

# **ROLE OF ORGANIZATIONAL RESOURCES ON THE SUSTAINABILITY OF COMPETITIVE ADVANTAGE IN THE OIL INDUSTRY IN KENYA**

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## **ABSTRACT**

According to the resource-based view theory of the firm organizational resources are key contributors to an organization's sustainability of competitive advantage. The world's energy consumption will increase by 60% in the next twenty years, currently, 34% of this energy is provided by oil. Oil is therefore an important resource towards the growth of the world's economy. The oil sector is consequently a big contributor to global economic development by creating jobs, adding to revenues, stimulating consumer spending and hence indirectly influencing all the sectors of the economy. Whereas past empirical studies had shown varying degrees of the role of organizational resources in the sustainability of competitive advantage in various industries across the world, there were limited studies focused on the Oil Industry and in Kenya particularly, therefore, generalization of the results to the Oil Industry in Kenya was not appropriate hence the need for this study. The study sought to establish the role played by specified organizational resources on the sustainability of competitive advantage in the Oil Industry in Kenya. The study was anchored on the resource-based view theory of the firm and further critically examined other existing theoretical and empirical literature on organizational resources and how organizations in general leveraged on their resources in sustaining competitive advantage. This formed the basis of studying how organizations in the Oil Industry in Kenya used their resources in sustaining their competitive advantage. The general objective of the study was to establish the role of organizational resources on the

sustainability of competitive advantage in the Oil Industry in Kenya. The specific objectives of the study were to determine the role of plant and equipment resources, brand and heritage resources, and to establish the Moderating Role of Government Policy on the role of these Organizational Resources in the Sustainability of Competitive Advantage in the Oil Industry in Kenya. The population constituted all the 63 licensed Oil Marketing Companies (OMCs) in Kenya. The appropriate study sample was identified through stratified random sampling applied in each of the purposefully created strata being the variations in heritage and size of the oil companies ranging from Multinational Corporations (MNCs) to Transnational Corporations (TNCs), National Kenyan Companies (NKC)s and Independent Kenyan Companies (IKCs). The study employed both survey and correlational research design. Primary data was collected using a structured questionnaire while secondary data was collected through reviews of both theoretical and empirical literatures. Pilot testing was conducted to obtain some assessment of the questions' validity and the likely reliability of the data that was to be collected. A fact sheet was used to summarize the data collected before it was cleaned, coded and edited for completeness and accuracy. The data obtained was analyzed qualitatively through content analysis and quantitatively using the Statistical Package for Social Scientists (SPSS). A multiple regression model with four variables was approximated to represent the relationship between the independent and dependent variables, while an error term in the model represented all

other variables not considered in the study. Analysis of Variance (ANOVA) was carried out to test the significance of the overall model, while the t-test was used to determine the significance of the individual variables. The study established that plant and equipment resources had a significant positive influence on sustainability of competitive advantage. Government policy played a positive moderating role between sustainability of competitive advantage and plant and equipment resources. The study results showed that brand and heritage resources had a significant positive influence on sustainability of competitive advantage. Government policy had a negative moderating effect between sustainability of competitive advantage and brand and heritage resources. From the findings, the study recommends that firms that want to gain and sustain competitive advantage should invest in modern efficient and effective production facilities and systems. They should also be strategically located to enable easy access to their

customers and business partners making them more reliable as compared to their rivals. The study findings showed that brand & heritage resources accounted for the highest variability of sustainability of competitive advantage. Therefore, the study recommendation to the firms that want to gain and sustain competitive advantage is that, they should secure image in the eyes of their customers and business partners therefore positioning their product brands and services above those of their competitors. From the findings, government policy was found to have insignificant moderating influence on the relationship between organizational resources and sustainability of competitive advantage. Therefore, the study recommended that individuals and organizations that wish to join the oil industry should do so with confidence that the government policies will not hinder their competitiveness in the industry.

**Key Words:** *organizational resource, sustainability, competitive advantage*

## **INTRODUCTION**

Although petroleum fuels constitute the main source of commercial energy in Kenya, the country is a net importer of petroleum products since it has no confirmed oil or gas reserves which are an important resource. Petroleum fuels were prior imported as crude oil for domestic processing; however since August 2013 they are imported as refined products, mainly used in the transport, commercial, as well as industrial sectors (ERC, 2014). There exists a modest upstream oil industry as the Kenyan government in its investment incentives continues to encourage foreign interest in oil exploration and eventual production. Companies like Africa Oil and Tullow Oil have been working on some sites in Northern Kenya and have recently announced oil discoveries and embarked on establishing the commercial viability of the said discoveries, which if confirmed will endow the country with a precious resource (PIEA, 2014).

Infrastructure is an important resource. The country has a defunct petroleum refinery owned and managed by the Kenya Petroleum Refineries Ltd (KPRL) and an installed oil pipeline of 800 km

owned and managed by Kenya Pipeline Company (KPC). This pipeline runs from Mombasa to Nairobi and Western Kenya with terminals in Nairobi, Nakuru, Eldoret and Kisumu (KPC, 2014; ERC, 2014). KPC offers primary transport of refined products for all oil marketing companies to Nairobi and Western Kenya meaning presence at all KPC depots countrywide has a bearing towards ability to compete effectively in the market.

Total industry demand for oil products in Kenya is estimated at 4,500 million Litres per year for all the petroleum fuels, 46.7 million litres for Lubricants and 1.3 million tonnes for LPG (KIPPRA, 2014; PIEA, 2014). Importation and distribution of petroleum products is a cash intensive affair and therefore financial muscle is an important resource (PIEA, 2014). The industry was liberalized from 1994 up to 2012 when due to public outcry on rapid escalation of oil products pricing the government introduced retail fuel price regulations changing the competitive landscape drastically to the disadvantage particularly of the high-cost multinational oil marketing companies (ERC, 2014). The size and distribution of the retail network for each player might still have significant implications towards an OMCs competitiveness in the market (PIEA 2014).

According to the industry regulator, Energy Regulation Commission (2014), there were 63 licensed downstream Oil Marketing Companies in Kenya which can be classified into: Global Multinational Corporations (MNCs), Transnational or Regional Emerging Multinationals (TNCs), Local National Companies (LNCs) and “Independent” Kenyan Companies (IKCs) with mainly local presence. Multinational and Transnational companies leverage more on their brands’ recognition due to their foreign heritage compared to the locals and independents in differentiating themselves in the market place. Competition in the Oil Industry in Kenya is cut-throat and was thought to be influenced by a number of key factors that required investigation including but not limited to quality of human resources, number of service stations owned countrywide, presence at KPC locations countrywide, financial strength, brand and heritage, duration and presence in key sectors of the market. All these factors could be largely grouped into four organizational resources namely: human resources, financial resources, plant & equipment resources, and brand & heritage resources; and all played different roles in the sustainability of competitive advantage of one player versus its rivals to varying degrees (PIEA, 2014).

Globally Saudi Arabia is by far the biggest oil producer within the Organization of the Petroleum Exporting Countries (OPEC), pumping some 10 million barrels of crude oil a day. Saudi Arabia therefore plays its traditional role as the global oil market’s price swing producer, by adjusting its oil prices or adjusting its output to invoke the law of demand. For example the prices are lowered to stimulate demand as a counter to booming oil production from North America and the general sluggish global oil demand (WSJ, 2014). According to the resource-based view theory of the firm organizational resources are key contributors to an organization’s sustainability of competitive advantage (Barney, 2007). On the global arena companies that are highly successful

over the long term effectively acquire, develop, and manage resources that provide competitive advantages (Barney, 1991). The emergence of a fiercely competitive global economy means that these firms have to expand their networks of relationships and cooperate with each other to remain competitive. Companies have to learn to develop and manage relationships with a wide range of organizations, groups, and people that have a stake in their firms hence sustaining their competitive advantage (Barney, 1997).

A study by Jehad and Faleh (2009) on the resource-based view and competitive advantage revealed that the important areas that can sustain competitive advantage are human resource management, market knowledge and product development. The study further revealed that it is not only resources or assets that generate competitive advantage, but also the organizational routines to handle them. This is because knowledge and routines within human resource management, market research and product development are accumulated over a long time and embedded in the organization and therefore cannot be easily replicated (Helfat, 2003; Helfat et al., 2007).

In Africa, studies have shown that the development of organizational resources has been hampered by the high financial investments as well as human capital required. This is because of the growing pace of technological change, the spread of information technologies and intensifying competitive pressures. Indeed, research carried out in Tanzania, Uganda and Zimbabwe (Chaharbaghi & Lynch, 2009) shows that the most advanced productive companies are those that had an edge in sustaining competitive advantage and invested a lot of financial resources in positioning themselves to compete effectively. Similarly entrepreneurs of well-performing companies in these three African countries acknowledged the importance of creating good jobs for skilled people. They paid higher salaries and spent more resources on training than the other companies which resulted in increased productivity and innovation. This study clearly shows the positive link between financial resources and human resources to sustaining competitive advantage.

In Kenya, a study by Kipchumba, Chepkuto, Obara and Bitange (2010) on the assessment of knowledge management as a source of competitive advantage and its impact on the performance of Egerton University farms revealed that indeed private farms acquired, stored and shared information for their competitive advantage from various sources compared to Egerton University farms, a situation which made the private farms more competitive than the university. Further, a study by Murithi (2011) on the factors contributing to sustainable competitive advantage in telecom business organizations, a case study of Safaricom Limited, revealed that Safaricom managed to sustain competitive advantage over its competitors by virtue of having inimitable resources. Further, technological resources have greatly changed the way that service firms and consumers interact, and are raising a host of research and practice issues relating to the delivery of e-service which has become increasingly important not only in determining the success or failure of electronic commerce, but also in providing consumers with a superior

experience with respect to the interactive flow of information. Technological resources are critical and cannot be put in place without strong financial resource backing.

A study by Ombati, Magutu, Nyamwange and Nyaoga (2010) on technology and service quality in the Banking Industry, importance and performance of various factors considered in electronic banking services, revealed that technology has continued to enable banks in Kenya to sustain competitive advantage, technology itself is critical and requires heavy financial investments to put in place. There is cut throat competition in the Oil industry in Kenya due to growing number of players and diminishing profit margins (Ongwae, 2010). The current study focused on this industry which has been rocked by many changes in the competitive landscape, from full deregulation to partial regulation in retail, from a fully operational to a defunct local refinery, from no oil deposits to confirmed reports of commercially viable oil deposits, to name but a few of the changes. The study made use of some of the variables from the previous studies in Kenya, in this case: Human Resources and Financial Resources but also incorporated more resources including Plant & Equipment resources, and Brand & Heritage resources to examine the role played by these organizational resources on the sustainability of competitive advantage with respect to Oil Marketing Companies (OMCs) in the Oil industry in Kenya.

## **STATEMENT OF THE PROBLEM**

The Oil Industry in Kenya has in the recent past undergone a lot of changes in the competitive landscape, Changes in infrastructure, oil discovery and many new entrants leading to cut throat competition (Ongwae, 2010). Other notable changes in the industry have been; the price capping regulations introduced by the Energy Regulatory Commission (ERC) in January 2011 that requires the retail fuel pump prices to be reviewed every 15th Day of the month (ERC, 2014) therefore eliminating pricing rivalry and introducing majority service station ownership as a new competing tool, the change of the only petroleum refinery in the country from a toll processing refinery to a merchant processing refinery and finally to a defunct refinery (KPRL 2014), eliminating cost competitiveness due to internal efficiencies as a competing tool and introducing leveled cost platform among the industry rivals, and finally the oil discovery in northern Kenya that has introduced new focus onto the Oil Industry in Kenya both upstream and downstream seeing unprecedented interest especially from major international players in oil exploration and production (PIEA, 2014, Sambu, 2012). The industry has further been plagued by unpredictable fluctuations of oil prices in the international market, volatility in the foreign exchange market and also the unpredictable political environment (Chepkwony, 2001; Ongwae, 2010). A recent survey conducted by PricewaterhouseCoopers (PwC) 'African oil & gas review, 2017', analyses the effects in the oil & gas industry since the decline of the oil price in late 2015, which has had a significant effect on major and emerging African markets especially for the local oil marketing companies growth and investing in the sector. Whereas past empirical studies had shown varying degrees of the role of organizational resources in sustainability of competitive advantage in various industries across the world (Wernerfelt, 1984; Wiklund & Shepherd, 2003; Morgan,

Kaleka & Katsikeas, 2004; Sirmon, Hitt & Ireland, 2007), there had been limited focus on the Oil Industry and in Kenya particularly, therefore generalization of the results to the Oil Industry in Kenya may not have been appropriate hence the need for this study. The natural resources hold significant potential for the country, oil discovery has attracted renewed interest and entry of new players in both the downstream and upstream sectors of the Oil Industry in Kenya (Tullow, 2014). With these massive changes in the industry, there was need for understanding the role played by the various resources in the sustainability of competitive advantage in order for the industry players to leverage on their organizational resources to compete successfully in the fiercely competitive industry currently rocked by increasing competition and steeply declining profit margins (Chepkwony, 2001). There was however limited studies in this respect and hence the need for the study.

## **GENERAL OBJECTIVE**

The general objective of the study was to establish the role of organizational resources on the sustainability of competitive advantage in the Oil Industry in Kenya

## **SPECIFIC OBJECTIVES**

1. To determine the role of Plant & Equipment Resources on the sustainability of Competitive Advantage in the Oil industry in Kenya.
2. To ascertain the role of Brand & Heritage Resources on the sustainability of Competitive Advantage in the Oil industry in Kenya.
3. To confirm the Moderating Role of Government Policy on the role of Organizational Resources on the sustainability of Competitive Advantage in the Oil industry in Kenya.

## **THEORETICAL REVIEW**

The study was anchored on the Resource-Based View (RBV) theory of the firm and further critically examined other existing theoretical and empirical literature on organizational resources and how organizations in general leveraged on their resources in sustaining competitive advantage. This theory was initiated in the 1980's by Wernefelt (1984), Rumelt (1984) and Barney (1986). Theory assumes that work firms can be described in terms of bundles of productive resources which are different for each specific firm. Barney and Clark ( 2007 & 2008), affirm that each firm can be thought to possess different bundles of these resources, and that the organizational resources are all the organizational goods, capacities, abilities, processes, attributes, information, knowledge and many others that are controlled by the organization and that makes it possible for firms to conceive and to implement strategies that improve their efficiency and effectiveness in the market in a bid to sustaining their competitive advantage. Wilburn & Wilburn (2011) states that competitive advantage of a firm is based on its internal resources and competencies. Resources are inputs into a firms' production process, this may include capital, equipment, talented managers among others (Peteraf and Barney, 2003).

Resources in a firm can be classified into two types; these are tangible and intangible resources (Conner, 1991; Barney, 1991). Tangible resources include all the physical assets e.g. Vehicles, Land, Equipment, machinery, inventory, bonds, cash among others. These are the resources that are available to the firm but not to its customers. The main disadvantage of these resources is that they are prone to being damaged either by natural occurrences or by people. Intangible resources are nonphysical, they may include resources like patents, copyrights, franchisees, brands and trademarks. The intangible resources show the future worth of an organization and may be more important than tangible resources. The main objective of these resources is to create a sustainable competitive advantage. For this to be achieved, the capabilities must be; Valuable, Rare, Difficult to imitate and able to be exploited by the firm (Wilburn & Wilburn, 2011; Barney, 1991).

## **RESEARCH METHODOLOGY**

### **Research Design**

A research design is a conceptual structure within which research would be conducted aimed at providing the collection of relevant evidence with minimal expenditure of effort, time and money (Mugenda & Mugenda, 2012). This study adopted a combination of the survey and correlational research designs. Survey design provides a quantitative or numeric description of trends, attitudes or opinions of a population by studying a sample of that population. From sample results, the researcher generalizes or makes claims about the population (Creswell, 2011). It entails the collection of data on more than one case and at a single point in time in order to collect a body of quantitative or quantifiable data in connection with two or more variables which are examined to detect patterns of association (Bryman & Bell, 2003; Floyd & Fowler, 2009). The survey research design was found to be appropriate by the researcher because the researcher was studying a sample in order to make generalizations about the population. There was therefore the advantage of identifying the attributes of the population from a small group of individuals. Secondly, the design was found suitable because of enabling the researcher make quantitative descriptions of the opinions of the population. The research design enabled the researcher to collect data on the role of organizational resources in the sustainability of competitive advantage in the Oil Industry in Kenya. This was a cross sectional study as it involved the collection of data at a single point in time. According to Mugenda (2008), a survey attempts to collect data from members of a population in order to determine the current status of that population with respect to one or more variables. Wibowo and Deng (2013) argues that qualitative and quantitative are the two main approaches that define any research. According to Zikmund, Babin, Carr and Griffin (2010), quantitative approach is a design that sets out to quantify data in order to use statistics to analyze a data set. In addition, it is the most popular research approach used to examine relationship between different variables and measure objective theories (Creswell & Creswell, 2017). In this study quantitative approach was used to quantify the hypothesized relationship between dependent variable sustainability of competitive

advantage and the independent variables. On the other hand, a correlational research design was necessitated by the fact that it was important to assess the relationship between variables through the correlation matrix. Correlational research is one in which variables of interest are not controlled or manipulated but measured as they naturally occur to help the researcher assess relationships between variables (Reaves, 1992). Correlational analysis provides an avenue to test for the existence and direction of relationship between variables. The higher the absolute correlation coefficient the stronger the association between the variables.

### **Target Population**

Cooper and Schindler (2008) define a population as the total collection of elements about which the researcher wishes to make inferences. According to Gall and Borg, (2007) population refers to the entire spectrum of a system of interest. Kerlinger (2006) defined population as the universe of units from which the sample is to be selected. The population of this study was all the 3,444 employees (CEOs, head of departments, business line managers, middle level managers, supervisors and operatives) of the 63 registered Oil Marketing Companies (OMCs) in Kenya licensed by ERC. The target population was identified based on the fact that 80% of all registered Oil Marketing Companies (OMCs) in Kenya licensed by ERC cover only downstream oil marketing companies in the Oil Industry in Kenya especially those that have operations in major cities in Kenya, including Nairobi, Mombasa, Machakos, Garissa, Embu, Nakuru, Kisumu, Eldoret, Bungoma, Kisii, Thika and Kitale; these being the major economic, trade and industrial cities or towns in Kenya, and most oil marketing companies with significant operations in the country will be present in these areas or aspiring to be present in the long term at retail level.

### **Sampling Frame**

Creswell and Creswell (2017) argues that sampling frame is a physical representation of all the elements in the population from which the sample is drawn while Cooper & Schindler (2011) and Mugenda & Mugenda (2012) defined sampling frame as the list of elements from which the sample is actually drawn. It's a published list or set for identifying a population (Gall, Gall & Borg, 2007). The number of employees for all the divisions of the targeted oil marketing companies was obtained from the payroll as per the listing published by the Energy Regulatory Commission (ERC). A sample was drawn from this sampling frame which was composed of employees at operative, supervisory and management level.

### **Sample and Sampling Technique**

Bryman and Bell (2015) defined a sample as a segment or subset of the population that is selected for analysis. Mugenda and Mugenda (2012) describes a sample as a subset of elements drawn from a larger population. Kombo and Tromp (2009), and Kothari (2004) describe a sample as a collection of units chosen from the universe to represent it. Polit and Beck (2013),

strongly recommends that it is more practical and less costly to collect data from a sample than from the entire population. The risk, however, is that the sample might not adequately reflect the population's behaviours, traits, symptoms, or beliefs. A representative sample is therefore one that truly and accurately reflects and represents the population being sampled (Neuman, 2013; King'oriah, 2004). Kothari, (2004) advocates that a good sample should be truly representative of the population, result in a small sampling error, viable, economical, and systematic. According to Kothari, (2004), various sampling methods exist and vary in cost, effort and skills required, but the adequacy of the methods is assessed by the criterion of representativeness of the selected sample and that the quality of the sample depends on how typical or representative the sample is of the population with respect to the variables of concern in the study. For the purpose of this study and guided by the model proposed by Mugenda and Mugenda (2012) from a population of less than 10,000 objects:

$$n = (z^2pq)/d^2$$

Where:  $n$  = is the desired sample size when the target population is  $> 10,000$ ;  $z$  = standardized normal deviations at a confidence level of 93.28% which is 1.83;  $p$  = the proportion in the target population that assumes the characteristics being sought. In this study, a 50:50 basis was assumed which is a probability of 50% (0.5);  $q$  = the balance from  $p$  to add up to 100%. That is  $1-P$ , in this case will be  $50\% - (0.5) = 0.5$ ;  $d$  = measure of level of Significance, at 93.28% confidence interval, the level of significance is 0.0672

The effective target population for the study is derived as:  $n = (1.83^2 \times 0.5 \times 0.5)/0.0672^2 = 185$ .

To determine an adjusted target population Mugenda & Mugenda (2003) advises on use of an adjusted formula:

$$n_f = n/(1+n-1/N)$$

Where:  $n_f$  is the desired sample size when target population is less than 10,000;  $n$  is the sample size when the target population is more than 10,000;  $N$  is the target population size in this case 3,444 being the total number of employees in the OMCs from the top management to the operative level.

Therefore in determining a representative sample size:

$$n_f = n/(1+n-1/N) = 185/(1+184/3,444) = 176$$

Sample size = **176**

The sample size as drawn by OMC was categorized on the basis of the stratum. Also, to determine the sample size of each category of employees working according to the levels of management, proportionate stratified sampling was used as follows;

$$\text{MNCs} = \frac{711 \times 176}{3444} = 36 \text{ employees}$$

For Trans National Companies

$$\text{TNCs} = \frac{1168 \times 176}{3444} = 60 \text{ employees}$$

For Local Kenyan Companies

$$\text{LKC} = \frac{910 \times 176}{3444} = 46 \text{ employees}$$

For Independent Companies

$$\text{IKC} = \frac{655 \times 176}{3444} = 34 \text{ employees}$$

The respondents from every subgroup were then selected for inclusion in the sample size using simple random sampling. This ensured that the sampling units have equal chance in the study.

### **Data Collection Instruments**

Although several tools exist for gathering data, the choice of a particular tool depends on the type of research. These include; focus group discussions, observations, interview and questionnaire. In this study, a questionnaire was seen as the most appropriate tool. A questionnaire is perceived as the most accurate tool for measuring self-sufficiency existing relationship, objects or events as well as self-reported beliefs and behaviour (Neuman, 2013). Further, the questionnaire is seen to be appropriate as it allows data to be collected in a quick and efficient manner. The use of questionnaire also makes it possible for descriptive, correlation and inferential statistical analysis (Saunders et al., 2007). The researcher developed the questionnaire to be used in this study on the basis of previous studies. The items used in this study were adopted and modified from a questionnaire. Use of previous questionnaire assists in the reliability and validity of the current instrument as well as saving much time spent in developing new questionnaire (Bryman & Bell, 2015). A five-point likert scale was used for most questions in the survey except for the section dealing with firm background information and a few open-

ended questions. Likert type scale is an ordinal scale comprising of a set of qualitative variations of a particular attribute or entity ordered sequentially from least to most (Kumar & Phrommathed, 2005) and has been commonly used in business research (Kumar, 2005). Five choices were provided for every question or statement. The choices represented the degree of agreement to the given question, 1. very low extent, 2. low extent, 3. average extent, 4. high extent and 5. very high extent; as relates to the roles played by the selected organizational resources in the sustainability of the organization's competitive advantage in the oil industry in Kenya versus the rivals. The Likert type of questions enables the respondents to answer the questions easily. In addition, these allows the researcher to carry out the quantitative approach effectively with the use of statistics for data interpretation.

## **RESEARCH RESULTS**

The study investigated the role of organizational resources on the sustainability of competitive advantage in the Oil industry in Kenya. The analysis showed that the organizational resources variables of plant and equipment resources, and, brand and heritage resources were significant predictors of sustainability of competitive advantage in the Oil industry in Kenya. The study findings agree with generic strategy study which suggested that for the sustainability of competitive advantage in any industry are appropriate strategies in the dynamic environment (Dess & Davis, 2017). The study further investigated the moderating effect of government policy on the relationship between organizational resources and sustainability of competitive advantage in the Oil industry in Kenya. The results of the study revealed that government policy had an insignificant negative moderating effect on sustainability of competitive advantage in the Oil industry in Kenya. This result is congruent with Porter's (1985) assertion that government policy is an important determinant of firm profitability in a given industry.

The findings are consistent with those of other scholars. Shigang (2010) in his study investigating government policy and business environment on performance of Small Enterprises in China found a relationship between government policy and SMEs performance. Sorensen & Torfing (2018) also argued that government policy within the industry may lead to firm performance. Jaworski and Kohli (1993) similarly explained that higher government policy will give customers more options leading to lesser market dominance of the firm and reduced sales.

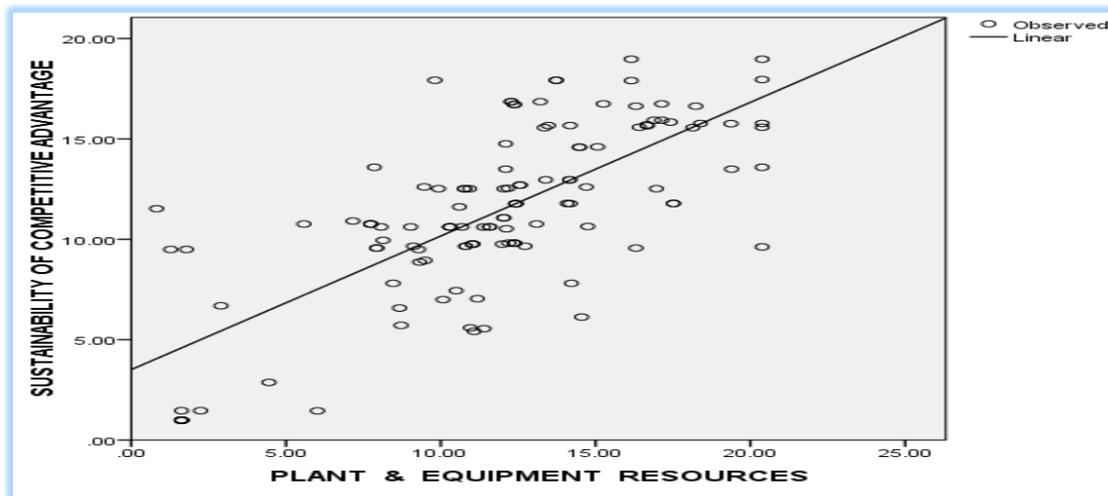
## **REGRESSION ANALYSIS**

The study used Ordinary Least Squares (OLS) estimation method to test the significance of organizational resources on sustainability of competitive advantage with government policy moderating the relationship. The study calculated the factor scores for each construct and used the factor scores in the regression analysis. Factor scores have been widely used to represent a construct in regression analysis (Tabachnick & Fidell, 2001; Johnson & Wichern, 2002). To account for the moderating effect of government policy, the study introduced the interaction

terms between the moderator and each independent variable. The regression results are discussed as follows.

### **Influence of Plant and Equipment Resources on Sustainability of Competitive Advantage**

A line of best fit was generated from the data so as to establish how well the model fitted the data. The findings were presented in Figure 2. The figure showed that most of the scatter dots lay within the regression line and therefore, the model fitted the data. The diagonal regression line indicated that there is positive linear relationship between sustainability of competitive advantage and plant & equipment resources. Zhu, Gelders and Pintelon (2002) captured the essence of this relationship when they argued that the maintenance process adds to customer value in terms of profit, quality, time and service. Therefore, the maintenance function became more essential for a manufacturing organisation's ability to maintain its competitiveness.



**Figure 1: Line of best fit for sustainability of competitive advantage against plant & equipment resources**

Under objective three, the study sought to determine the relationship between plant and equipment resources and sustainability of competitive advantage. The regression analysis was used to test the amount of variance in sustainability of competitive advantage accounted for by plant and equipment resources. It was hypothesized that:

**$H_{03}$ :** There is no role played by plant and equipment Resources on the Sustainability of Competitive Advantage in the Oil Industry in Kenya.

The regression results shown in Table 1 revealed that there exists a significant relationship between plant and equipment resources and sustainability of competitive advantage ( $F(1,122)=135.218$ ,  $p\text{-value}<0.001$ ). The coefficient of determination ( $R$  squared) of 0.526

showed that 52.60% of sustainability of competitive advantage could be explained by plant and equipment resources. The adjusted R-square of 52.20% indicated that plant and equipment resources in exclusion of the constant variable explained the change in sustainability of competitive advantage by 52.20%, the remaining percentage could be explained by other factors excluded from the model. R of 0.725 shows that there is positive correlation between sustainability of competitive advantage and plant and equipment resources. The standard error of estimate (3.0018) shows the average deviation of the independent variables from the line of best fit.

The study hypothesized that plant and equipment resources had no significant influence on sustainability of competitive advantage. The study findings indicated that there was a significant positive relationship between plant and equipment resources and sustainability of competitive advantage ( $\beta=0.666$  and  $t=11.628$ ) which has a (p-value  $<0.001$ ). Further, the linear regression analysis coefficients show that the model  $Y= \beta_0 + \beta_3X_3$ , is significantly fit. The general form of the equation to predict sustainability of competitive advantage from  $X_3=$  Plant and equipment resources; becomes  $= 3.508 + 0.666X_3$ . This indicated that Sustainability of competitive advantage  $= 3.508 + 0.666*$  plant and equipment resources. The model Sustainability of competitive advantage  $= \beta_3$  (plant and equipment resources) holds as suggested by the test above. This confirmed that there is a positive linear relationship between plant and equipment resources and sustainability of competitive advantage. Therefore, a unit increase in use of plant and equipment resources index led to an increase in sustainability of competitive advantage index by 0.666. Since the p-value was less than 0.05 as shown in Table 3, the null hypothesis was rejected and could then be concluded that there is role played by plant and equipment resources in the sustainability of competitive advantage in the oil industry in Kenya.

According to Al-Najjar (2001), more emphasis has been put on plant maintenance as a profit generating function and a key driver of competitive advantage. The findings confirm that of Morabito, Themistocleous and Serrano (2010) who established that inimitable technology is hard to replicate by rivals, and that integrative framework is key for creativity, innovation and competition, and thus creating a competitive advantage for the firm. These findings confirm those by Walsh, Schubert and Jones (2010) on enterprise system investments and competitive advantage where it was established that IT investments yield competitive advantage

**Table 1: Model Summary (Plant & Equipment Resources)**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.725 <sup>a</sup>	.526	.522	3.00184

a. Predictors: (Constant), Plant & Equipment Resources

**Table 2: ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1218.460	1	1218.460	135.218	.000 <sup>b</sup>
	Residual	1099.348	122	9.011		
	Total	2317.808	123			

a. Dependent Variable: Sustainability Of Competitive Advantage  
 b. Predictors: (Constant), Plant & Equipment Resources

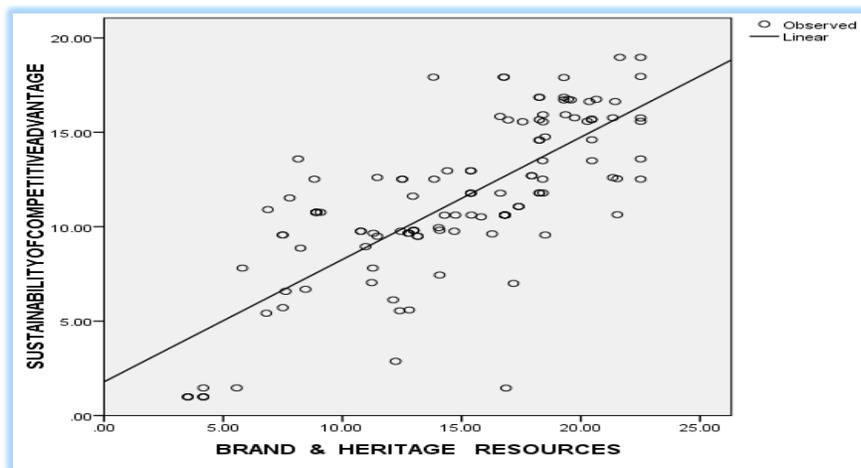
**Table 3: Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.508	.722		4.860	.000
	Plant & Equipment Resources	.666	.057	.725	11.628	.000

a. Dependent Variable: Sustainability Of Competitive Advantage

**Influence of Brand and Heritage Resources on Sustainability of Competitive Advantage**

A line of best fit was generated from the data in order to find out if the model fitted the data. From the findings that were presented in Figure 3, most of the scatter dots lay within the regression line and this implied that the model fitted to the data. Also, the diagonal regression line showed that sustainability of competitive advantage and brand & heritage resources had a positive linear relationship. Besanko, et al., (2007) argued that buyer uncertainty coupled with reputational effects can make a firm’s brand name a powerful isolating mechanism and hence a great source of sustainable competitive advantage. An organization’s heritage and their path to their current position is uniquely shaped by many different factors which cannot be replicated (Barney, 1991), and thus creates competitive advantage for the firm.



**Figure 2: Line of best fit for sustainability of competitive advantage against brand & heritage resources**

Under objective four, the study sought to determine the relationship between brand and heritage resources and sustainability of competitive advantage. The regression analysis was used to test the amount of variance in sustainability of competitive advantage accounted for by brand and heritage resources. It was hypothesized that:

***H<sub>04</sub>***: There is no role played by brand and heritage resources in the Sustainability of Competitive Advantage in the Oil Industry in Kenya.

The regression results shown in Table 5 revealed that there exists a significant relationship between brand and heritage resources and sustainability of competitive advantage ( $F(1,122)=165.094$ ,  $p\text{-value}<0.001$ ). The coefficient of determination (R squared) of 0.575 showed that 57.50% of sustainability of competitive advantage could be explained by brand and heritage resources. The adjusted R-square of 57.20% indicated that brand and heritage resources in exclusion of the constant variable explained the change in sustainability of competitive advantage by 57.20%, the remaining percentage could be explained by other factors excluded from the model. R of 0.758 showed that there was positive correlation between sustainability of competitive advantage and brand and heritage resources. The standard error of estimate (2.8414) showed the average deviation of the independent variables from the line of best fit.

The study hypothesized that brand and heritage resources had no significant influence on sustainability of competitive advantage. The study findings indicated that there was a positive significant relationship between brand and heritage resources and sustainability of competitive advantage ( $\beta=0.648$  and  $t=12.849$ ) which had a ( $p\text{-value} <0.001$ ). Further, the linear regression analysis coefficients showed that the model  $Y= \beta_0 + \beta_4X_4$ , is significantly fit. The general form of the equation to predict sustainability of competitive advantage from  $X_4=$  Brand and heritage resources; becomes  $= 1.783 + 0.648X_4$ . This indicated that Sustainability of competitive advantage  $= 1.783 + 0.648*$  brand and heritage resources. The model Sustainability of competitive advantage  $= \beta_4$  (brand and heritage resources) holds as suggested by the test above. This confirms that there is a positive linear relationship between brand and heritage resources and sustainability of competitive advantage. Therefore, a unit increase in use of brand and heritage resources index led to an increase in sustainability of competitive advantage index by 0.648. Since the p-value was less than 0.05 as shown in Table 6, the null hypothesis was rejected and could then be concluded that there is role played by brand and heritage resources in the sustainability of competitive advantage in the Oil Industry in Kenya. The findings of the study confirmed findings of Heese et al., (2005) on competitive advantage through product take-back. They established that popular brand and size dominance provided competitive advantage.

**Table 4: Model Summary (Brand & Heritage Resources)**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.758 <sup>a</sup>	.575	.572	2.84136

a. Predictors: (Constant), Brand & Heritage Resources

**Table 5: ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1332.861	1	1332.861	165.094	.000 <sup>b</sup>
	Residual	984.947	122	8.073		
	Total	2317.808	123			

a. Dependent Variable: Sustainability Of Competitive Advantage

b. Predictors: (Constant), Brand & Heritage Resources

**Table 6: Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients		t	Sig.
		B	Std. Error	Beta			
1	(Constant)	1.783	.783			2.277	.025
	Brand & Heritage Resources	.648	.050	.758		12.849	.000

a. Dependent Variable: Sustainability Of Competitive Advantage

Table 7 presents the model 1 with the beta coefficients of all independent variables versus. Table 7 also showed that the coefficient of plant and equipment resources ( $X_3$ ) was 0.239 which was greater than zero. The t statistic of this coefficient was 2.813 with a p value < 0.006. This implied that the coefficient 0.239 was significant. Since the coefficient of  $X_3$  was significant, it showed that plant and equipment resources have a significant influence on sustainability of competitive advantage. According to the study findings, Plant & equipment resources contributes .239 for every unit increase in sustainability of competitive advantage and the contribution is statistically significant (p-value = .006). On the other hand, the coefficient of plant & equipment resources increases to .249 and the coefficient is statistically significant (Sig. = .004) when the moderating variable is included in the second model. This shows that government policy plays a positive moderating role between sustainability of competitive advantage and plant & equipment resources.

Table 7 further showed that brand and heritage resources ( $X_4$ ) had a coefficient of 0.334 which is greater than zero. The t statistics is 4.091 which had a p-value < 0.001 implied that the coefficient of  $X_4$  is significant at 0.05 level of significance. This showed that brand and heritage resources have a significant positive influence on sustainability of competitive advantage. Further, for every unit increase in sustainability of competitive advantage, brand & heritage

resources contribute the highest as compared to other independent variables with .334 and the contribution is statistically significant (P-value<0.000). However, the coefficient of brand & heritage resources reduces to .316 and it has a high statistical significance (P-value<0.001) when the moderating variable is incorporated in the second model. This shows that government policy has a significant negative moderating role between sustainability of competitive advantage and brand & heritage resources.

**Table 7: Coefficients<sup>a,b</sup>**

Model		Unstandardized Coefficients		Standardized	T	Sig.
		B	Std. Error	Beta		
1	Plant & Equipment Resources	.239	.085	.249	2.813	.006
	Brand & Heritage Resources	.334	.082	.429		
2	Plant & Equipment Resources	.249	.085	.260	2.944	.004
	Brand & Heritage Resources	.316	.082	.406		
	Government Policy	.070	.043	.105		

a. Dependent Variable: Sustainability Of Competitive Advantage

b. Linear Regression Through The Origin

**CONCLUSIONS**

The study established that plant and equipment resources had a significant positive influence on sustainability of competitive advantage and, Government policy played a positive moderating role between sustainability of competitive advantage and plant and equipment resources. The study results also showed that brand and heritage resources had a significant positive influence on sustainability of competitive advantage and that Government policy had a negative moderating effect between sustainability of competitive advantage and brand and heritage resources.

These findings are in agreement with some of the existing literature. This study therefore provided substantive support for previous findings in the organizational resources literature and fresh insight about organizational resources and sustainability of competitive advantage in the oil industry in Kenya. On overall, organizational resources were found to be collectively significantly influencing the sustainability of competitive advantage in the oil industry in Kenya. Subsequently, the study had a basis to conclude that, collectively, organizational resources play a significant role on the sustainability of competitive advantage in the oil industry in Kenya.

## **RECOMMENDATIONS**

The study findings indicated that plant & equipment resources played a significant positive role on the sustainability of competitive advantage of the firm. Therefore, the study recommends that firms that want to gain and sustain competitive advantage should invest in modern efficient and effective production facilities and systems. They should also be strategically located to enable easy access to their customers and business partners making them more reliable as compared to their rivals.

The study findings showed that brand & heritage resources accounted the highest to the variability of sustainability of competitive advantage. Therefore, the study recommendation to the firms that want to gain and sustain competitive advantage is that, they should secure image in the eyes of their customers and business partners therefore positioning their product brands and services above those of their competitors.

From the study findings, government policy was found to have insignificant moderating influence on the relationship between organizational resources and sustainability of competitive advantage. Therefore, the study recommends that individuals and organizations that wish to join the oil industry in Kenya should do so with confidence that the government policies will not hinder their competitiveness in the industry.

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