

# EFFECT OF VALUE CHAIN MANAGEMENT ON A FIRM'S COMPETITIVE ADVANTAGE: A CASE OF EAST AFRICA PORTLAND CEMENT LTD

<sup>1</sup>Isabelle Nyakerario Nyanaro, <sup>2</sup>Dr. Jared Deya

<sup>1,2</sup> College of Human Resource and Development, Jomo Kenyatta University of Agriculture and Technology  
P.O Box 62000,00200 Nairobi, Kenya

Corresponding Author email: [isabelnyanaro31@gmail.com](mailto:isabelnyanaro31@gmail.com)

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**Abstract:** This research focused on the effect of value chain management on a firm's competitive advantage: a case of East Africa Portland Cement Ltd. The background of the study gives an overview of the structure, characteristics, and dwindling performance of the cement industry in East Africa and Kenya, highlighting the key players alongside their individual market share. The study was based on three theories. The value chain theory elaborates on the creation of value through linkages between activities that can be the basis of competitive strategies while, the resource based view and strategic factor markets theory elaborates on the significance of the acquisition and use of key resources by a firm seeking an advantage over its competitors. A descriptive survey research design was applied to gather data. The research targeted a population size of 150 employees of East Africa Portland Cement Ltd based at its head office in Athi River. Stratified random sampling method was used to select an appropriate sample size. A structured questionnaire was employed to collect primary data from respondents. These questionnaires were distributed to 45 employees. Correlation was used to analyze the data collected and descriptive statistics used in presenting it by use of statistical tables and bar graphs. The study revealed that value chain management had a positive effect on the competitive advantage of EAPCC. It further revealed that proper inbound logistics, operational management, outbound logistics management and sales and marketing logistics management influenced the way the company competed with other like institutions. The study recommended improved differentiation of products in order to increase penetration and market share of EAPCC and gain a strong competitive advantage over the competitors.

**Keywords:** Competitive Advantage, Inbound Logistics Management, Outbound Logistics Management, Value Chain Management.

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## 1. INTRODUCTION

### Background of the Study

The current business environment is competitive (Sahay& Mohan, 2013). This requires each business enterprise to be keen on their customer service delivery, employ working supply chain systems, and ensure smooth flow of operations. Despite the competitiveness, internal and external functionality of a company should be interlinked for efficient performance (Arawati, 2011). The speed of service delivery is dependent on the provider, their supplier and the manner in which such service is provided. Slow inbound logistics will derail operations and therefore, employed strategies may not bear fruitful progresses.

Current management system are faced with global challenges emanating from security of operations, globalization, changing industrial costs and regulatory pressures which either decrease or increase demand for goods and services

(Muhammad, 2014). Customer loyalty is a concern for every business as this is significant in improving customer retention rates. Business delivery and supply system are dually significant in achieving high enterprise performance. Current supply trends and competitive changes in the global business are unpredictable (Sahay& Mohan, 2013). Muhammad, Qayyum, Ali and Shazad (2012) opine that customer differentiation, understanding efficient supply operation systems and sustainable business strategies will address these unpredictable changes.

Muhammad *et al* (2012) points out firms have to adopt valuable methods, strategies and techniques to compete effectively in a stiff market.

## 2. SPECIFIC OBJECTIVES

The study was guided by the following specific objectives.

1. To assess the effect of inbound logistics management on a firm's competitive at East Africa Portland Cement Ltd
2. To evaluate the effect of operational management on a firm's competitive advantage at East Africa Portland Cement Ltd
3. To determine the effect of outbound logistics management on a firm's competitive advantage at East Africa Portland Cement Ltd
4. To analyze the effect of marketing and sales management on a firm's competitive advantage at East Africa Portland Cement Ltd

## 3. METHODOLOGY

### Research Design

The study adopted descriptive research design in order to provide a framework to examine current conditions, trends and status of events. Descriptive research design is more investigative and focuses on a particular variable factor. It is analytical and often single out a variable factor or individual subject and goes into details and describing them. According to Cooper and Schindler (2003), such a study is concerned with finding out who, what, when, where and how of the relevant phenomena. This enabled the researcher to collect original data from the sample population and thus saving time and resources. Descriptive design was therefore the most appropriate design for the study.

### Target Population

There are currently 147 operational Parastatals in Kenya (See Appendix E), however, the study focused on Higher Education Loans Board as the target population. The population of interest was the best fitted as they have traditionally been involved in strategy implementation like in embracing new technologies and so would always want to achieve efficient strategy implementation for maximum customer satisfaction while curbing the internal organizational factors that affect strategy implementation. The researcher therefore, dispensed self-structured questionnaires to the desired sample in order to collect rich and objective primary data required for the study. In order to get adequate information on successful strategy implementation, the researcher targeted all the management and supervisors of higher education loans board.

**Table 3.1: Target Population**

Department	Target Population
Top managers	31
Project managers	21
Operation staffs	177
Total	229

Source: (Higher Education Loans Board, HR Manual, 2018)

### Sampling Frame

Sampling frame of the study included all the three levels of management at the HELB (Top Managers, Project Managers and the operational staff). Mugenda and Mugenda (2009) in their research have stated that a study ought to take 10% of the target population for the purpose of research findings as this is representative of the total population.

### Sample and Sampling Technique

Stratified random sampling method was applied in this study where a random sample of the employees was drawn from the target population and the respondents were randomly selected from the three levels of staff at the HELB, namely the project managers, top management and a few staffs in operations department since they are the ones who are directly involved with strategy implementation. The study therefore used the sample population (from Cochran's formula) as summarized below;

**Table 3.2: Sample Size**

Category	Estimated Population Size	Desired Sample Size
Top Managers	$31=31\div 229\times 146$	20
Project managers	$21=21\div 229\times 146$	13
Operations staffs	$177=177\div 229\times 146$	113
Total	229	146

### Sampling and sampling Procedure

Sampling procedure is explained as process or technique of sampling a suitable sample or representative of population for purpose of determining parameters of the whole population. The ultimate test of a sample design is how well it represents the characteristics of the population it purports to represent (Cooper & Schindler, 2008). In this particular study, the sample size was obtained using the Cochran's (1977) formula (Mugenda & Mugenda, 2003) as follows:

$$n = \frac{N}{1 + N(d)^2}$$

Where;

'n' is the desired sample size, (When the population is less than 10,000)

'N' is the target population and

'd' is the acceptable margin of error estimated at 0.05 (at 95% CL).

$$d^2 = (0.05)^2 = 0.0025$$

Therefore, Sample size (n) =

$$n = \frac{229}{1 + 229(0.0025)}$$

$$n = \frac{229}{1 + 0.5725} = \frac{229}{1.5725}$$

$$n = 146 \text{ ( Sample population)}$$

### Data collection instruments

The study used self-structured questionnaires to collect primary data from respondents. Open and closed ended questions were also included so that each respondent was capable of receiving the same set of questions in exactly the same way. Questionnaires were used as the appropriate instrument to collect data as they yielded more comparable data than information obtained through an interview. The questionnaires allowed the respondents to express their opinions resulting to collection of objective data.

### Pilot test

Mugenda and Mugenda (2009) opined that, the accuracy of data to be collected largely depend on the data collection instruments in terms of validity and reliability. The questionnaire must yield data that can be accurately used to answer the research questions. Therefore, a pilot test was conducted with nine respondents (three from each targeted department) to refine the questionnaire questions before they were administered to the selected sample. This helped detect weakness in design and instrumentation and to provide proxy data for selection of a probability sample. The pilot testing also helped in measuring reliability and validity of the research instruments and establishing how the data generated would be consumed.

### Reliability of Research Instruments

Reliability is the ability of an instrument to yield consistent results when used severally. (Joppe 2000) defines reliability as the extent to which results are consistent over time and an accurate representation of the total population, which can be reproduced under similar methodology. Common methods are the test-retest technique, the equivalent-form technique and the split half technique (Mugenda & Mugenda, 2009) in test-retest, the questionnaire was administrated twice to the same group of respondents. The test retest method involves selecting a group of respondents, administer the test to them first time and then keeping all initial conditions constant, administer the same test to the same respondents, and correlate the scores from both testing periods. To test for reliability, the researcher selected a pilot group of 9 individuals (3 individuals per sampled department) from the target population and administer to them the questionnaires, after which, the study used the Cronbach alpha score which measures internal consistency. Cronbach alpha reliability coefficient ranges from 0-1 where, the closer the Cronbach alpha is to 1 the greater the internal consistence of the item in scale.

### Validity of Research Instruments

Validity is the extent to which a research instrument may be said to commensurately measure a trait (Joppe 2000). Validity is about the extent to which the questionnaires helped the researcher gain access to the right knowledge and get the right information. In this study, the data collected was a true reflection of the variables and the inferences were meaningful as well as accurate. Validity is measured by posing a series of questions and will often look for answers in the research of others. The questionnaire was tested to determine whether it measured the intended objective. This led to adjustments being made to the questionnaire to refine it. Then it was pre-tested on nine respondents.

### Data processing and Analysis

Data collected was analysed using both descriptive and inferential statistics. This is because descriptive statistics helps to describe the data collected and aim to summarize a sample while inferential statistics are used to interpret the meaning of descriptive statistics besides making propositions about populations and so helps in drawing conclusions. The filled in questionnaires were collected, cleaned, coded and fed in the computer for analysis by SPSS V23 for both descriptive and inferential statistics.

This descriptive statistical tool helped deriving descriptive data and the inferential statistics which were of interest. The mode (most commonly attained measurement or value) was used more so to analyse the responses in the questionnaires. This was used as the response/measurement that appeared most in a particular question/variable among a sample of subjects, (Cooper & Schindler, 2003). The questionnaires were edited for accuracy, consistency and completeness. The study used descriptive statistics and integrated both qualitative techniques in the data analysis, editing, coded and classified so as to present the results of the data analysis in a systematic and clear way using SPSS V23 software.

The Determinants of strategy implementation (Y) of higher education loans board are denoted by X (independent variables).

Thus the following multiple regression equation was used:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + E$$

Where Y is the dependent variable (strategy implementation),

$\beta_0$  is the regression constant

$\beta_1$ ,  $\beta_2$ ,  $\beta_3$ , and  $\beta_4$  and are the slopes of the regression equation,

$X_1$  is the leadership style independent variable,

$X_2$  is the policies and procedures independent variable,

$X_3$  is organization culture independent variable,

$X_4$  is the organization structure independent variable, while

E is an error term normally distributed about a mean of 0 and for purposes of computation, the  $\alpha$  is assumed to be 0. Kothari, (2004) explains that Error term is the part of the statistical equation that indicates what remains unexplained by the independent variables.

#### 4. RELIABILITY ANALYSIS

##### Correlation Matrix

The researcher conducted a correlation analysis of variables as shown in table 4.10.

**Table 4.1 Correlations Analysis**

##### Correlations

		Inbound Logistics Management	Operational Management	Outbound Logistics Management	Marketing and Sales Management
Inbound Logistics Management	Pearson Correlation	1	.846**	.843**	.802**
	Sig. (2-tailed)		.000	.000	.000
	N	35	35	35	35
Operational Management	Pearson Correlation	.846**	1	.373**	.335**
	Sig. (2-tailed)	.000		.000	.000
	N	35	35	35	35
Outbound Logistics Management	Pearson Correlation	.843**	.373**	1	.670**
	Sig. (2-tailed)	.000	.000		.000
	N	35	35	35	35
Marketing and Sales Management	Pearson Correlation	.802**	.335**	.670**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	35	35	35	35

\*\* . Correlation is significant at the 0.05 level (2-tailed).

##### Source: Research Data (2018).

It can be observed from the table that all the variables positively correlated with inbound correlations at the .05 level of significance. In particular outbound logistics management had  $r(35) = .843$  and marketing and sales management with,  $r(35) = .802$ . It is also worth noting that the correlations were statistically significant ( $p < .05$ ). This implies that the inbound logistics management had a strong and positive association with the variables under consideration. Therefore, the more the head teachers attended the course, the more they were likely to improve on the competencies in the respective training areas and vice versa.

##### Model Summary

**Table 4.2: Model Summary**

Model	R	R Square	Adjusted R	Std. Error of the Estimate
1	.951 <sup>a</sup>	.904	.902	.372

Adjusted R squared is coefficient of determination, which indicates the variation in the dependent variable due to changes in the independent variable. From table 4.11 the value of adjusted R squared was 0.902, an indication that there was variation of 90.2% on dependent variable. This means 90.2% of the variation in the responses pertaining to Competitive Advantage can be explained by the dependant variables, which are, Inbound Logistics Management, Operational

Management, Outbound Logistics Management and supplier marketing and sales management. Therefore, the unexplained variance is only 9.8%.

#### ANOVA Table

**Table 4.3: ANOVA Results**

ANOVA<sup>a</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	36.498	5	9.125	12.207	.000 <sup>b</sup>
	Residual	145.009	30	.747		
	Total	181.508	35			

From the ANOVA analysis results on table 4.12, ANOVA, the overall p value is equal to 0.000, which is less than 0.05. The regression analysis results in the ANOVA output table indicates that the overall regression model is significant in predicting Competitive advantage at 95% confidence level based on factors influencing Competitive Advantage.

#### Coefficient Analysis

**Table 4.4: Table of Coefficients**

		Coefficients <sup>a</sup>				
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.067	.148		.452	.652
	Inbound Logistics Management	.677	.063	.690	7.521	.000
	Operational Management	.573	.095	.567	1.829	.020
	Outbound Logistics Management	.512	.067	.523	6.590	.030
	Marketing and sales management	.466	.067	.490	6.590	.041

**a. Dependent Variable: Competitive advantage**

Table 4.13 revealed that the coefficient of regression in this study indicates that the model had a constant value 0.067. Inbound Logistics Management had a coefficient of .690 and a p value of  $0.00 < 0.05$  denoting that Inbound Logistics Management was statistically significant with a p value of  $.000 < 0.05$ , this indicated that Inbound Logistics Management was significant factor in Competitive advantage, the study therefore rejects the hypothesis that Inbound Logistics Management has no effect on Competitive Advantage at 95% level of confidence. Operational Management had a coefficient of 0.567 which was statistically significant with a p value of a p value of  $0.020 > 0.05$ , indicating that this Operational Management significantly contributed towards Competitive advantage. Outbound Logistics Management yielded a coefficient of 0.523 and a p value of  $0.030 > 0.05$ , which was not statistically significant, therefore the study accept the hypothesis that Outbound Logistics Management affect Competitive Advantage.

Marketing and sales management was found to have a coefficient of 0.49 that was statistically significant given a p value of  $0.041 < 0.05$ , marketing and sales management was a significant factor in contributing towards Competitive advantage. . The study therefore fails to reject the null hypothesis that marketing and sales management is not significant factor of value chain management in the case study at 95% level of confidence.

Using the unstandardized coefficients, the following equation applies:

$$Y = 0.067 + 0.677X_1 + 0.577X_2 + 0.512X_3 + 0.466X_4$$

Based on the research findings that inbound logistics management improves the competitive advantage of EAPCC, they are in line with the Adebayo (2012) findings on how proper inbound logistics management aid the performance of an

institution's supply and value chain management of goods and services in the Nigeria industries. Further, these findings are in line with Arawati (2011) who investigated the supply chain management, product quality and business performance. In the findings, adequate resource input and proper quality production would enhance the competitive advantage of a company. Based on the research findings that operational management is a significant step in enhancing the value chain of EAPCC products. These findings are in line with Barney (2011) who investigated on the firm resources and sustained competitive advantage and Berry, Towill, and Wadsley, (2014) who investigated the supply chain management in the electronics products industry. Both studies affirmed that quality in the operational area when producing products would enhance value chain management, which would further boost institutional or firm competitive advantage.

Transporting produced products requires speed and efficient deliveries from the producer to the buyer of the products. Based on the research findings on outbound logistics management in enhancing value management of EAPCC products and creating a competitive advantage of the company are in line with Barney (2011) study on management of resources and productivity. For a firm to acquire a higher competitive advantage over other firms, need to improve on the real time deliveries and employ efficient transport system, therefore, have products reach rightful destinations plays part in growing a firm's profitability and customer retention rates.

Based on the findings, effective marketing and sales management would improve EAPCC's competitive advantage and add value to the chain management system in cement production. Institutions of manufacturing have an upper competitive edge when proper tools of sales and marketing are employed in marketing their products. These findings affirms the Burgess, K., Singhand Koroglu, (2016) findings on using marketing strategy to boost the market performance of products that have been manufactured. Chong, Chan, Ooi, Sim, (2011) inferred that Malaysian firms would enhance their growth in profitability through effective marketing strategies and maintaining close and sustainable relationships with customers.

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