# Journal of Strategic Management



**Relationship between Business Process Outsourcing and Performance of Oil and Gas Distribution Firms in Kenya** 

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*How to cite this article*: Karani, W. J., Aosa, E., Awino, B. Z., & Njihia, J. (2018). Relationship between Business Process Outsourcing and Performance of Oil and Gas Distribution Firms in Kenya, *Journal of Strategic Management* Vol 2(1) pp. 71-86.

# Abstract

Business process outsourcing (BPO) has become progressively universal over the past decade resulting in a more globalized, integrated, interdependent and competitive world economy. It is driven mainly by global competitiveness and the need for firms to reduce costs and increase operational efficiency by focusing firm resources on growing core business. Outsourcing service providers in the oil and gas distribution firms in Kenya are categorized into specialist service providers, direct service providers and indirect service providers. However, the liberalization of the petroleum sector in Kenya in 1994 forced several multinational firms such as Esso Limited, Mobil Limited, Caltex Limited, Beyond Petroleum (BP) and Agip Limited to prematurely exit the market. Reduced profit margins, negative returns and a distribution infrastructure system that was inadequate, unreliable and unable to meet local and regional supply chain and market demands were cited as the main reasons for their exit from the market. The study determined the relationship between BPO and performance of oil and gas distribution firms in Kenya. Cross sectional descriptive survey research design was used in the study. Population consisted of all the oil and gas distribution firms in Kenya registered with the Energy Regulatory Commission (ERC), who formed the sample size for the study. Primary and secondary data were collected through a semi-

structured questionnaire and documented annual reports, audited financial statements and revenue statistics. Simple & multiple regression and correlation analyses were used to test the hypothesis. Findings indicated that BPO contributed significantly to performance (Beta = 0.868, ( $R^2$ ) = 0.804 p< 0.05). It was concluded that BPO indicators; logistics and distribution, finance and accounting, human resources, ICT services, and procurement and supply chain management contribute to the performance of the oil and gas distribution firms. The recommendation was that managers must therefore, recognize this interaction and formulate their promotion strategies accordingly. Managers must continuously lay outsourcing strategies on logistics and distribution finance and accounting, human resources, ICT services, procurement and supply chain.

Keywords: Business process outsourcing, Performance, oil and gas distribution

# **1.0 Introduction**

# **1.1 Background of the Study**

Business process outsourcing (BPO) has become progressively universal over the past decade resulting in a more globalized, integrated, interdependent and competitive world economy. Business process outsourcing is driven mainly by global competitiveness and the need for firms to reduce costs and increase operational efficiency by focusing firm resources on growing core business (ITAA, 2015). Various authors have proposed a strong and positive relationship between BPO and firm performance (McCormack, Johnson & Walker, 2003; Mohiuddin & Su, 2013).

The interface of BPO, operational efficiency, firm characteristics and firm performance is anchored on the Theory of Constraints which postulates the working principle of improving the efficiency of firm operations to achieve overall bottom line performance excellence (Goldratt, 1990). The Theory of Constraints is complemented by the Dynamics Capability Theory (Teece, Pisano & Shuen, 2008) which propagates that a firm's capacity to create, extend or modify its resources by acquiring the right firm capabilities and characteristics improves firm performance. The Transaction Cost Economics (TCE) theory postulates that outsourcing choices and firm transactional costs are driven and governed by economic factors with the aim of improving firm performance (Calantone & Stanko, 2007).

BPO is therefore a multistage process organized into four main steps namely; internal benchmarking analysis, external benchmarking analysis, contract negotiation and outsourcing management (Franceschini, Galetto, Pignatelli & Varetto, 2003). Benchmarking analysis involves monitoring the business operations activities to outsource. External benchmarking analysis involves comparisons with other firms that are the best in the industry. Contract negotiation involves managing client – service provider contract obligations, performance audits and risk. The fourth stage is outsourcing management which refers to the management of the BPO process. BPO concept can be divided into four scopes. The functional scope describes the amount and distributions of functions, the organizational scope covers the amount of different organizational units, the geographical scope describes the expanse of different business sites, countries and cultures and finally the service scope and the human resource scope which handles issues of employee retention and workforce planning.

Globalization, Information Communication and Technology (ICT) advancements and the competitiveness and diversity of emerging markets have spread the rapid advancements of BPO outsourcing in Kenya. Outsourcing service providers in the oil and gas distribution firms in Kenya are specialist service providers, direct service providers and indirect service providers (ERC, 2016). With these services, transformation of the country into a middle-income economy can be possible if the petroleum sector is prioritized as one of the infrastructural. However, the oil and



gas industry has continued to struggle with declining known resources affecting profitability, increasing upstream, midstream and downstream operational costs and cut-throat industry competition (Chatrath, Miao, Ramchander & Wang, 2015). One way of addressing these challenges is through BPO where oil and gas distribution firms may choose to outsource non-core business functions such as distribution and supply chain management and retain core or critical services.

# **1.2 Statement of the Problem**

Kenya's petroleum industry is largely oligopolistic with over 71.9 % of the market share controlled by five (5) major firms namely: Total Kenya Limited 21.4%, Kenol/Kobil 20.8%, Vivo Energy Limited 17.1%, Oil Libya 7.7% and NOCK 4.9% (ERC, 2016). The liberalization of the petroleum sector in Kenya in 1994 forced several multinational firms such as Esso Limited, Mobil Limited, Caltex Limited, Beyond Petroleum (BP) and Agip Limited to prematurely exit the market (Sambu, 2010). Reduced profit margins, negative returns and a distribution infrastructure system that was inadequate, unreliable and unable to meet local and regional supply chain and market demands were cited as the main reasons for their exit from the market. Furthermore, high technical and allocative operational inefficiencies in the supply chain distribution and structure continue to negatively impact performance of firms (Fare, Grosskopf & Lovell, 1994). Therefore, oil and gas industry has continued to struggle with declining known resources affecting profitability, increasing upstream, midstream and downstream operational costs and cut-throat industry competition (Chatrath, Miao, Ramchander & Wang, 2015).

Empirical literature identified the existence of a strong link between BPO, operational efficiency and firm performance in the oil and gas distribution firms (Bharadwaj, Saxena & Halemane, 2010). The results from these studies indicated that oil and gas distribution firms employed best BPO practices such as better utilization of technology and innovation infrastructure to increase operational efficiency, leading to improved firm performance (Lacity & Willcoks, 2013; McCormack, Johnson & Walker, 2003). However, other scholars identified a negative relationship or no clear relationship existing between BPO and performance at the firm level suggesting the relationship was negatively curvilinear in nature (Abdul-Halim & Chetta, 2009; Kotabe & Mol, 2009). The lack of consensus from the previous studies roused the researcher's interest to determine the nature of the relationship between BPO and performance.

# **1.3 Specific Objective**

To determine the relationship between BPO and performance of oil and gas distribution firms in Kenya.

# **1.4 Research Hypothesis**

H<sub>A</sub>: Business process outsourcing has a significant influence on the performance of oil and gas distribution firms in Kenya.

# 2.0 Literature Review

# 2.1 Theoretical Review

# **2.1.1 Theory of Constraints**

Theory of Constraints (TOC) was developed by Goldratt (1990) in the mid 1980's for managing performance through ongoing improvement (Motwani, Klein & Harowitz, 1996). Umble and Spoede (1991) define the Theory of Constraints as a framework that guides in the identification of constraints through a process of focusing limited time and resources for maximum returns and

further assert that a constraint is anything that limits a firm's higher performance. The successful application of the Theory of Constraints (TOC) has been in manufacturing process outsourcing (Librelato, Lacerda, Rodrigues & Veit, 2014) and BPO service industry outsourcing. The Theory of constraints helps firms eliminate constrains, improved timelines and flexibility in the delivery of goods and services, enhance customer satisfaction and cost savings impacting performance positively performance.

# **2.1.2 Transaction Cost Economics**

Calantone and Stanko (2007) discussed Transaction Cost Economics (TCE) theory and recognized four categories of costs namely; adaptation, safeguarding, measurement and transaction costs which needed to be considered in a client – service provider BPO relationship. In a BPO set up, transactional costs refer to the costs of monitoring mechanisms to prevent opportunistic behavior from service provides (Abdul-Halim & Chetta, 2009; Fill & Visser, 2000).

Outsourcing of a firm's non-core operations to an external service provider is deemed to lower production and coordination costs. However, the transactional cost sometimes become high due to the management of service providers and shared risks. This theory indicates the functions that are not firm specific should be outsourced. A firm's decision to outsource its processes and functions to an external service provider should exclusively be based on the rationale to protect the firm value and only implemented when the transactional costs outweigh the management costs of conducting the activity in-house.

The application of this theory in BPO is in the vendor selection phase and contract preparation stage where it is critical to benchmark the internal and external service providers. According to TCE, when asset specificity is low, and transactions are relatively frequent, transactions might be governed by outsourcing. In other words, higher levels of asset specificity would lead to a lower amount of the core business being outsourced (Jiang, Juanjuan, Le & Quan 2017).

# **2.2 Empirical Review**

Empirical studies on the outcome of outsourcing and especially its effects on firm performance are scarce, however an increasing number of scholars have started recognizing the central role BPO plays in improving firm performance (Fill & Visser, 2000). Giustiniano and Clarioni (2013), study on the impact of outsourcing on business performance opined that outsourcing may contribute to company's sustainable competitive advantage. Research reveals BPO implementation improves internal coordination of business processes and enhances both short and long term financial and non-financial performance (McCormack, Johnson & Walker, 2003).

Similarly, Dyer and Sign (1998) opined that firms should only venture into an outsourcing partnerships when the client – service provider relationship is beneficial to the sharing of knowledge, capabilities and risks. On the other hand, some authors are against the foreseen positive impacts of BPO on firm performance. Abdul-Halim and Chetta (2009) argue that it is challenging to measure verifiable BPO gains and even dramatic levels of BPO improvement often do not translate into better firm performance. However, substantial evidence of the strong and positive impact of BPO on firm performance exists (McCormack, Johnson & Walker, 2003). The authors' state that the more outsourced processes a firm has, the better its performance from the perspective of the organization and its employees.

# **2.3 Conceptual Framework**

Ravitch and Riggan (2016) opine that a conceptual framework assists the scholar develop awareness and fully understand the variables under investigation. The conceptual framework in this study



identified the concepts and relationship between the key variables under study. The variables include BPO as the independent variable and firm performance as the dependent variable.



#### **Figure 1: Conceptual Framework**

#### 2.3.1 Business Process Outsourcing

In the model, BPO is depicted as the independent variable. Gravetter and Wallnu (2016), considered an independent variable as one that explain the change or outcome in another variable. The five dimensions of BPO, that is, logistical distribution, finance and tax, human resources, ICT services, procurement and supply chain management operationalize the independent variable.

# 2.3.2 Firm Performance

Firm Performance is depicted as the dependent variable in this study. Gravetter and Wallnu (2016) state that a dependent variable is a variable whose change the researcher wishes to explain. The dependent variable further explains predictors, presumed causes, effects or influences under investigation. Financial indicators of firm performance such as Return on Capital Employed (ROCE), Return of Equity (ROE) and Gross Profit Margin (GPM) performance measures ratios were considered in the study.

The non-financial indicators considered include new customers and retail outlets, brand awareness, quality of after sales services, value added services, new retail stations in strategic locations, quality of customer feedback system and quality of product check and random audits. Measuring of firm performance is key as it leads to better asset management, an increased ability to provide



customer value, increased organizational reputation which leads to greater consumer trust and ability to command a premium price (Cameron & Whetten, 1983).

#### **3.0 Research Methodology**

The study is positivistic in nature and is modeled under the positivism paradigm that advocates for theory testing and empirically establishing a link between the study variables through generalization and predictions (Bryman & Bell, 2015). Cross sectional descriptive survey research design was adopted in the study. The study population consisted of all the 130 oil and gas distribution firms in Kenya registered with the Energy Regulatory Commission (ERC), which formed the study sample size. Primary data was collected through a semi-structured questionnaire while secondary data was collected from documented present and past annual reports, audited financial statements and revenue statistics for the various oil and gas distribution firms as derived from the company's financial reports and consolidated financial statements. Data was analyzed using descriptive and inferential statistics. Linear regression was used to test the relationship between BPO as the independent variable and firm performance as the dependent variable.

#### 4.0 Results and Discussion

#### 4.1 Response Rate

The study targeted all the one hundred and thirty (130) oil and gas distribution firms in Kenya registered and licensed by the ERC to import, export and wholesale on oil and gas products in the country. Results are presented in table 1.

Table	1:	Response	Rate
Lance		response	ALUC

<b>Response Rate</b>	Frequency	Percentage
Returned	110	84.62%
Not Returned	20	14.38%
Total	130	100%

#### Source: Survey Data, 2017

One hundred and thirty (130) questionnaires were distributed, out of which 110 were filled and returned, representing 84.62 per cent response rate. Saunders, Lewis and Thornhill (2016) states that a response rate of 80 per cent is adequate and indicated effecting data collection methodology. The questionnaire was also accompanied by a covering letter issued by the University of Nairobi. Dillman,Smyth and Christian (2014) stated that the covering letter issued by an established authority authenticates the study improving the response rate. Therefore, the response rate of this study was satisfactory.

The response rate is also consistent with Nilsson (2008) who undertook a study on the impact of pro-social attitudes and perceived financial performance on socially responsible investment behavior in Sweden with a response rate of 24%. In China, Wei, Samiee and Lee (2014) studied the influence of organic organizational cultures, market responsiveness, and product strategy on firm performance in an emerging market and had a response rate of 60%.

#### 4.2 Reliability Tests

This study tested internal consistent of the research instrument using Cronbach's Alpha approach, the other widely used measure of co-efficient of internal consistency. A co-efficient of 0.70 or more implies that there is a high reliability of data denoting acceptable level of internal reliability (Saunders, Lewis & Thornhill, 2016). The summary of reliability tests is given in Table 2.

Cable 2: Summary of Reliability Tests using Cronbach's Alpha Internal Consistency							
Variable	Ν	No of items	Cronbach's Alpha Coefficient	Internal Consistency rating			
Business Process	11	5	0.78	Acceptable			
Outsourcing							
Performance	11	8	0.91	Excellent			
Average			0.85				

#### Source: Survey Data, 2017

The highest alpha coefficient was the average for firm performance at 0.91 with 8 items followed by BPO with five items had an alpha coefficient of 0.78. This showed that all the statements for each of the firm performance and BPO met the threshold of 0.7.

#### **4.3 Descriptive Statistics**

The description on business process operating and firm performance was established and presented.

#### 4.3.1 Business Process Outsourcing

The respondents were asked to indicate the extent to which the enlisted Outsourcing services contributed to the performance of their firms. The results were measured using mean scores and coefficient of variation as shown in table 3.

Table 3: Mean Sco	res, Standard	<b>Deviations an</b>	d Coefficient	of Variation	(Cv) for	Business
<b>Process Outsourcin</b>	g services					

Business Process Outsourcing	Ν	Mean	Std. Dev	CV (%)
Logistics and Distribution	110	3.84	0.698	18%
Finance and Accounting	110	3.98	0.663	17%
Human Resources	110	3.83	0.740	19%
ICT Services	110	3.95	0.588	15%
Procurement and Supply Chain	110	4.36	0.726	17%
Overall		3.992	0.683	17.14%

#### Source: Survey Data, 2017

Indicators of Business Process Outsourcing were used to determine the extent to which they influence performance of oil and gas distribution firms in Kenya. The overall mean score was 3.992 and a coefficient of variation (Cv) = 17.14%. The standard deviation and mean of a variable are expressed in the same units, so taking the ratio of these two allows the units to cancel. The results in all the variables indicate that firm managers consider Logistics and distribution, finance and accounting, auman aesources, ICT Services, procurement and supply chain as very good outsourcing services that influence their firm performance.



Table 4: Total variance explained for business process outsourcing (BPO)									
Component	Iı	nitial		Extra	ction Sums	of Squared			
	Eige	nvalues			Loading	gs			
	Total	% of	Cumulative	Total	% of	Cumulative			
		Variance	%		Variance	%			
Human Resources	1.836	36.725	36.725	1.836	36.725	36.725			
Finance and Accounting	0.959	19.183	55.908						
Logistics and	0.925	18.493	74.401						
Distribution									
ICT Services	0.662	13.234	87.635						
Procurement and Supply	0.618	12.365	100						
Chain									
Extraction Method: Principal Component Analysis.									

The eigenvalue is calculated for each factor extracted and can be used to determine the number of factors that has the highest contribution. A cutoff value of 1 is generally used to determine factors based on eigenvalues. The scree plot results indicated that one component (Human resources) had an eigenvalue that was greater than one. This means that human resources has the highest contribution. The finding support the total variance explained results for business process outsourcing (BPO). The results are presented in Figure 2.



Figure 2: Scree plot for business process outsourcing (BPO)

# **4.3.2 Firm Performance**

#### Performance

Firm performance was measured using financial indicators and non-financial indicators. The financial measures include Return on Capital Employed (ROCE), Return of Equity (ROE) and Gross Profit Margin (GPM) performance measures ratios.

# i. ROCE, ROE and Gross Profit Margin ratio

The financial data- ROCE, ROE and Gross profits margins ratio were obtained from the financial statements of the firms. Results are presented in table 5.

Table 5. NOCE, NOE and 01055110111 Margin 1410								
Ν	Minimum	Maximum	Mean	Std. Dev				
110	0.02	8.42	0.425	0.82185				
110	0.05	1.76	0.2736	0.34097				
110	0.04	3.01	0.5833	0.52455				
	N 110 110 110	N         Minimum           110         0.02           110         0.05           110         0.04	N         Minimum         Maximum           110         0.02         8.42           110         0.05         1.76           110         0.04         3.01	N         Minimum         Maximum         Mean           110         0.02         8.42         0.425           110         0.05         1.76         0.2736           110         0.04         3.01         0.5833				

## Table 5: ROCE, ROE and Gross Profit Margin ratio

#### Source: Secondary Data, 2017

Results in table 5 show that the mean of ROCE was 0.425 with a standard deviation of 0.82185. Its minimum and maximum were 0.02 and 8.42 respectively. Further, ROCE had a mean of 0.2736 with a standard deviation of 0.34097. Its minimum and maximum were 0.05 and 1.76 respectively. The mean for Gross Profit Margin ratio is 0.5833 with a standard deviation of 0.52455. It's minimum and maximum is 0.04 and 3.01 respectively. From the findings, the oil and gas distributions firms are seen to be profitable, a clear indication of the success associated with the industry.

# ii. Aspects of Firm performance

Statements describing non-financial aspects of firm performance were provided and measured using a rating scale of 1 to 5 where: 1 = Not at all; 2 = Less extent; 3 = Moderate extent; 4 = Large extent; 5 = Very large extent. The coefficient of variation rating were determined as 0 to 25% very good, 26 to 50% good, 51 to 75% fair and 76 to 100% not good. Results are presented in table 6.

Table 6: Mean Scores, Standard Deviations and Coefficient of Variation (Cv) for Performance

Variable	Ν	Mean	Std. Deviation	CV (%)
Increase of new customers and retail outlets	110	3.827	0.689	18%
Increase of brand awareness	110	3.982	0.663	17%
Increase in quality of after sell services	110	3.827	0.740	19%
Increase in value added services	110	3.946	0.588	15%
Opening of new retail stations in strategic locations	110	4.364	0.726	17%
Speed and responsiveness to customer complains	110	3.827	0.689	18%
Quality of customer feedback system	110	4.100	0.716	17%
Quality of product checks and random audits	110	4.064	0.694	17%
Overall		3.992	0.688	17.26%

# Source: Survey Data, 2017

As shown in table 6 above, the sub-variables of firm performance were used to assess the performance of oil and gas distribution firms in Kenya. The overall mean score was 3.992 and a coefficient of variation (CV) = 17.26%. The standard deviation and mean of a variable are expressed in the same units, so taking the ratio of these two allows the units to cancel. The results in all the variables indicate that new customers and retail outlets, brand awareness, quality of after sell services, value added services, opening of new retail stations in strategic locations, speed and



responsiveness to customer complaints, quality of customer feedback system and quality of product checks and random audits are very good components of firm performance.

The scree plot results indicated that three components (Quality of customer feedback system, Quality of product checks and random audits and opening of new retail stations in strategic locations) had an eigenvalue that was greater than one. This means that Quality of customer feedback system, Quality of product checks and random audits and opening of new retail stations in strategic locations have the highest contribution. The finding corroborate the total variance explained results for firm performance. The results are presented in Figure 3.



# Figure 3: Scree plot for Firm Performance 4.4 Correlation Analysis

Correlation analysis was performed using Pearson Product Moment Correlation Coefficient technique to establish the extent of association between Business process outsourcing and firm performance. Table 7 shows the results of the analysis.

#### **Table 7: Correlation Matrix**

		<b>Composite scores of</b>	Composite	scores of		
		Performance	Business	Process		
			Outsourcing	g		
Composite scores of	Pearson Correlation	1.000				
Performance	Sig. (2-tailed)					
Composite scores of	Pearson Correlation	$.897^{**}$	1.0	00		
Business Process	Sig (2 tailed)	000				
Outsourcing	Sig. (2-tailed)	.000				
Correlation is significant at the 0.01 level (2-tailed).						

#### Source: Survey Data, 2017

The association between Business Process Outsourcing and firm performance was strong, positive and statistically significant (R = .897, p = .000).



## 4.5 Diagnostics Tests

The diagnostic tests conducted were linear tests, multicollinearity and heteroscedasticity to establish the measure for the parameters.

#### 4.5.1 Linearity Test on Business Process Outsourcing and Firm Performance

The relationship between business process outsourcing and firm performance was tested for linearity using scatter plots representations. Results are presented in Figure 4.



#### **Figure 4: Linearity Test for BPO and Firm Performance**

From the findings, the relationship between business process outsourcing and firm performance was found to be linear as shown in Figure 4. Therefore, there is a linear relationship between the dependent variable firm performance and business process outsourcing.

#### 4.5.2 Test for Heteroscedasticity

The Breuch-Pagan/Cook-Weisberg test was carried out to confirm if the error variance was not constant in which case there could have been heteroscedasticity in the data. Estimating a regression model without accounting for heteroscedasticity may lead to biased parameter estimates. To test for heteroscedasticity it was necessary to make a hypothesis in respect to the error variance and test the error variances to confirm or reject the hypothesis. For the purposes of applying the Breusch-Pagan/Cook-Weisberg test, a null hypothesis (H<sub>0</sub>) of this was formulated that the error variance is not heteroscedastic while the alternative hypothesis (H<sub>a</sub>) was that the error variance as  $\sigma^2_{i} = \sigma^2 h(z'_{i}\alpha)$  where  $z_i$  is a vector of the independent variables. It tests H<sub>0</sub>: $\alpha=0$  versus H<sub>a</sub>: $\alpha\neq 0$ . Table 4.21 shows the results obtained when the Breusch-Pagan/Cook-Weisberg test was run.

 Table 8: Results of Breusch-Pagan / Cook-Weisberg Test for Heteroscedasticity

H <sub>o</sub> : Constant variance		
chi2(1)	=	0.01
Prob > chi2	=	0.9186

Source: Survey Data, 2017

The results in Table 8 indicate that the p value is greater than 0.05 (0.9186) and so the null hypothesis set up for this test is supported. It was found that the variables under this study did not suffer from heteroscedasticity and so the required regression analysis for this study could be carried out the results being distorted.

## 4.5.3 Test for Multicollinearity

Tests for multicollinearity were carried out because in severe cases of perfect correlations between predictor variables, multicollinearity can imply that a unique least squares solution to a regression analysis cannot be computed Field, (2009). Multicollinearity inflates the standard errors and confidence intervals leading to unstable estimates of the coefficients for individual predictors. Multicollinearity was assessed in this study using the Tolerance and Variance Inflation Factor. The rule of thumb is that if VIF is greater than 5 and tolerance value less than 0.2, then the data is suffering from multicollinearity. The results of the tests of multicollinearity are presented in Table 9.

#### Table 9: Multicollinearity Test on Business Process Outsourcing on Performance

	Collinearity Statistics		
	Tolerance	VIF	
(Constant)			
Business Process Outsourcing	0.477	2.096	
Common Course Data 2017			

#### Source: Survey Data, 2017

Collinearity statistics (Table 9) indicated a Variance Inflation Factor (VIF) < 5 and Tolerance > 0.2, an indication that the variables were not highly correlated, hence no existence of Multicollinearity. This is an indication of the suitability of the variables for multiple regression.

#### 4.6 Hypothesis Testing

The study determined the relationship between BPO and performance of oil and gas distribution firms in Kenya. Respondents had been asked to indicate using a rating scale ranging from 1 (not at all) to 5 (very large extent) the extent to which BPO contributed to their performance.

To determine the relationship, the study had developed the following hypothesis:

**H**<sub>A</sub>: Business process outsourcing has a significant influence on the performance of oil and gas distribution firms in Kenya.

The results of the regression test are presented in Tables 10(a), 10(b) 10(c) Model fitness results are presented in Table 10 (a).

Table 10(a): Regression Results for the Influence of BPO on performance									
Model	R	R	Adjusted Std. Error Change Statistics						
		Square	<b>R</b> Square	of the	<b>R</b> Square	$\mathbf{F}$	df1	df2	Sig. F
				Estimate	Change	Change			Change
1	.897 <sup>a</sup>	.804	.802	.13474	.804	443.275	1	108	.000
a. Predic	a. Predictors: (Constant), Composite scores of Business Process Outsourcing								

Source: Survey Data, 2017

Results in Table 10 (a) indicate a correlation coefficient (R) of 0.897, coefficient of determination  $(R_2) = 0.804$ . BPO explained 80.4% of the variance in performance. The remaining 19.6% was explained by other factors not in the model. Table 10(b) provides the results on the analysis of the variance (ANOVA).

Table 10(b) A	ANOVA f	for Business	Process Or	itsourcing and	Performance
		tor Dusiness		and and and	I CITOI mance

				-		
Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	8.048	1	8.048	443.275	.000 <sup>b</sup>
1	Residual	1.961	108	.018		
	Total	10.009	109			
a. Depe	ndent Variable	: Performance				
b. Predi	ctors: (Constan	nt). Business Process (	Outsourci	ng		

Results in Table 10(b) indicate that the overall model was statistically significant. Further, the results imply that the BPO is a good predictors of firm performance. This was supported by an F statistic of 443.275 and the reported p=0.000 which was less than the conventional probability of 0.05 significance level (F=443.275, P<0.05).

Regression of coefficient results are presented in Table 10(c).

Model	Unstandardized Coefficients		Standardized Coefficients					
	В	Std. Error	Beta	t	Sig.	R	<b>R</b> <sup>2</sup>	F
(Constant)	.526	.165		3.187	.002			
1 Business Process Outsourcing	.868	.041	.897	21.054	.000	.897 <sup>a</sup>	.804	443.275
a. Dependent Variable:	Perform	ance						

# Table 10(a). Coefficients of DDO

# Source: Survey Data, 2017

The Standardized beta coefficient in Table 10(c) shows that the BPO contributes significantly to firm performance (Beta = 0.868, p< 0.05). The relationship was thus statistically significant so the hypothesis is supported. The regression model explaining variation in performance as a result of BPO is stated as follows:

 $P_1 = \beta_{0+}\beta_{11}X + \varepsilon$  $P_1 = 0.526 + 0.868x$ Where:

P = Performance

$$X = BPO$$

The regression equation above shows that a unit change in BPO causes an increase of 0.868 units in firm performance. This implies that when a firm offers BPO the performance of oil and gas distribution firms increases by 0.868 units. This is consistent with the study by McCormack, Johnson and Walker (2003) which found out that BPO implementation improves internal coordination of BPO and enhances both short and long term financial and non-financial performance. Empirical literature has identified the existence of a strong link between BPO and firm performance (Bharadwaj, Saxena & Halemane, 2010). However, these findings do not agree with other researchers who argue that it is challenging to measure verifiable BPO gains and even



dramatic levels of BPO improvement often do not translate into better firm performance (Abdul-Halim & Chetta, 2009).

The successful application of the Theory of Constraints (TOC) has been in manufacturing process outsourcing (Librelato, Lacerda, Rodrigues & Veit, 2014) and BPO service industry outsourcing. The Theory of constraints helps firms eliminate constrains, improved timelines and flexibility in the delivery of goods and services, enhance customer satisfaction and cost savings impacting performance positively performance

#### **5.0** Conclusion

The study concluded that BPO indicators; logistics and distribution, finance and accounting, human resources, ICT services, and procurement and supply chain management contribute to the performance of the oil and gas distribution firms. The relationship between BPO and firm performance was statistically significant so the hypothesis is supported and thus the study concluded that Business process outsourcing has a significant influence on the performance of oil and gas distribution firms.

#### **6.0 Recommendation**

The study recommended that the current policies on business process outsourcing need to be reviewed to enhance oil and gas distribution activities. The government of Kenya through the Ministry of Energy and Petroleum, The Energy Regulatory Commission (ERC), The Communications Authority of Kenya (CA) and The Petroleum Institute of East Africa (PIEA) lobby group must review and enhance regulation, policies and strategies that will reform the oil and gas distribution industry ensuring Kenya is globally competitive in conducting business and engaging in advocacy that promotes economic growth. The Petroleum Bill, 2015 and The Energy Act, 2006 may need to be reviewed to ensure it aligns with the vision 2030 strategy which provides a framework that benefits newly establish firms to the maximum. Managers must continuously lay outsourcing strategies on Logistics and Distribution Finance and Accounting, Human Resources, ICT Services, Procurement and Supply Chain.

# 7.0 References

- Abdul-Halim, H., & Chetta, N. (2009). The influence of business strategy on the decision to outsource human resource activities. *Journal of Human Resource Costing and Accounting*, 13(4): 274-293.
- Bharadwaj, S. S., Saxena, B. K., & Halemane, M. D. (2010). Building a successful relationship in business process outsourcing; An Exploratory study. European *Journal of Information Systems*, 19: 168-180.
- Bryman, A. & Bell, E. (2015). Business research methods. (4th ed.). Oxford University Press, USA.
- Calantone, R., & Stanko, M. (2007). Drivers of outsourced innovation: An exploratory study. *Product Innovation Management Journal*, 24 (3): 230-241.
- Cameron, K. S., & Whetten, D. A. (1983). Organizational effectiveness: one model or several?. In *Organizational Effectiveness* (pp. 1-24).

- Chatrath, A., Miao, H., Ramchander, S., & Wang, T. (2015). The Forecasting efficacy of riskneutral moments for crude oil volatility. *Journal of Forecasting*, 34 (3):177-190.
- Dillman, D.A., Smyth D. S., & Christian, L.M. (2014). *Internet, phone, mail and mixed-mode surveys*: The tailored design method. Hoboken, NJ: John Wiley & Sons.
- Dyer, J. H., & Singh, H. (1998). The relational view: Cooperative strategy and sources of interorganizational competitive advantage. *Academy of Management Review*, 23: 660-679.
- Energy Regulatory Commission (2016). Annual Report. Retrieved from http://www.erc.go.ke
- Färe, R. S., Grosskopf, S., & Lovell, C. A. K. (1994). *Production Frontiers*. Cambridge: Cambridge. University Press.
- Fill, C., & Visser, E. (2000). The outsourcing dilemma: A Composite approach to make or buy decision. *Management Decision*, 3 (12): 43-50.
- Franceschini, F., Galetto, M., Pignatelli, A., & Varetto, M. (2003). Outsourcing guidelines for a structured approach. *An International Journal*, 10 (3): 246-260.
- Giustiniano, L. & Clarioni, G. (2013). The impact of outsourcing on business performance: An empirical analysis. *Journal of Modern Accounting and Auditing*, 9(2): 153-15
- Goldratt, E. M. (1990). What is this thing called the Theory of Constraints? North River Press, Croton-on-Hudson, NY.
- Gravetter, F. J., & Wallnau, L. B. (2016). Statistics for the behavioral sciences. Cengage Learning. Information Technology Association of America, Quarterly Report, 2015.
- Jianpin, P., Juanjuan, Q., Le, P., & Jing, Q. (2017). An exploratory study of the effectiveness of mobile advertising. *Information Resources Management Journal*, 5(1): 24-38.
- Kotabe, M., & Mol, M. J. (2009). Outsourcing and financial performance: A negative curvilinear effect. *Journal of Purchasing and Supply Management*, 15(4): 205-213.
- Lacity M.C., & Willcocks, L. (2013). Outsourcing business process for innovation. MIT Sloan *Management Review*, 54 (3): 63-69.
- Librelato, T. P., Lacerda, D. P., Rodrigues L. H., & Veit, D. R. (2014). A process improvement approach based on the value stream mapping and the Theory of Constraints thinking process. *Business Process Management Journal*, 20(6): 922 949.
- McCormack, K. P., Johnson. W. C., & Walker, W. T. (2003). Supply chain networks and business process orientation. Florida: St. Lucie Press.

- Mohiuddin, M., & Su, Z. (2013). Manufacturing small and medium size enterprise's offshore outsourcing and competitive advantage: An exploratory study on Canadian offshoring manufacturing SMEs. *Journal of Applied Business Research*, 29 (4): 1111-1130.
- Motwani, J., Klein, D., & Harowitz, R. (1996). The theory of constraints in services: Part 1 the basics. *Managing Service Quality*, 6 (1): 53–56.
- Nilsson, A. (2008). Overview of financial systems for slum upgrading and housing. *Housing Finance International*, 23, (2): 9-25.
- Outsourcing markets. (2016). Annual Report. Retrieved from http://www.reportlinker.com/report.pdf.

Petroleum Insight of East Africa (2016). Quarterly Report, Nairobi, Kenya.

- Ravitch, S. M., & Riggan, M. (2016). Reason and rigor: How conceptual frameworks guide research. Sage Publications.
- Sambu, Z. (2010). Oil majors exit Kenya as retail market competition erodes profit margins. Retrieved from http://www.businessdailyafrica.com/index.html.
- Saunders, M. N. K., Lewis P., & Thornhill, A. (2016). Research methods for business students (7<sup>th</sup> ed.). Pearson Education Limited.
- Teece, D., Pisano G., & Shuen, A. (2008). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18 (7): 509 - 533.
- Titman, S., & Wessels, R. (1988). The determinants of capital structure choice. *Journal of Finance*, 43 (5): 1-19
- Umble, M. M., & Spoede, C. W. (1991). Making sense of management's alphabet soup. *Baylor Business Review*, 9: 26-27.
- Wei, Y., Samiee, S. and Lee, R. (2014). The influence of organic organizational cultures, market responsiveness, and product strategy on firm performance in an emerging market. *Journal of the Academic of Marketing Science*, 42(1): 49-70.