

# **EFFECT OF EMPLOYEES' LEADERSHIP SKILLS ON PROJECT PERFORMANCE IN THE ENERGY SECTOR IN KENYA**

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## **ABSTRACT**

The purpose for this study was to investigate the effect of employees' soft skills on project performance in the Kenyan energy sector. The objective of the study was to establish the effect of employees' leadership skills on project performance in the Kenyan public energy sector. The study employed both cross-sectional and correlation design. Purposive sampling technique was employed to select the projects that were studied. The population comprised all the project supervisors who led the project teams in the ongoing projects in the energy sector ending between January 2016 to December 2018. In particular the study focused on the transmission projects, the generation projects, nuclear projects and the distribution projects. A total of 85 ongoing projects were selected. Out of these 9 were used in the pilot study. Therefore 76 projects were chosen for the study. A Questionnaire comprised of closed and open-ended research questions taking the format of five-point Likert-type interval scale was used to

assemble primary data from project supervisors. The study established that employees' leadership skills positively affect project performance in the energy sector in Kenya ( $R^2=0.668$ ,  $P=0.00$ ). The study highlights the essential components of employees' soft skills that would inform effective project performance. The study differed from other studies by empirically showing how comprehensive integration of leadership skills can affect project performance and also offers the possibility of contributing to change the way projects are planned, designed and implemented. On the basis of findings, the study recommends that both transactional and transformational leadership styles should be used in the management of projects with a greater emphasis on transformational leadership style. The study also suggests that further studies should be carried out in other sectors and countries and they should involve more soft skills.

**Key Words:** *soft skills, leadership skills, project performance, project, employee*

## **INTRODUCTION**

Project management as a formal discipline dates back 60 years ago from the application by the military (Miranda & Ghimire, 2007). However, the modern concepts in project management began between 1900s and 1950s, during which project schedules were shortened by technology advancements that allowed efficient resource allocation and mobility (Carayannis, Kwak & Anbari, 2003) and Telecommunication system increased the speed of communication. Most projects especially in the public sector can be categorized as failed projects because on average 45% of them have surpassed their budgets and 70% late despite delivering less than 56% of their projected value (MCKinsey & Company, 2012).

This study focused on the projects in the energy sector in Kenya. According to the MOEP project implementation status report (march 2015-march 2016) projects in the energy sector in Kenya are categorized into Generation projects, Transmission projects, Distribution projects, Oil and

Gas projects, Renewable Energy Development Projects, and Nuclear Power Projects. The Generation projects are under KENGEN and GDC, while the transmission projects are undertaken by KETRACO. The KPLC Master plan (2011) records that the electrification process is very slow with only 20% of the population being reached.

According to KAM (2012), Kenya ranks position 115 out of 183 with regard to time electricity takes to reach the final consumer. A research on world bank funded projects in Kenya revealed that soft skills such as communication are important for the project to run from design, through to implementation (Ackel, Kidombo & Gakuu, 2012). Increased use of soft skills by employees leads to improved cost performance and improved feedback within project teams (Langer et al, 2008). However, the importance of employees' leadership skills has not been well researched and clearly explained in Kenya, creating a gap in the leadership skill project performance relationship. Therefore, the study was carried out in order to investigate the knowledge gap in employees' soft skills in the running of projects in Kenya. It particularly examined the effect of employees' leadership skills on project performance in the energy sector.

## **STATEMENT OF PROBLEM**

There exists a link between projects' life cycles and soft skills (Belzer, 2004). Project failure is associated with inability of project employees to effectively employ soft skills in the day to day running of the project. Successful project implementation is linked to the effective and efficient working relations and communication of the project team throughout the project life cycle (Ackel, Kidombo & Gakuu, 2012). A research done by Shanmugapriya and Subramanian (2013) demonstrates that up to 60% of Indian construction projects are overwhelmed by cost and time overruns. In Kenya, projects have been experiencing cost and time overruns as well as quality issues. This happens even with high quality training of project professionals (Muguchu, 2012). Teams are disassembled and reassembled with different team leaders and /or project managers (Gwaya et al., 2014). According to Kariungi (2014) energy sector projects in Kenya have not performed to their expectations in terms of completion on time, on budget and quality. This is partly due to transmission losses which stood at 3.55% in 2009/2010 and 3.5% in 2010/2011 (KPLC, 2012-2016). In 2010/2011 distribution losses stood at 16.2%. The KPLC Master plan (2011) records that the electrification process is very slow with only 20% of the population being reached. According to KAM (2012), Kenya ranks position 115 out of 183 with regard to time electricity takes to reach the final consumer. A research on world bank funded projects in Kenya revealed that soft skills such as communication are important for the project to run from design, through to implementation (Ackel, Kidombo & Gakuu, 2012). Increased use of soft skills by employees leads to improved cost performance and improved feedback within project teams (Langer, et al., 2008). However, the importance of employees' soft skills has not been well researched and clearly explained in Kenya, creating a gap in the soft skill project performance relationship. Therefore, the study was carried out in order to investigate the knowledge gap in employees' soft skills in the running of projects in Kenya. It particularly examined the effect of employees' soft skills on project management in the Kenyan public energy sector.

## **GENERAL OBJECTIVE**

The study's general objective was to ascertain the effect of employees' leadership skills on project performance in the energy sector.

## **THEORETICAL REVIEW**

The contingency theories were proposed by Fred Fiedler in 1958. The contingency theories state that the success of a leader is linked to the connection between his/her characteristics, behaviour and the situation in which he/she is operating (Charkrabarti, 2014). According to the Fieldler (1958) contingency model, the performance of a group of people is dependent on the leader's leadership style, and how favorable the situation is. Different styles of leadership work better in different situations. For example, task-oriented leaders perform better in extremely favorable and exceedingly unfavorable conditions while association –oriented leaders do well in modest conditions. Fiedler's contingency theory is a contingency theory that claims that effective leadership depends on leadership style and control of that leadership over prevailing situations. According to the theory, there needs to be good relationship between the project leaders and the project employees, tasks with lucid procedures and goals, and leader's ability to offer rewards and punishments. Lack of these three in the right blend and background results in leadership failure. This theory is important for this study because it talks about the importance of the leadership style which is one of the factors being researched on.

## **RESEARCH METHODOLOGY**

### **Research Design**

The researcher utilized both correlational and cross-sectional designs. The cross-sectional design was preferred because the study focused on evaluating the link between two variables and one point in time without necessarily following participants (Oso & Onen, 2008). Based on the study's focus, the design made it possible to obtain data from a sample of respondents who represented the target population within a short time. The ongoing Projects were the units of analysis and to avoid duplication the project supervisors were the units of observation. On the other hand, the choice of correlational design was as a result of the fact that the study sought to measure the degree of relationship between different variables; thus, inferential statistics were the most suitable ones (Kothari & Garg, 2014). Overall, the two designs enabled the researcher to concurrently combine inferential, descriptive and qualitative method of analyzing data so as to determine the relationships among variables with the aim of elucidating the nature of the relationships (Leedy, 1997). Thus, the purpose of this study was achieved.

### **Population**

The study's target population comprised of all employees in the ongoing projects in the energy sector. According to the MOEP project implementation status report (march 2015-march 2016)

projects in the energy sector in Kenya can be categorized into Generation projects, Transmission projects, Distribution projects, Oil and Gas projects, Renewable Energy Development Projects, and Nuclear Power Projects. The study targeted the ongoing transmission, generation, distribution and nuclear projects whose completion dates lie between January 2016 and December 2018. The ongoing projects were chosen because it is easy to get the employees working on the projects. The study targeted the transmission, generation, distribution and nuclear projects because of the number of ongoing projects as well as their proximity to each other.

### **Sampling Frame**

According to Adèr, Mellenbergh and Hand (2008), sampling ensures cost reduction, speed of data collection, accuracy of data collected and quality of the data. On the other hand, sampling is a process of selecting a pre-determined number of individuals from target population so that knowledge about the entire population can be generated from those individuals on the basis of statistical inference (Black & William, 2004). This study relied on a sampling frame that was obtained from the MOEP project implementation status report (March 2015 - March 2016) and the economic survey on the ongoing projects ending between January 2016 and December 2018.

### **Sample and Sampling Technique**

This study employed both probabilistic and non-probabilistic sampling techniques. In stage one; stratified sampling was applied to group the projects which form the unit of analysis. The projects are broken down into 20 Transmission projects, 60 distribution projects, 10 Generation projects and 4 nuclear projects. A total of 94 ongoing projects whose completion dates lie between January 2016 and December 2018 were identified. The execution teams were composed of project managers, project supervisors, engineers, land economists, surveyors, financial experts, socio-economists, legal experts and environmental experts. A total of 282 employees were working on the ongoing projects. However, to avoid duplication, the project supervisors were used as the unit of observation.

### **Research Instruments**

The study's nature resulted to utilization of triangulation and multiple methods to explore and understand the effect of employees' soft skills on project performance. The Secondary data was obtained through document analysis. Primary data was collected using self administered questionnaires. Instrument administration is a data collection method in which the sample answers questions in the questionnaires. It is dictated by the level of the respondents' literacy. A questionnaire was developed for the project supervisors. The questionnaires were self-administered. The questionnaire was utilized to collect quantitative and qualitative data from the project supervisors. It comprised of open and closed-ended questions that included scaled responses in the format of Likert scale. The respondents answered by choosing one of the five agreement choices.

## **Data Collection Procedure**

Prior to data collection, the researcher obtained an introductory letter from the chairperson of COHRED. Authority was also sought from the Ministry of Energy to facilitate data collection. In addition, a research permit was acquired from office of the National Commission for Science, Technology and Innovation (NACOSTI). Using these letters, the researcher was able to visit the ongoing projects in the energy sector. The research instruments were revised as the researcher deemed fit and final copies produced. Subsequently, the researcher visited the various project managers for familiarization and afterward for data collection.

## **Pilot Testing of Instruments**

A sample of nine (9) projects was utilized to test the effectiveness of research questionnaire thereby employees from these projects were excluded from the final sample. In this study convergent and discriminant validities were both considered to establish construct validity. Statistically, factor analysis was run to test for convergent and discriminant validities. Values  $> 0.5$ , are considered suitable for conducting factor analysis. Further, the values of Bartlett's Test of Sphericity were statistically significant ( $<0.05$ ), confirming suitability of the data for factor analysis. The researcher judged the reliability of questionnaires using Cronbach's Alpha that does not require scales to be split or even tests to be retaken for given constructs.

## **Data Processing and Analysis**

A mixed approach, which involved using both qualitative and quantitative methods, was utilized to analyze the data. Due to the nature of mixed approach, both descriptive and inferential methods of analyzing data were utilized. The descriptive statistics was utilized to summarize and describe data using percentages and frequencies that were presented in form of tables. This exercise was carried out using an SPSS version 23 program. Cross tabulations, on the other hand, were utilized to depict relationship between independent and dependent variables. Normality test was carried out to check for the normality of the distribution. Factor analysis for the variables was performed to make sure the items measure the intended constructs. Reliability test was carried out on each variable to establish the degree of consistency in scores owing to random errors. Quantitative techniques like Cronbach's coefficient Alpha was used to test the validity and reliability of data. The researcher used Durbin-Watson test to find out whether the residuals from the multiple linear regression models are independent. The identification of multicollinearity in model was vital and was tested by evaluating tolerance and variance inflation factor (VIF) diagnostic factors.

## RESEARCH RESULTS

### Validity Test for Leadership Skills' Construct

Factor loadings were used to demonstrate discriminant validity while Average Variance Explained (AVE) was calculated from the rotated component matrix of the factor analysis to demonstrated convergent validity.

**Table 1: Validity Test for Leadership Skills' Construct**

Measure	Transactional Leadership	Transformational Leadership
Eigenvalue	8.926	1.547
Average Variance Explained (AVE)	0.510	0.539
Square root of AVE	0.714	0.734
Composite Cronbach's $\alpha$	0.827	0.887
N	7	9

### Leadership Skills Findings

The study's objective was to find the effects of leadership skills on project performance in the public energy sector in Kenya. Using a Likert Scale, the respondents were asked to provide their levels of agreement on the statements on leadership skills. Table 2 illustrates a blend of leadership styles in the energy sector projects in Kenya.

**Table 2: Leadership Styles**

Leadership Style	SD (1)	D (2)	U (3)	A (4)	SA (5)	Mean	SD
Transactional style	0.7%	2.1%	26.4%	58.6%	12.1%	3.79	0.705
Transformational	3.4%	8.3%	33.8%	42.1%	12.4%	3.52	0.936

Majority, 70.7% of the respondents agreed that transactional leadership style is exhibited in the public energy sector projects in Kenya. Further, 54.5% indicated that the transformational leadership is exhibited in the public energy sector projects in Kenya. Hence, even though there is a mix of leadership style, transactional leadership style is the most dominant leadership style in the public energy sector projects in Kenya.

### Effect of Leadership Skills

A regression analysis was carried out on the effect of leadership skills on performance as well. It was established that leadership skills have a significant positive effect on overall project performance ( $R^2=0.668$ ,  $P=0.000$ ).

**Table 3: Effect of Leadership Skills on Project Performance**

Goodness of Fit	df	Test Statistics	P-value
R-Squared		0.668	
Adjusted R-Squared		0.662	
F-Statistic	(1,57)	114.566	0.000**
Durbin-Watson (Autocorrelation Test)		1.467	
Shapiro-Wilks test (Test of Normality)	(59)	0.964	0.074**
Levene’s Test (Test for Homogeneity)	(2,55)	0.195	0.823**
<b>Linear Regression Results</b>			
Dependent Variable=Performance		Coefficient	t- statistics
			p-value
Constant		12.999	2.223
Leadership Skills		16.782	10.704

Key: Significance levels of 0.01\*\*\*, 0.05\*\* & 0.1\* or at 99%, 95% & 90% respectively

The results illustrate that a unit increase in leadership skills leads to 66.8% increase in project performance. An F-statistic of 114.566 shows that there is a very strong relationship between leadership skills and project performance ( $R^2=0.668$ ,  $F=114.566$ ,  $P=0.00$ ,  $t=10.704$ ).  $t$  is more than 2 and so the model is statistically significant and so this step is acceptable. By using the values provided in table 3 a linear regression equation of the form:

$Y = \beta_0 + \beta X_1 + \mu$  can be fitted as follows:

$$P = 16.782 + 0.668X_1$$

Hence, the null hypothesis that:

**H0: The project employees’ leadership skills do not positively affect project performance in the energy sector projects in Kenya is rejected.**

The alternate Ha: The project employees’ leadership skills positively affect project performance in the energy sector projects in Kenya is accepted.

## **DISCUSSION OF FINDINGS**

Leadership is exhibited in the public energy sector projects in Kenya. Hence, even though there is a mix of leadership style, transactional leadership style is the most dominant leadership style in the public energy sector projects in Kenya. This is confirmed by Lee-Kelly and Leong (2003) who noted that there is no definite leadership style and skills mix that is apposite for handling diverse projects. This is further emphasized by Turner and Muller (2005) who illustrated that divergent leadership styles are necessary at the various stages of projects’ life cycles. Anantatmula (2010) added that project managers should apply situational leadership in project environments as each project requires a different leadership style. Yukl (1981) agreed that leaders, flexibility and adaptability are vital as individual team members should be treated



differently. Fielder (1967) recommends use of different leadership styles in projects based on their appropriateness in managing projects.

Majority, 70.7% of the respondents agreed that transactional leadership style is exhibited in the public energy sector projects in Kenya. Further, 54.5% indicated that the transformational leadership is exhibited in the public energy sector projects in Kenya. Hence, even though there is a mix of leadership style, transactional leadership style is the most dominant leadership style in the public energy sector projects in Kenya. This is confirmed by Lee-Kelly and Leong (2003) who noted that there is no definite leadership style and skills mix that is apposite for handling diverse projects. This is further emphasized by Turner and Muller (2005) who illustrated that divergent leadership styles are necessary at the various stages of projects' life cycles. Anantatmula (2010) added that project managers should apply situational leadership in project environments as each project requires a different leadership style. Yukl (1981) agreed that leaders, flexibility and adaptability are vital as individual team members should be treated differently. Fielder (1967) recommends use of different leadership styles in projects based on their appropriateness in managing projects.

The study objective was to establish the effect of the employees' leadership skills on project performance in the Kenyan energy sector. The null hypothesis tested was that employees' leadership skills have no significant effect on project performance in the energy sector in Kenya. The results were  $R^2=0.668$ ,  $P=0.00$ . The null hypothesis was rejected and researcher concluded that employees' leadership skills have a significant positive effect on project performance in the energy sector in Kenya. The findings are further corroborated by Anantatmula (2010) who affirms that the project leader can provide direction by clearly defining the project mission, enabling him/her to translate it into measurable project outcomes. Anantatmula (2010) adds that in order to achieve stability and order among team members, the project manager should carefully define the roles and processes clearly.

## **CONCLUSIONS**

The study concludes that leadership skills positively affect project performance. The leadership styles applied by the project managers affect the level of motivation of the project employees. The study investigated transactional and transformational leadership styles. However, from the findings it can be concluded that transactional leadership is used more in the public energy sector projects. They reward effort and penalize undesirable behaviour, provide adequate pay, better terms of employment, better working conditions and incentives which are motivating factors for some project employees. Transformational leadership is only applied to a small extent.

## **RECOMMENDATIONS**

Projects play a major role in economic growth in Kenya. Recognizing the commitment of the Government of Kenya to economic growth and development as shown in its Vision 2030 blueprint, the study has apt implications. Therefore, the following recommendations can benefit

government, agencies that implement its agendas and citizens as a whole. The study has established and identified statistically significant relationships between employees' soft skills and project performance. The end result of this is the possibility that if employees working on projects utilize soft skills, then projects would be completed on time and on budget. The study therefore provides a stimulus and framework for policy makers to review the education ACT and to ensure that soft skills form part of the training especially in middle level colleges and universities. This would ensure that all employees are well equipped not only with hard skills but also with soft skills both of which are necessary in the workplace.

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