing firms to ensure that the bottlenecks on their operations run smoothly they have to embrace the use of inventory control systems that can facilitate operational efficiency (Umble, Umble, & Murakami, 2006). This may result in the acquisition of additional capacity or new technology of inventory control systems that lift or break the constraints. Improving the performance of the constraint leads to improvement in the operational performance of the entire system. The tea processing firms depend on inventory as a resource in their operations. The theory of constraints contributes a lot to the building of literature in this study (Bayraktar, *et at*. 2009).

Boyd and Gupta, (2004) in their studies introduced a theoretical model for Theory of Constraints on Manufacturing Resource Planning and Just-In-Time in manufacturing firms; they suggest that a positive relationship between each of the three Constraints principles and ideas can be used to improve operational performance of tea processing firm in Kenya. Gupta and Boyd (2008) in their research on 'theory of constraints can serve as a general theory in operations' revealed that theory of constraints provides approaches to operations that avoid pitfalls of local optimization by reaching a cross functional boundary in organizations. They also noted that while the theory appears to meet the criteria of a good theory, it has not been empirically tested for the most part. Criticism that has been leveled against theory of constraints includes its sub optimality. Trietsch, (2005), argues that the theory is inferior to competing approach. The theory to establishing an optimal product mix that is likely not to yield optimum results Linhares (2009).

According to Steele (2003) a system comprises of sub systems whose interrelationship and inter dependence move towards equilibrium of a larger system. An event is seen as a whole and not a function of its sub systems (Martinelli, 2001). The focus is on the relationship among subsystems in order to better understand an entity's organization, functioning and results. It also views the organization as dependent on the environment it operates in which involves various parties which include agents, shareholders and other factors beyond the organization control (Mason, 2007).

Systems theory brings together various components of a complex supply chain (that is the human, capital, information, materials and financial resources etc.) to form a subsystem which is then part of a larger system of supply chains or network (Chandra, & Grabis, 2007). The theory argues that for a holistic perspective ST must be employed to understand the internal and external factors that shape an organization's supply chain performance. The theory incorporates various supply chain variables forming a larger system of supply chain networks (Fowler, 2000). It also helps to reveal the extent of dependence between constitutes of the system and a better understanding of the dynamics of the SC hence improve planning, execution and coordination of activities of manufacturing companies.

3. RESEARCH METHODOLOGY

The study adopted a cross sectional survey research design. Cross sectional design was justified on grounds that data of different manufacturing firms was collected at a defined period (Connaway and Powell, 2010). Eriksson and Kovalainen, (2008), research design is a plan that guides the research in the process of collecting, analyzing and interpreting observations; the researcher's blueprint for the methods and instruments used in collecting data and evaluating it, in order to respond to the research questions of the study. The target population of the study was the supply chain managers in manufacturing firms in Kenya, Population is generally a large collection of individuals or objects that is the main focus of a scientific query and to whose benefit the study is done (Castillo, 2009). According to Castillo, a research population is a well-defined collection of individuals or objects known to have similar characteristics and usually have a common, binding characteristic or trait. Burns and Grove (2003) describe a target population as the entire aggregation of

respondents that meet the designated set of criteria. Parahoo (1999) defines population as the total number of units from which data can be collected such as individuals, artefacts, events or organizations. The study's target population includes the supply chain managers in manufacturing firms in Nairobi County. According to KAM (2014), there are a total of 499 large scale manufacturing firms operating in Nairobi where 80 per cent of their members are based. The 499 supply chain managers in manufacturing firms were the population for this study. The study aimed to examine the effects of supplier management on performance of manufacturing firms in Kenya where the following simple regression model was used: $Y = \beta_o + \beta X + e$. Where; β_o is the intercept of the variable Y, β is the the slope or gradient of the regression line which explains the manner in which Y relates with X, X is Supplier management and e is the error term.

4. RESEARCH FINDINGS AND DISCUSSIONS

The hypothesis of the study was that there is no significant influence of Supplier management on the performance of manufacturing firms in Kenya. Table 1 presents the results on the analysis of supplier management costs such as supplier appraisal cost, supplier risk analysis cost and supplier responsiveness in manufacturing sector in Kenya.

Table 1: Descriptive Results for Supplier Management Costs

	Statistics	2012	2013	2014	2015	2016
Supplier appraisal cost	Mean	50669.76	46380.07	57271.79	52237.48	54629.24
	Std. Deviation	28000.82	22026.72	29118.02	29569.25	26801.74
	Minimum	8958	13230	8093	8170	10451
	Maximum	99690	97906	99166	99709	91896
Supplier Risk Analysis cost	Mean	60672.38	50551.55	58000.9	49542.62	56509.9
	Std. Deviation	23470.95	31851.65	27124.42	27244.65	26208.52
	Minimum	11075	7623	8290	10087	12029
	Maximum	93988	99878	99280	97715	98118
Supplier Responsiveness	Mean	53734.07	58972	65558.38	62395.66	49520.14
	Std. Deviation	25439.15	24786.2	22567.28	22112.02	27837.12
	Minimum	11629	6728	20343	21977	6921
	Maximum	91830	97597	99065	99121	95375

The results showed that manufacturing firms averagely spend more on supplier appraisal costs. The average for 2012 was 50 million while in 2016 54 million was averagely spend on appraising the suppliers. The maximum amount spend on supplier appraisal was 91 million while the least was 8 million. The findings further revealed that supplier risk analysis costs and supplier responsiveness costs reduced over the study period.

The results implied that firms prioritize suppliers' appraisal hence the increase in appraisal costs. Kosgei and Gitau (2016) also posited that practicing of supply chain management with key focus on supplier relationships is an essential prerequisite for staying competitive in the global race and enhancing profitably in the market. Al-Abdallah, Abdallah and Hamdan (2014) results also show that two practices of supplier relationship management, supplier partnership/ development and supplier lead time reduction significantly and positively affect the competitive performance of the buying firms.
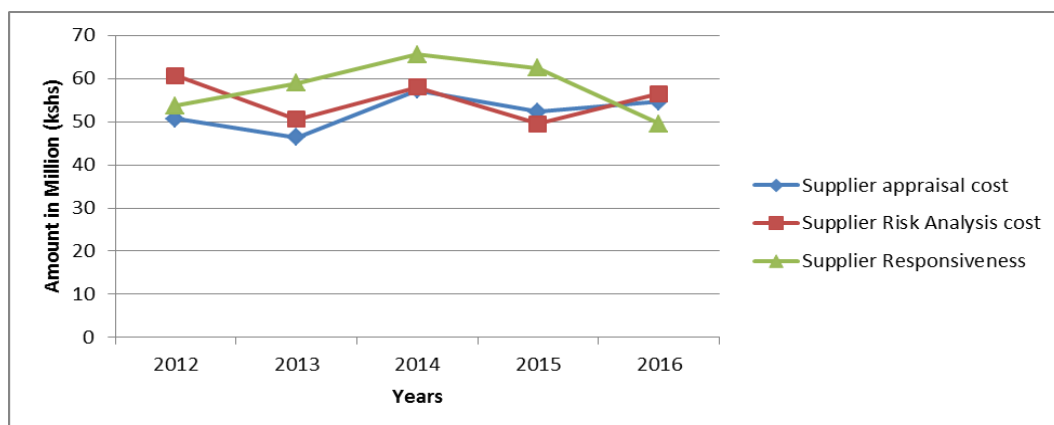
Figure 1: Trends for Supplier Management Costs

The findings presented in figure 4.3 further confirmed that while supplier appraisal costs increased, the costs associated with supplier risk analysis and supplier responsiveness decreased across the study period. These finding indicated that manufacturing industry players in Kenya are conscious of the supplier management costs. The findng also concurs with Kosgei and Gitau (2016) and Abdallah and Hamdan (2014) who pointed out that supplier management is a critical component of ensuring high firm performance.

The objective of the study was to assess the influence of supplier management on performance of manufacturing firms in Kenya. The study also used percentages, mean and standard deviation to analyze the response on supplier management among manufacturing industry players in Kenya.

Table 2: Descriptive Results for Supplier Management in Percentage

Statement	SD	D	N	A	SA	Mean	Std Dev
Our company usually conduct frequent supplier appraisal	2.6	2.6	24.2	36.8	33.7	3.96	0.96
Our company conduct risk analysis for all our suppliers	2.6	3.2	18.9	40.0	35.3	4.02	0.95
Our suppliers respond quickly to the demand of the company	1.1	1.1	9.5	45.3	43.2	4.28	0.77
Our company work closely with all the supplier to demonstrate our worthiness as their customers	0.0	1.1	21.1	38.4	39.5	4.16	0.79
Our company has a trimmed number of suppliers that can easily be management	0.5	1.1	18.4	30.5	49.5	4.27	0.83
Our company has a good communication channels with all the suppliers	1.6	1.1	12.6	49.5	35.3	4.16	0.80
Our company's manageable administrative cost for supplier management	2.6	0.0	13.7	44.2	39.5	4.18	0.86

The study sought to establish whether manufacturing firms usually conduct frequent supplier appraisal. The finding showed that 36.8% and 33.7% of the respondents agreed and strongly agreed with the statement. The mean of 3.96 further showed that majority of the respondents agreed. The statement had a standard deviation of 0.96 which confirmed that the response varied slightly from the mean.

On whether manufacturing firms conducted risk analysis for all our suppliers, the results also indicated that 40.0% and 35.3% of the respondents agreed and strongly agreed respectively. The results further showed that majority of the respondents as shown the mean of 4.2 agreed that their suppliers responded quickly to the demand of the company. The study further sought to find out whether firms work closely with all the suppliers to demonstrate their worthiness as their customers. The results showed that 39.5% and 38.4% of the respondents strongly agreed and agreed with the statement respectively.

The study also sought to establish whether manufacturing firms had overtime trimmed their number of suppliers that can easily be management. The findings showed that 49.5% and 30.5% of the respondents strongly agreed and agreed respectively. The statement had a mean and standard deviation of 4.27 and 0.83 respectively which implied that majority of the respondents agreed and strongly agreed respectively.

The study also sought to establish whether manufacturing firms had a good communication channels with all the suppliers and whether manufacturing firms had manageable administrative cost for supplier management. The statement had means of 4.16 and 4.18 respectively. These finding implied that majority of the respondents agreed that they had a good communication channels with all the suppliers and also they had manageable administrative cost for supplier management.

The findings implied that majority of the manufacturing firms in Kenya had invested in suppliers' management to enhance supply chain optimization. Supplier appraisal, effective communication, supplier risk analysis was among the practices carried out to management suppliers by manufacturing firms in Kenya. Al-Abdallah, Abdallah and Hamdan (2014) results also show that two practices of supplier relationship management, supplier partnership/development and supplier lead time reduction significantly and positively affect the competitive performance of the buying firms.

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The hypothesis of the study was that there is no significant influence of Supplier management on the performance of manufacturing firms in Kenya. The results of the regression analysis were presented in Table 3 to 5.

Table 3: Regression Analysis for Supplier Management and Performance of manufacturing firms

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.613	0.376	0.373	0.57712

a. Predictors: (Constant), Supplier Management
b. Dependent Variable: Performance of manufacturing firms

The model summary results presented in Table 3 indicated that the model had R-square of 0.376 which implied that other factors held constant supplier management alone explained 37.6% of the variation in performance of manufacturing firms in Kenya. The remaining 62.4% variation in performance of manufacturing firms in Kenya was explained by other variables which are not in this model. The findings are supported by Wachira (2013) who concluded that firms in the alcohol beverage industry are moving towards collaborative relationships with their suppliers to improve on their performance. The findings are also supported by Kosgei and Gitau (2016) who established that understanding and practicing of supply chain management with key focus on supplier relationships is an essential prerequisite for staying competitive in the global race and enhancing profitably in the market.

Table 4: ANOVA for Supplier Management and Performance

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	37.776	1	37.776	113.419	0.000
1	Residual	62.617	189	.333		
	Total	100.393	190			

a. Predictors: (Constant), Supplier Management
b. Dependent Variable: Performance of manufacturing firms

Table 4 presented the results of analysis of variance (ANOVA) for the model of supplier management and performance of manufacturing firms in Kenya. The F-statistic obtained was 113.419 with a p-value of 0.000. The findings implied that univariate model used for the influence supplier management and firm performance was statistically significant. The findings revealed that supplier management was a significant predictor of performance of manufacturing firms in Kenya. Thus the null hypothesis was rejected and concluded that there was a significant influence of Supplier Management on the performance of manufacturing firms in Kenya. The findings are in line with Mwirigi (2011) who concluded that there is need for the process of creation of suppliers' relationships in order to enhance growth of small enterprises. The findings are supported by Mwikali and Kavale (2012) who found out that supplier management was a significantly affects the performance of manufacturing firms.

Table 5: Regression Coefficients for Supplier Management and Performance

	β	Std. Error	Beta	t	Sig.
(Constant)	0.962	0.249		3.861	0.000
Supplier Management	0.738	0.069	0.613	10.65	0.000

a. Predictors: (Constant), Supplier Management
b. Dependent Variable: Performance of manufacturing firms

The results in Table 5 shows beta coefficients summary in which t-values were 3.861 and 10.65 with p-values of 0.000 which were less than 0.05 hence the model was statistically significant, thus the beta coefficient 0.962 and 0.738 were statistically significant. The model is defined as $Y = 0.962 + 0.738X_2$, where Y was the Performance of Manufacturing Firms and X_2 was supplier management, this implies that a unit change in inventory control would result to 0.738 units change in performance of manufacturing firms in Kenya. These findings revealed that that there was a significant positive linear relationship between supplier management and performance of manufacturing firms. The findings are supported by Al-Abdallah, Abdallah and Hamdan (2014) results which showed that supplier relationship management practices such as supplier partnership/development and supplier lead time reduction significantly and positively affect the competitive performance of the buying firms. The results are also supported by Kamau (2013) who analyzed buyer supplier relationships and organizational performance among large manufacturing firms in Nairobi and found out that there is a significant relationship between buyer supplier relationships and organizational performance

5. CONCLUSION

The objective of the study was to assess the influence of supplier management on the performance of manufacturing firms in Kenya. The findings of descriptive statistics implied that majority of the manufacturing firms in Kenya had invested in suppliers' management to enhance supply chain optimization. Supplier appraisal, effective communication and supplier risk analysis were among the practices carried out to management suppliers by manufacturing firms in Kenya.

The correlation analysis finding further established that supplier management had a positive, strong and significant influence on the performance manufacturing firms in Kenya. The results of correlation analysis implied that increase in supplier management practices would result to a higher performance of manufacturing firms in Kenya. The findings of univariate and multivariate regression analysis both for primary data and secondary data revealed that that there was a significant positive and strong influence of supplier management on the performance of manufacturing firms in Kenya. The influence of supplier management on the performance of manufacturing firms in Kenya was statistically significant with the p value of less than 0.05, thus the study rejected the null hypothesis that there is no significant influence of supplier management on the performance of manufacturing firms in Kenya hence the study concluded that supplier management significantly influences the performance of manufacturing firms in Kenya.

This study recommended that manufacturing firms should conduct frequent supplier appraisal for instance semi-annually or annually for both the new suppliers and the old suppliers to access their ability to meet the firms demand in terms of variety of products and services required and time frames. This will ensure that the firms maintain trimmed number of suppliers that are easily manageable and can meet the demand of the company. The study further recommended that management of manufacturing firms should work closely with all the suppliers to demonstrate their worthiness as their customers by ensuring a good communication channels with all the suppliers. The study recommended that firms must trim their number of suppliers to a number that can easily be management

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