

## MANAGING EFFECTIVE CHANGE MANAGEMENT IN THE PETROLEUM SECTORS IN KENYA

**Abdikarim Ibrahim Abdow**

**PhD Student, Jomo Kenyatta University of Agriculture and Technology**

**P.O box 1106-70100, Garissa.**

**CITATION:** Abdow, I. Abdikarim (2015). Managing Effective Change Management In The Petroleum Sectors In Kenya. *European Journal of Business Management*, 2 (1), 53-67.

### ABSTRACT

Change management in the Petroleum industries in Kenya has passed through many stages and made various strides to enhance its operations so that members and the general public are benefiting from in a broad perspective. Although the government has been involved in streamlining the change system in the petroleum industry, it is marred by inefficiencies. Based on this concern, the study meant to establish the factors affecting effective change management in the petroleum sectors in Kenya. The study was guided by the following specific objectives: To find out the effect of warehousing on effective distribution of petroleum products; to assess the effect of transportation on effective distribution of petroleum products and to establish the effect of lead times on effective distribution of petroleum products. The study targeted three hundred and two (n=302) respondents among which thirty (n=30) of them took part in the study. The study used both primary and secondary data as its source and semi structured questionnaires as the main instrument of data collection. The collected data will be edited, coded and entered for analysis. The findings will be presented in pie charts, bar graphs, and tables for clarity. From the analysis the study found that warehousing, transportation, lead time and supplier relationship play a key role in the effective distribution of petroleum products. The study recommended that the management should ensure that storage facilities are well equipped and made convenient, there is need of reviewing the petroleum change infrastructure, systems and investment in the sector to guarantee reliable, efficient and cost effective change and that the management should

ensure that the correct analysis of lead time is made in order to provide the industry with various benefits.

**Keywords:** *Change management, change system, government and petroleum products.*

## Introduction

The various petroleum companies involved in the Marketing of petroleum products, Kenya Petroleum Refinery Limited (KPRL) (which operates the only oil refinery in the country) and the Kenya Pipeline Company Limited, which operates the pipeline that runs from Mombasa to Nairobi, Kisumu and Eldoret are the major players in the petroleum industry(PIEA,2011). The Energy Regulatory Commission (ERC) requires all oil marketers to refine at least 40 per cent of their products at the (KPRL) Kenya Petroleum Refinery Limited. The main marketers in the petroleum industry are Total, Shell and Kenol Kobil who control a total of 68 per cent of the petroleum market in Kenya And have been setting the pace for petroleum pricing however OiLibya, the fourth largest player, and National Oil have been closing the gap with steady growth of market share. There are also Independent dealers such as Hass Petroleum, Hashi Gulf Energy and Gapco Oil ((PIEA, 2011). Effective change management is a vital function to help to ensure the success of the petroleum industry. The central aim of Change Management is to have the right products in the right quantities, at the right place, at the right moment and at minimal cost, effectively translating in to customer satisfaction. Customer satisfaction is dependent on the flexibility of the Change Management, i.e. its ability to respond to changes in demand. Flexibility is often imperfect because of long lead times, uncertainties, and unforeseen events (Arntzen, 1995).

In Kenya's competitive petroleum sector, being able to achieve a high degree of customer satisfaction is critical. What a firm selects as its distribution approach, can contribute either positively or negatively to this outcome, e.g. Business may be lost through cancelled orders, and the company's reputation may be severely damaged. Company's should therefore have effective distribution management systems to achieve high customer satisfaction (Arntzen, 1995).The Petroleum players including (KPC) Kenya Pipeline Co., the leading petroleum products

distributor in Kenya, have some challenges and successes, all related to the way they handle & manage their major inventory at their disposal and how it impacts on customer satisfaction.

According to a study done focusing on the petroleum industry by a research firm Consumer Insight (2009), the inventory handling systems were not up to date and could not be classified as 70% reliable thus impacting negatively on distribution to the final consumers. Unreliability in the change management systems used by petroleum players was found to be literally expensive and impacted poorly & directly on the company's bottom line results and its competitiveness in the long run (Nyikal, 2005).

### Statement of the Problem

Kenya's oil industry contributes over 20% of the GNP;(KNBS,2011)The transport sector is the largest consumer of petroleum products at approximately 60% of the total volume followed by manufacturing 16%,commercial establishment 11%,households use 9% and agriculture 4% (KNBS,2011).The domestic demand for various petroleum fuels on average stands at 2.5 million tons per year(PIEA,2011) all of it imported from the gulf region, either as crude oil for processing at the Kenya petroleum refineries limited or as refined petroleum products (PIEA,2011). According to a study done focusing on the petroleum industry by a research firm consumer insight, Kenya pipeline company limited supply management system was found to be inept therefore making products handling systems not up to date and cannot be classified as 70% reliable thus impacting negatively on distribution to the final consumers (consumer insight, 2009). The Kenyan petroleum industry have been dodged with a lot of issues affecting their performance (PIEA, 2011).Inadequate storage facilities, poor risk management for instance volatility in transportation costs, capacity constraints leading to delays of clearing the products at the depots resulting too long lead times, supplier relationship issues, weak exchange rates, slump in the value of the shilling against the dollar, rise in prices of oil per barrel, and increased role of traders and speculators are all signs of an inefficient distribution(Economic Survey, 2011). Long lead times and other distribution inefficiencies continue to erode consumer satisfaction ultimately impacting negatively on Kenya's economic growth as stipulated in the vision 2030(PWC, 2011).Unreliability in the supply chain management system used by a company like

KPC is expensive, and its impact affects the way its customers are served. Hence it impacts negatively and directly on the company's cash flows and its competitiveness in the long run (Nyikal, 2005). Empirical studies have concentrated on the management of quality products in the supply chain (Awuor, 2013, Mwikali, 2012, Amadi, 2010), Economic problems and the Islamist terrorist in Nigeria (Schaefer & Cohen, 2004) and Tivnan (2009) has done a study on the relationship between oil and political stability in Kuwait, Nigeria, and Venezuela. This indicates that there is hardly any empirical study on quality aspects on the factors affecting effective change management of petroleum products in Kenya. This study thus sought to fill this knowledge gap.

## Literature Review

### The Concept of Change Management

Change Management aims to link all the change agents to jointly cooperate within the firm as a way to maximize productivity in the change and deliver the most benefits to all related parties (Finch, 2006). Adoption of Change management practices in industries has steadily increased since the 1980s. Over the past decade, the traditional purchasing and logistics activities have emerged and shifted into broader strategic approach to materials and distributions management known as change management. It is currently a major issue as organizations realize the substance of developing an integrated connection with their suppliers and final users. Theoretically, as described by Mentzer et al (2001), a change can be defined as "a set of three or more organizations directly linked by one or more of the upstream and downstream flows of products, services, finances, and information from a source to a customer." The main goal and important aspect of change is leveraging the expertise, experience, skills and capabilities of the change professionals who comprise this competitive network (Mentzer et al, 2001).

The performance of a firm depends not only on how efficiently it cooperates with its direct partners, but also on how well these partners cooperate with their own business partners. Network theory (NT) can be used to provide a basis for the conceptual analysis of reciprocity (Oliver, 1990) in cooperative relationships. Here, the firm's continuous interaction with other players becomes an important factor in the development of new resources (Haakansson and Ford,

2002). Relationships combine the resources of two organizations to achieve more advantages than through individual efforts.

### Factors affecting effective change management in petroleum sector in Kenya

The study has analyzed the effect on change management by four factors namely, information technology, change design, people issues and collaboration/partnership issues. Sweeny (2005) argues that managing the information flows is the most critical of these activities. This is because the flow or movement of materials or money is usually triggered by associated information movement. Lalwani et al (2006) proposed that current developments in systems thinking and continuous system simulation, when applied within the context of an operations management framework, may offer the good design of change and improve in change performance.

According to Matthew (2008), as global markets grow increasingly efficient, competition no longer takes place between individual businesses, but between entire value chains. Therefore executives are developing change partnerships/collaboration in an attempt to reduce costs, improve service and to gain competitive advantage. The cooperation arises directly from both relationship trust and commitment (Morgan et al, 1994). According to past research, trust has two dimensions: “honesty” and “benevolence” (Rajendra et al, 1995). There are several dimensions of trust in change performance such as confidence in preferred trading partner, always keeping promises, always being honest, good reputation and close personal friendship (Batt, 2003).

### Theoretical Review

#### The SCOR

Change management operations reference model (SCOR) was first developed by the management consulting firm PRTM, now part of price water house coopers and was endorsed by change management council as a change management diagnostic tool. The management defines SCOR as a tool that enable the users to address, improve and communicate the activities within a change management and all the other parties involved. It spans from supplier to the customer customer Simchi-levi, 2008). This model was developed to clearly show the cycle involved in satisfying the customer demands and is based on process modeling, performance measurements and best practices. The process modeling pillar assist in describing simple and very complex

change management activities. SCOR is based on a number of distinct management processes which include planning, sourcing, make decisions, deliver and return (Rolf, 2007).

Plan as a management process entails balancing aggregate demand and supply to develop a course of action which will best meet the source, production and delivery requisition. Source is all about procuring of goods and services that will meet the demand in the market (Rolf, 2007).

Deliver has to do with processes of providing finished goods and services to meet the demand and this also includes order management, transport management and distribution management.

Finally return entails processes associated with the return and receiving of returned products for reasons best known by the customer (Shreekant, 2012). The scope of the model covers the interaction of the customer from order entry to invoice payment, all product transactions from the supplier to the customer in the change management including the spare parts, supplies, and the interaction in the market from understanding the knowledge on demand aggregate to the fulfillment of each order made. Other assumptions addressed by SCOR include the following; training, quality, information technology and general administration (Peter 2003).

The theory was developed for effective communication among partners of the change management. It also facilitates collaboration which is inter and intra within the supply chain, horizontal integration (Peter 2003). The model is used to describe measure and evaluate change management in a move of supporting the strategic plan and continuous improvement. The performance measurements pillar contains more than 150 key indicators that are used to measure performance of the change management operations (Rolf, 2007). The SCOR performance metrics are organized in some of a hierarchy and level 1 metrics are typically used by top management decision makers to measure overall supply chain performance. Level 1 metrics are primary and do not necessarily relate to a SCOR level process which are plan, source, make, deliver and return (Rolf, 2007). The best practices pillar basically identifies what activities should be performed once the performance of the change management operations has been measured and performance gaps identified (Shreekant, 2012). The SCOR model defines best practice as a current which must not be emerging, structured; with stated goals, scope, process and procedure, proven; that is with proven success and repeatable method for making a positive impact on desired operational results (Simchi-Levi, 2008).

## Research Methodology

Towards ascertaining and describing the characteristics of the variables of interest a descriptive research design was adopted. It involved collection, measurement, classification, analysis and interpretation of data. Interviews were conducted and questionnaires administered on a sample of individuals. The design was selected for this study because it can provide numeric descriptions of the population and describes events as they are, as they were or as they will be (Kombo & Trump, 2006).

The focus of this study was quantitative. However some qualitative approach was used in order to gain a better understanding and possibly enable a better and more insightful interpretation of the results from the quantitative study. The researcher sought to use this approach because it is more objective and it helps in achieving high levels of reliability and a higher degree of objectivity (Mugenda & Mugenda, 2003). The study also used qualitative approach, i.e. through open ended questions. The researcher sought to use qualitative approach because the method produces more in-depth, comprehensive information and has been known to use subjective information which may not be otherwise gathered through a quantitative approach, i.e. by use of open ended questions.

Use of qualitative design helped in gaining wider, deeper understanding of the entire situation under investigation. The research assumed a case study because it places more emphasis on a full contextual analysis of few elements and conditions and their interrelations which relies on qualitative data (Kothari, 2004). The use of a case study assisted in getting detailed information about the experiences of the employees of National Corporation of Kenya concerning factors affecting implementation of Change management in the petroleum sector in Kenya. The target population of the study was composed of all the firms in the Petroleum Sector in Kenya. The respondents were drawn from the employees of National Oil which according to human resource department of the company had 150 employees.

From the target population of one hundred and fifty, proportional allocation was used to calculate the sample size from each strata using stratified random sampling which gives each item in the population an equal probability chance of being selected. According to Kothari (2004) a representative sample is one which is at least 10% of the population thus the choice of 30% equal to 50 staff members is considered as representative.

The study utilized both primary and secondary data. Primary data was gathered through questionnaires, while secondary data was obtained from published documents or materials such as journals, periodicals, magazines and reports obtained from the ministry and government reports. These supplemented the primary data received from questionnaires. The questionnaire designed in this study comprised of two sections. The first part included the demographic and operational characteristics designed to determine fundamental issues including the demographic characteristics of the respondent. The second part was devoted to the identification of the challenges facing implementation of effective change management practice by government agents in the Petroleum Sector in Kenya where the variables of the study was be put into focus.

### Analysis

Both quantitative and qualitative techniques were used. The data obtained from the research instruments was analyzed using of descriptive statistics (frequencies and percentages), as well as inferential statistics. To test the relationships that presuppose a relationship between criterion and response variables, data coded was extracted using factor analysis methods (Kothari, 2004). Pearson correlation coefficient and bi-variate correlation coefficient were used in this study to indicate one-on-one association between each of the independent variables to the dependent variable, while holding other factors constant. Statistical Package for the Social Sciences (SPSS) version 17.0 was used for data analysis. The use of this version is because there was need for data reduction through factor analysis, for the purposes of regression and correlation analysis. In addition, test for scale reliability and validity was possible through this version of SPSS, which has advanced features that are also user friendly.

Percentages were used to determine sample distribution across various demographic variables while mean scores of the variables were used to determine the extent to which certain factors are challenges to effective implementation of the change management. Standard deviation represented the degree of variability in the responses. Frequency distribution tables and pie charts were used to present the data.

Multiple regression analysis was used to determine the relationships between the variables and the effective implementation of change management. The coefficient of determination (R-Square) resulting from the linear regression was used to determine the goodness of fit. To



determine the relative importance of each of the independent variables on the dependent variable beta coefficients (slope) was done and tested for significance at 5% significance level.

### **The independent variables and their effect on change management**

The respondents were asked to rate the extent to which they thought that each of the indicators of information technology and information management affected effective implementation of change management within the organization. Standard deviation of the ratings was also computed. A mean of greater than 3 indicates that the factor has high effect. A mean of 3 indicates average effect while a mean of less than 3 indicates small effect.

Standard deviation of less than 1 is generally considered as small and indicates that there was high level of consensus around the mean. Standard deviation greater than 1 shows huge variations in respondent ratings indicating that there was not much congregation of responses around the mean. Based on the findings of the study, it can be deduced that all the four independent variables pose challenges in the implementation of effective change management.

The study used Pearson correlation coefficient to estimate the relationship between each variable and effective implementation of change. Pearson's correlation coefficient ( $r$ ) is a measure of the strength of the association between the two variables. Pearson's  $r$  can range from -1 to 1. An  $r$  of -1 indicates a perfect negative linear relationship between variables, an  $r$  of 0 indicates no linear relationship between variables, and an  $r$  of 1 indicates a perfect positive relationship between variables. An absolute value of 0.1 to 0.3 indicates a weak correlation, 0.3 to 0.5 indicates a moderate correlation while 0.5 to 1.0 indicates a strong correlation between variables.

A strong positive correlation was found to exist for all the variables. Linear regression was used to determine the relative importance of the independent variables in explaining the variations in the dependent variable. The model yielded an R-square of 0.7735 as shown on table 4.5, indicating that the model explained only 77% of the variability in the dependent variable. The unexplained variability could be attributed to random factors and other variables not captured in the model.

From the results shown, the model shows a goodness of fit as indicated by the coefficient of determination ( $R^2$ ) with a value of 0.7735. This implies that the independent variables explain 77 percent of the variations of effective change management. The R Squared value was of average

good fit in the model. These findings are supported by the model study done by Stanley et al in (2008) which indicated that there are other barriers to effective implementation of change management not just the four independent variables under this study.

## Summary

The study established that the impact of information technology on effective implementation of change management is high. Findings indicated that information system factor that had the highest effect is accuracy of information followed by flow of information and compatibility of technology. These three components pose as the biggest information technology related challenges in implementation of effective change management. The study further determined that there is a strong and positive relationship between information technology and effective implementation of change management in the petroleum sector in Kenya. Damien Power (2005) stated that effective application of information technology to the integration of change activities has the effect of reducing levels of complexity. The “bullwhip effect” is an example of a typical change management outcome resulting from distortion of information flow.

The study found that the effect of change design and effective change management is also high as indicated by the mean. According to the study, there is a strong positive association between change design and effective change management. These findings are in support of a research carried out by Lalwani et al (2006) that found out that change design has a direct impact on cost and customer service thus a need for companies to be careful in designing their change network.

The study found that majority of the respondents indicated that a Partnership/collaboration issue promotes effective change management in the petroleum sector through promptness of delivery of products and sharing expertise between or among different firms. The study established a strong positive association between partnership/collaboration issues and effective change management in the petroleum sector in Kenya. These findings are in support of a study done by Mathew (2008) that established that knowledge sharing between partners has more upsides than downsides, provided that the right kind of knowledge goes back and forth.

However a common worry is that divulged information regarding the firms strategies can be copied or shared with competitors. Another worry is that relying on knowledge flows from other

organizations can undermine a company's flexibility and leave it vulnerable to changes in its partners' priorities (Mathew, 2008).

Based on the findings, majority of the respondents were of the view that existing policies and procedures were important. The findings further indicated that chain of command from top to bottom and extent of staff participation in day to day decision making within the organization. Alignment of strategies and objectives as well as employees' acceptance to change were also found to have significant effect on the implementation of effective change management as supported by a significant proportion of the respondents.

## Conclusions

According to the analysis of findings, it was concluded that all the four independent variables are very critical to effective change management in the petroleum sector. Any distortion of information in the change would lead to "bull whip" effects. From the results of this study, it was concluded that change design also plays a key role in determining effectiveness of the change management in the sector. It was noted that the change design is to a large extent determined by the government. The government controls a majority stake in every level of the change i.e., it controls the importation process, the petroleum refining process, the pipeline transportation mode and the retail distribution channel. From the results of the study, it was concluded that partnership and collaboration between firms in the sector is important but has moderate effect on effectiveness of the change management. This is mainly due to fear of sharing critical information with others who may leak it to competitors.

The importance of collaboration/partnership is important due to the fact that it is cost effective especially when applied in transport and distribution. Based on the findings, the study concluded that people issues had significant effect on implementation of effective change management. Specifically the people issues that were found to be important were existing policies and procedures, chain of command from top to bottom and extent of staff participation in day to day decision making within the organization. The study further concluded that the influence of people issues on the implementation of effective supply management was dependent on the personal traits mainly honesty, trust and commitment.

## Recommendations

On the basis of Information technology, the study recommended that there is need for adoption of improved technology so as to ensure efficiency in information flow. For a change to achieve its maximum level of effectiveness and efficiency, material flows, money flows and information flow throughout the entire chain must be managed in an integrated and holistic manner, driven by the overall service and cost objectives. This concurs with Sweeney, (2005) who argued that managing the information flows is the most critical of these activities in change management.

Based on the findings, the study recommended that there is need for integration of the change design so as to increase efficiency which will lead to improved financial performance. This is in agreement with Damien (2005) who examined different perspectives on integration and suggested that integration of several functions at different organizational levels achieve above average financial and performance results.

In relation to partnership and collaboration, the study recommended that there is need for the change actors to collaborate especially in the provision of transport and distribution. Executives should develop change partnerships/collaborations in an attempt to reduce costs, improve service and to gain competitive advantage. The best change s have buyer supplier relationships that are based on value and consistent delivery of this value. The study recommended that important people issues such as honesty, trust and commitment should be upheld by all change actors. This is in the bid to improve on the cooperation amongst them. This concurs with Rajendra et al, (1995) who observed that trust has two dimensions: “honesty” and “benevolence”. There are several dimensions of trust in change performance such as confidence in preferred trading partner, always keeping promises, always being honest, good reputation and close personal friendship.

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