European Journal of Logistics, Purchasing and Supply Chain Management
Vol.6 No.1, pp.13-25, February 2018
Published by European Centre for Research Training and Development UK (www.eajournals.org)

INFLUENCE OF CUSTOMER RELATIONSHIP ON PERFORMANCE OF MANUFACTURING FIRMS IN KENYA

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ABSTRACT: *The study sought to determine the influence customer relationship practices on organizational performance in the manufacturing firms in Kenya. The target population for the study was the senior staff in supply chain, operations and finance or equivalent managers in the 563 manufacturing organizations listed by Kenya Association of Manufacturers (KAM). The sampling technique was stratified random sampling in based on the 14 sectors as identified by KAM. The study sampled 312 respondents from 104 firms. The study found a positive significant relationship between customer relationship and performance of manufacturing firms in Kenya. Among the aspects of customer relationship that contributed highly to performance of manufacturing firms included exchange of information with customers, ensuring product visibility within the market and incorporating the views of customers in production process. The study recommended the adoption of customer relationship management practices as a way of improving and sustaining performance of organizations.*

KEYWORDS: Customer relationship, Performance, Manufacturing, KAM, Supply chain

INTRODUCTION

Background

Customer relations can be developed by organizations or business for establishing and maintaining relationships with their customers. In the modern world, businesses rise and fall as a result of customer base support. Hence, it is absolutely essential that an organization or business develops effective customer relations (Kumar & Reinartz, 2012). According to Ulaga and Loveland (2014), in order to enable organisations to become more efficient and effective in delivering products and services to customers, knowledge on firms' customers needed to be managed to ensure that the services that were provided by the organizations were those that addressed customer needs. Knowledge management is, therefore, an integral part of customer relationship management and e-business.

According to Feng, Cai, Zhang and Liu (2016), customer involvement is likely to be influenced by the level of information technology implemented by the organization. Cheung and To (2011) supports these findings by positing that customer involvement is related to perceived service performance and that positive relationship between customer involvement and perceived service performance is stronger on customers of a high rather than low level of co-production. Further, Cheung and To (2011) argue that customers and their perceptions of service performance have implications for both managers and consumer services researchers.

The study used profitability, market share and ROA to measure organizational performance of manufacturing firms in line with Carroll, Johansen and Mouritsen (2011) who operationalized performance in terms of market share, return on investment, growth of sales, profit margin on sales, growth of market share and growth of return on investment. Other scholars who have

ISSN 2054-0930 (Print), ISSN 2054-0949 (Online)

also used these measure include Odalo, Njuguna and Achoki (2016) and Ahi and Searcy (2015).

Statement of the Problem

Manufacturing sector has in the recent past experienced performance issues which the study wishes to resolve. The main problems identified by the study include the trade imbalance, drop in GDP and closure of international manufacturing firms in Kenya. The problem has led to reduced government annual GDP, unemployment, inflation and imbalance of trade resulting to weakening and instability of the currency as a result of increased imports. Kenya had been a priority investment destination in Africa but current stagnation in performance has led to international organizations preferring other African countries such as Egypt, South Africa and Nigeria (Lee, Thomas, & Wilson, 2016).

The study postulates that the performance problem may be as a result of poor implementation of supply chain contemporary practices. Supply chain contributes significantly to the development and growth of organizations, more than any other single department in the organization (Christopher, 2016). The study therefore assessed whether by adopting customer relationship practice, manufacturing firms could improve their operations and subsequently improve their performance.

Objective

The study sought to determine the influence of customer relationship on performance of manufacturing firms in Kenya.

LITERATURE AND THEORETICAL REVIEW

Value Chain Theory

Value chain theory entails the process view of organizations in which manufacturing (or service) organizations are viewed as systems which are made up of subsystems with inputs, transformation processes and outputs (Porter, 1985). Organizations engage in various activities in the process of converting inputs to outputs. These activities can be classified generally as either primary or support activities that all businesses must undertake in some form. The primary activities include inbound logistics, operations, outbound logistics, sales and marketing and customer service. The secondary activities include firm infrastructure, human resources, technology development and procurement.

This theory helped the study to determine how organizations were able to link the various activities such as logistics, operations and customer service through the adoption of information technology, procurement and human resource use in achieving firm's objectives. Proper use of the technology and human resources is likely to help the organization improve its performance. The theory supported the customer relationship variable by explaining the importance of incorporating customers in the value chain in an attempt to add value and improve organizational performance.

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Empirical Review

Feng, Cai, Zhang and Liu (2016) investigated the role of customer involvement on new product performance as well as examine the influence of information technology on the relationship between customer involvement and new product performance. The study adopted a survey method where data was collected from 214 Chinese manufacturing firm. The study found that customer involvement was influenced by the level of information technology implemented by the organization.

Cheung and To (2011) conducted a study on customer involvement and their perceptions on service performance. The study reviewed secondary data from responses of 349 Chinese banks customers and analysed using regression analysis. The study found that customer involvement was related to perceived service performance and that positive relationship between customer involvement and perceived service performance was stronger on customers of a high rather than low level of co-production. The study also revealed that customers and their perceptions of service performance had implications for both managers and consumer services researchers.

Bashir, Machali and Mwinyi (2012) carried out a study on the effect of service quality and government role on customer satisfaction using empirical evidence of microfinance institutions. The study surveyed thirty six respondents from K-rep and Kenya Women Finance Trust (KWFT) branches in Mombasa. The authors found out that the effect of service quality on customer satisfaction was positive and significant. The study confirmed that the role of government on customer satisfaction was insignificant. This implies that government needed to develop strategies towards improving the role of microfinance institutions in mitigating the poverty. In order to provide products that customers needed to have, their involvement was paramount.

Research Methodology

The study used a descriptive research design because the study aimed at presenting the findings of the study by observing and describing the behavior of the subjects without influencing them in any way. This study used positivism research philosophy. Positivism research philosophy reflects the belief that reality is stable. Positivist belief that hypothesis developed from existing theories can be tested by measuring observable social realities, thus positivism is derived from natural sciences. The target population for the study was all the manufacturing organizations listed by KAM. According to KAM Directory (2016), there were 563 listed manufacturing firms in Kenya. These firms formed the target population and were the unit of analysis in the study. The unit of observation were the top managers in the three key departments (procurement, operations and finance) of the manufacturing firms listed by KAM. Therefore the targeted unit of observation was 1689 managers.

The sampling frame for this study was the registered organizations listed in the Kenya Association of Manufacturers directory (2016). The study used stratified random sampling technique to select a sample from 1689 senior managers from the 563 listed manufacturing firms in Kenya. The study selected three senior managers from procurement, finance and operations department in each organization. The study also divided the population into 14 strata based on the sectors in the manufacturing firms and sample size of 312 obtained using Yamane formula distributed accordingly as per strata.

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The study used both primary and secondary data. Primary data was obtained from a structured questionnaire to collect data from 312 manufacturing firms listed by KAM. Secondary data was gathered from existing literature, periodicals, journals, government publications, financial statements and websites containing relevant information. The study used a questionnaire to collect data. The questionnaires were self administered. The researcher made use of research assistants who were adequately trained prior to questionnaire administration.

Research Findings

The study sought to collect data from 312 managers in the manufacturing firms listed by KAM in Kenya. However, the study did not realize 100% response as there were non-response incidences during data collection. Therefore, out of the targeted 312 managers, 264 gave adequate information required for analysis. The study hence realized a response rate of 84%. This response rate is good in accordance to Garg and Kothari (2014) who posited that a response rate of more than 70% is good to conduct data analysis.

The study further sought to determine the general characteristics of the respondents who participated in the study. The general information sought was the designation of the managers and the way the operation in the firms were carried out. The findings are presented in this section. The demographic information was sought in order to assist the researcher in determining whether the respondents of the study were a representative sample of the target population for generalization purposes.

The findings of the study indicate 68% of the respondents were procurement managers while finance and operations mangers tied at 16%. The study used designation of managers in the procurement, finance and production departments to obtain information related to supply chain because they were knowledgeable in the subject area line with other scholars in such as Magutu, Aduda and Nyaoga (2015) and Ye, Zhao, Prahinski and Li (2013).

The study also sought to determine how the manufacturing carried out their operations. The findings of the study indicated that 61% of the firms used semi-automated operations, 28% used fully automated operations and 11% used manual types of operations. The findings on operations automation are shown in Figure 1. The study used automation to determine the level of skills and use of technology in the manufacturing firms as postulated by Mathur, Dangayach, Mittal and Sharma (2011).

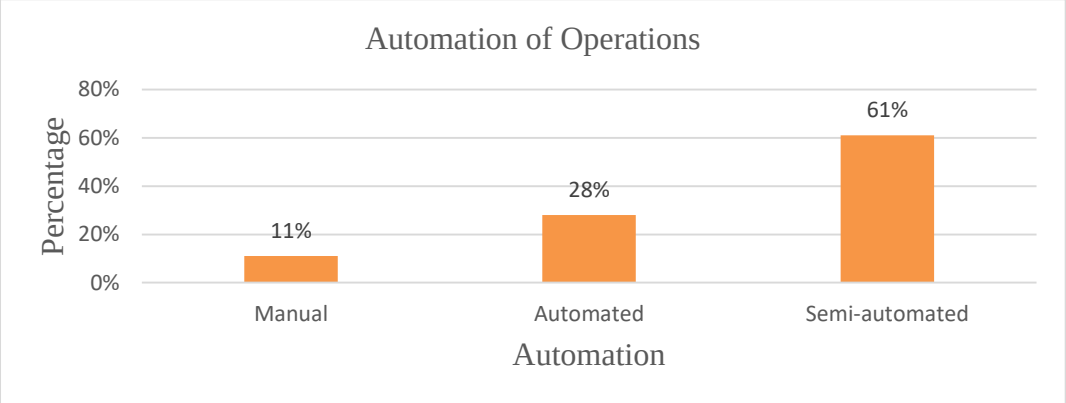

Figure 1: Automation of Operations

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Descriptive Findings

The influence of customer relationship on the performance of manufacturing firms listed by KAM was sought in the study. Means and standard deviations were used to give the findings under this objective. The means were interpreted as follows; A mean value of 0-1 implied the majority of the respondents agreed to the statements to a very small extent, a mean value of 1.1-2.0 implied the respondents agreed with the statements to a small extent, a mean value of 2.1-3.0 implied the respondents neither agreed nor disagreed with the statements, a mean value of 3.1-4.0 means that the respondents agreed to the statements to a great extent and a mean of 4.1-5.0 implied the respondents agreed with the statements to a very great extent.

The findings obtained on the influence of customer relationship on performance indicate that the mean value for all items was above 3.0 implying that most respondents agreed to the statements to a great and very great extents. The findings indicated the majority of the respondents strongly agreed that the organization exchanges information with its customers (M = 4.42, SD = 1.371); customer involvement has helped in product marketing (M = 4.08, SD = 0.983); the products are widely available to customers (M = 4.36, SD = 0.654); and that the organization incorporates views of customers concerning its products (M = 4.05, SD = 0.897). These findings are shown in Table 1.

Table 1: Influence of Customer Relationship on Performance

	N	Mean	Std. Deviation
The organization exchanges information with its customers	264	4.42	1.371
Customer involvement has helped in product marketing	264	4.08	.983
The organization involves customers during its product development	264	3.49	1.013
The products are widely available to customers	264	4.36	.654
The organization has developed training programs for its customers	251	3.69	1.066
The products are well marketed using all forms of media	264	3.99	1.113
The organization incorporates views of customers concerning its products	264	4.05	.897
There is a formal communication department to address customer issues	264	3.97	.972
The organization carries out regular customer satisfaction surveys	264	4.00	1.017

Performance in the study was measured using three constructs namely profitability, market share and return on assets. Profitability was analyzed using income after tax in the organizations for the years 2011 – 2015. Minimum values, maximum values, means and standard deviations were used to present the findings. The results show a general cyclical trend with the minimum value being -2481 and maximum value of 16967367. In the year 2011, a mean value of 1172659.53 was obtained, which increased to 1427401.89 and 1478541.32 in the year 2012 and 2013 respectively. The mean value however dropped to 1329520.89 in 2014 and increased to 2437625.91 in 2015 as shown in Table 2.

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Table 2: Profitability

	N	Minimum	Maximum	Mean	Std. Deviation
Profitability 2011	245	-2481	9023660	1172659.53	1875074.673
Profitability 2012	244	-22465	11186113	1427401.89	2480298.637
Profitability 2013	245	1104	11517327	1478541.32	2179802.735
Profitability 2014	245	3371	12567395	1329520.89	1920153.248
Profitability 2015	245	2743	16967367	2437625.91	3265348.228

Market share was analyzed using the sales for the year 2011 – 2015. There was a cyclical trend in market share as mean values oscillated across the years. The highest mean value was recorded in 2015 (4498060.20) while the lowest value was obtained in 2011 (2021026.55). However, there was increment in sales in 2012(3318930.85) followed by a drop in 2013 and 2014 (2474236.94 and 2313870.27 respectively) then an increase in 2015. The findings on market share are as shown in Table 3.

Table 3: Market Share

	N	Minimum	Maximum	Mean	Std. Deviation
Market Share 2011	264	71706	37236591	2021026.55	2867904.951
Market Share 2012	264	38663	76284575	3318930.85	7951121.348
Market Share 2013	264	125636	87621402	2474236.94	5605723.362
Market Share 2014	264	31892	93120277	2313870.27	5808506.908
Market Share 2015	264	148600	140240088	4498060.20	9309669.316

Return on assets (ROA) is an indicator of how profitable a company is relative to its total assets. Return on Assets was therefore obtained by comparing the average total assets employed by the organization and the net income realized in the respective years. Generally, the findings show that as the organizations employed more assets, initially the income reduced or did not increase proportionately across the years. However, by the year 2014 and 2015, there was a proportional increment in the income with increase in assets as shown in Table 4.

Table 4: Return on Assets

	N	Minimum	Maximum	Mean	Std. Deviation
ROA2011	263	.000000	1.600000	.31921954	.227448829
ROA2012	264	.000000	1.478400	1.09544184	.107720421
ROA2013	264	.000000	1.990000	1.32460375	.264933213
ROA2014	264	.054100	2.149000	1.40995832	.275261491
ROA2015	264	.102400	2.376900	1.49805880	.299609178

Inferential Statistics

The study used correlation and regression analysis to derive inferential statistics for the study. As for the correlation analysis the study adopted Pearson correlation coefficient while regression analysis was done using the fitness model, ANOVA and regression coefficients. The findings in Table 5 indicate that customer relationship and organizational performance had a Pearson coefficient of 0.695. The significant value was obtained as (p = .000) which was below

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0.05 at 1 tailed test conducted in the study. This implies that there was a strong positive significant relationship between customer relationship and organizational performance.

Table 5: Correlation results for Customer Relationship and Performance

		Organizational Performance
Customer Relationship	Pearson Correlation	.695**
	Sig. (1-tailed)	.000
	N	264

**. Correlation is significant at the 0.01 level (1-tailed).

Prior to conducting regression analysis in the study, statistical tests were done to determine if the data collected were accurate, reliable, valid and capable of inferring the study results to the population. Further, the statistical assumptions were done to determine if regression analysis was valid. The study findings indicate that customer relationship had a KMO value of 0.620 and Bartlett's test, $x2(36, N = 264) = 1820.789$, $p = .000$. The test results indicate that customer relationship met KMO threshold of 0.6 and Bartlett's Test of Sphericity threshold of <0.05. The study therefore concludes sampling was adequate for customer relationship variable. The findings are shown in Table 6.

Table 6: KMO and Bartlett's Test for Customer Relationship

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.620
Bartlett's Test of Sphericity	Approx. Chi-Square	1820.789
	df	36
	Sig.	.000

The study further conducted the factor loading analysis to determine the number of variables that were retained. The study found that the first three factors had Eigenvalues of more than 1 representing 76.641% of the total variance explained while the remaining six factors had Eigenvalues of less than 1. Further, the first factor accounts for 43.710% of the variance in customer relationship, the second factor accounts for 20.878% of the variance and the third factor accounts for 12.055% of the variance in customer relationship. All the remaining factors were found to be insignificant and therefore were dropped. The findings are shown in Table 7.

Table 7: Total Variance Explained for Customer Relationship

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.934	43.710	43.710	3.934	43.710	43.710
2	1.879	20.878	64.588	1.879	20.878	64.588
3	1.085	12.053	76.641	1.085	12.053	76.641
4	.847	9.412	86.054			
5	.725	8.061	94.114			
6	.209	2.324	96.438			
7	.185	2.052	98.491			
8	.105	1.169	99.660			
9	.031	.340	100.000			

Extraction Method: Principal Component Analysis.

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A scree plot for customer relationship was also obtained and indicate that three factors had Eigenvalues of more than 1 a shown in Figure 2.

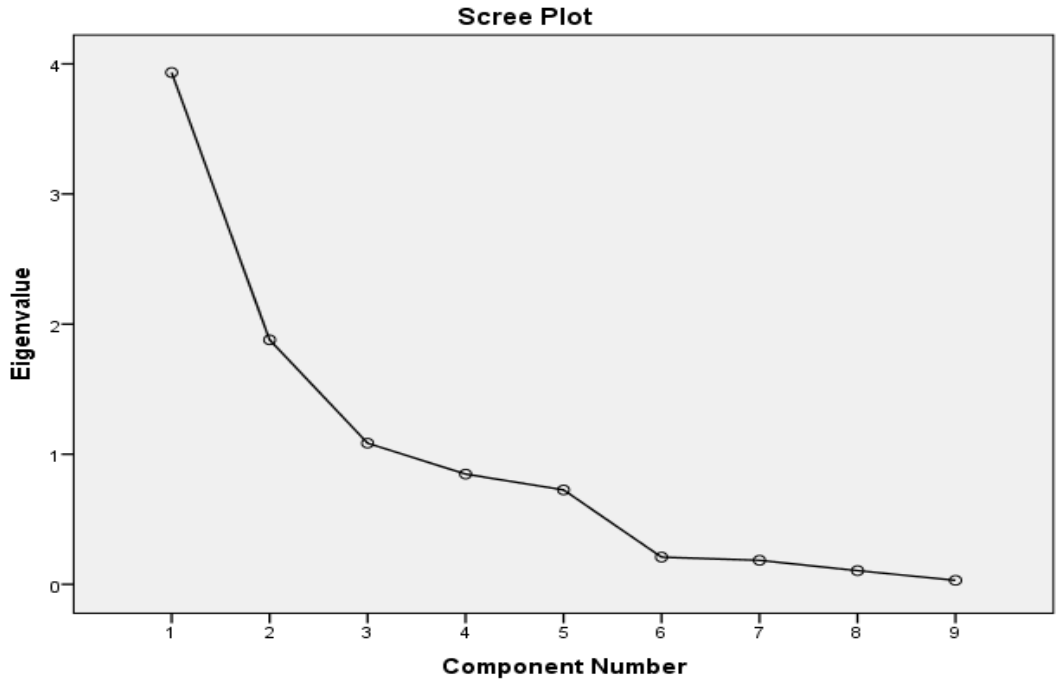

Figure 2: Scree Plot for Customer Relationship

The study sought to determine the factor loadings for customer relationship. The findings obtained indicate that "The organization incorporates views of customers concerning its products" had the highest factor loading in the first component with 0.857, "The products are well marketed using all forms of media" had the highest factor loading in the second component of 0.821 while "The products are widely available to customers" had the highest factor loading in the third component with 0.626 as shown in Table 8.

Table 8: Component Matrix for Customer Relationship

	Component		
	1	2	3
The organization exchanges information with its customers	.636	.246	.302
Customer involvement has helped in product marketing	.776	.318	.464
The organization involves customers during its product development	.639	.546	.418
The products are widely available to customers	.525	.360	.626
The organization has developed training programs for its customers	.594	.669	.168
The products are well marketed using all forms of media	.281	.821	.298
The organization incorporates views of customers concerning its products	.857	.036	.005
There is a formal communication department to address customer issues	.671	.203	.138
The organization carries out regular customer satisfaction surveys	.791	.354	.276

Extraction Method: Principal Component Analysis.
a. 3 components extracted.

Durbin - Watson statistic test was applied to determine whether there is a significant relationship between the dependent and each of the independent variables and whether the

ISSN 2054-0930 (Print), ISSN 2054-0949 (Online)

relationship is linear or not. The study adopted a significant deviation from linearity of greater than 0.05 to imply that the relationship between the independent variable is linearly dependent and vice versa. The findings indicate that there was a linear relationship between customer relationship practices and performance. Customer relationship had a significant deviation from linearity of 0.182, which is above 0.05 threshold set by the study. The findings are shown in Table 9.

Table 9: Linearity Test

			Sum of Squares	df	Mean Square	F	Sig.
Organizational Performance * Customer Relationship	Between Groups	(Combined)	96.982	3	32.327	130.622	.000
		Linearity	96.134	1	96.134	388.439	.000
		Deviation from Linearity	.848	2	.424	1.713	.182
	Within Groups		64.347	260	.247		
	Total		161.330	263			

Normality test was done using Shapiro–Wilk test and Kolmogorov Tests. The study conducted normality test at 95% confidence interval for mean where the p-value was compared to determine whether to reject the null hypothesis meaning that data was either normally distributed (greater than 0.05) or not (less than 0.05).

The findings indicate that customer relationship had Shapiro-Wilk p value of 0.050 and Kolmogrov-Smirnov p value of 0.059, which is higher than the significant value of 0.05 as shown in Table 10.

Table 10: Normality Test

	Customer Relationship	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Organizational Performance	2.000	.407	6	.059	.640	6	.050
	3.000	.381	41	.000	.744	41	.000
	4.000	.453	142	.000	.456	142	.000
	5.000	.511	75	.000	.243	75	.000

Homoscedasticity test was carried out to determine the circumstance in which the variability of a variable is equal across the range of values of a second variable that predicts it. This was achieved through use of homogeneity tests. When the level of significance associated with Levene statistic is more than 0.05 at 5% significance level, then the variances are homogenous.

From the study findings of test for homogeneity, the probability associated with the Levene Statistic for customer relationship is 0.062, which is more than 0.05 testing at 5% significance level, which implies that the variances are homogenous. The findings are shown in Table 11.

Table 11: Test of Homogeneity of Variance

	Levene Statistic	df1	df2	Sig.
Customer Relationship	9.326	4	259	.062

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Regression Analysis

The study sought to determine the relationship between customer relationship and performance of manufacturing firms in Kenya. The study conducted regression analysis using a simple regression approach where regression analysis was run and results tabulated. The purpose of regression analysis was to determine the influence of customer relationship on performance and whether the model was statistically significant. The results are presented in Table 12.

The model shows the influence of customer relationship on performance. The R^2 value for the relationship between customer relationship and performance was 0.483 implied that 48.3% of the variation in performance could be attributed to changes in customer relationship in the manufacturing firms of Kenya while 51.7% of the variation can be attributed to other factors other than customer relationship. The findings imply that customer service was an important antecedent of performance in manufacturing firms.

Table 12: Regression Results for Customer Relationship

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics R Square Change	F Change	df1	df2	Sig. F Change
1	.695[a]	.483	.481	.66759	.483	245.193	1	262	.000

a. Predictors: (Constant), Customer Relationship

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	109.277	1	109.277	245.193	.000[b]
	Residual	116.767	262	.446		
	Total	226.044	263			

a. Dependent Variable: Organizational Performance
b. Predictors: (Constant), Customer Relationship

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.701	.229		3.064	.002
	Customer Relationship	.890	.057	.695	15.659	.000

a. Dependent Variable: Organizational Performance

Using the ANOVA results, the significant value for the model was 0.000 which is less than 0.05 at 95% confidence level. The model was also significant as shown by F value, $F = 245.193$. This implied that the model was reliable in predicting the relationship between customer relationship and performance. The study used the coefficients table to test hypothesis. Therefore, the following alternative hypothesis was tested;

H_a: Customer relationship has a positive significant influence on performance of manufacturing firms.

According to the findings, customer relationship had coefficients ($\beta = .695$, $t = 15.659$, $p = .000$). The significant value obtained was less than 0.05 set by the study, similar to the t value which was more than 1.96 at 5% significant level. The results therefore implied that there was

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a positive significant relationship between customer relationship and organizational performance in the manufacturing firms of Kenya. Based on the findings, the study rejected the null hypothesis and therefore confirmed that customer relationship had a positive significant influence on performance of manufacturing firms.

Based on the ordinary least square model; $Y= \beta_0 + \beta_1 X_1 + \varepsilon$, the ordinary least model therefore will be; $Y = 0.701 + 0.890X_1 + 0.229$ which implies that a unit increase in customer relationship will lead to 77.7% increase in performance. The findings there postulate that customer relationship is a critical determinant of performance in the manufacturing firms in Kenya.

Discussion of the Findings

The findings obtained in the study agree with those of Abdul, Basri and Shaharuddin (2013) who suggested that the dimensions of customer relationship management which included customer orientation, customer relationship management organization, knowledge management and technology based customer relationship management had a positive and significant impact on different perspectives of performance. The findings also align with those of Akroush, Dahiyat, Gharaibeh and Abu-Lail (2011) who determined that there was a positive and significant relationship between customer relationship management and business performance which comprised of financial and marketing performance indicators.

Further, the findings of this study supported the argument by Ulaga and Loveland (2014) who established that in order to enable organisations to become more efficient and effective in delivering products and services to customers, knowledge on firms' customers needed to be managed to ensure that the services that were provided by the organizations were those that addressed customer needs. The present study findings are in agreement with the findings of Ehsani and Hashim (2015) who studied the relationship between customers perceived value with performance in Automaker Company of Iran. The study findings indicated that there were significant relationships between customer relationship and performance. Further, the study findings agree with the findings of Cheung and To (2011) conducted a study on customer involvement and their perceptions on performance. The study found that customer involvement was related to perceived performance and that positive relationship between customer involvement and performance.

Implication to Research and Practice

The findings implied that customer relationship was therefore an important factor in determining performance of manufacturing firms. The regression coefficient findings confirm the importance of customer relationship by indicating that there was a positive significant relationship. It is thus important for organizations to invest in customer service practices such as early customer involvement (ECI) and promoting practices that ensure customer satisfaction as the findings have demonstrated that they have a direct influence on performance of the firm.

Conclusion

The study concluded that the manufacturing firms in Kenya had heavily invested in customer relationship practices. This could be attributed to strong relationship between customer relationship and performance of the manufacturing firms. Among the aspects of customer relationship that were widely practiced within the industry included exchange of information with customers, ensuring product visibility within the market and taking incorporating the views of the customers. The study therefore concluded that to realize more profits and

ISSN 2054-0930 (Print), ISSN 2054-0949 (Online)

consequently higher performance, it is important for organizations to heavily invest in customer service as customer relationship has shown to have the strongest influence on performance compared to other contemporary supply chain practices in the study.

Recommendations for Future Research

The study recommended the adoption of customer relationship management practices as a way of improving and sustaining performance of organizations. The study found a strong positive significant relationship between customer relationship and performance. The study therefore recommended that there was need to invest in customer relationship management systems involving information technology as the study determined that information technology was a key complement of customer relationship management.

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ISSN 2054-0930 (Print), ISSN 2054-0949 (Online)