

INFLUENCE OF BEHAVIORAL COMPETENCE ON PERFORMANCE OF PUBLIC INFRASTRUCTURE PROJECTS IN KENYA

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ABSTRACT

The purpose of the study was to determine the influence of behavioral competence on performance of public infrastructure projects in Kenya. This study was occasioned by the knowledge and research gap that had continuously failed to recognize that the behavior of project team members is a key factor that would affect performance of public infrastructure projects in Kenya. To achieve the objective, positivism paradigm philosophy was used. Data collected was analyzed using descriptive and inferential statistics. The findings postulated that the behavioral competence had significant positive influence $F_{(1,107)} = 20.567$, P-value .001 on public infrastructure projects. The statistical findings of behavioral competence sub-constructs: creativity, reliability, teamwork, engagement and motivation of the project team members greatly enhanced project performance. The inferential statistical findings showed that the overall model had a 16.1% predictive power ($R^2 = 0.161$), $\beta_3 = .485$, of project performance was explained by behavioral competence. The study recommended that state agencies mandated to implement and oversee the implementation of the public infrastructure projects should cultivate a culture of assigning critical projects roles to professionals. Further, it recommended that it was paramount to consider persons or strive to build soft skills (creativity, reliability, teamwork, and engagement) of the project team members, if the overall goal was to develop and improve business performance, hence, improvement on economic growth, stakeholders' satisfaction, and quality life for the end users.

Keywords: Behavioral Competence, Project Performance, Infrastructure Projects

INTRODUCTION

Globally, Infrastructure plays a critical role in stimulating; sustaining economic growth and poverty reduction of a country, hence, their performance becomes very crucial in determining how fast the projects objectives are realized. Owing to the importance of infrastructures in socioeconomic development of a country, the delivery has always been entrusted to the state owned institutions or public institutions/sectors or state agencies. As a result, the overall impact and the performance has always been disappointing. This was greatly attributed to various factors: lack of capacity, inefficiency and lack of competence to focus on the benefits or the overall impact of such projects. Project Management Institute, PMI (2013) posits that project team skills gap are practically inevitable because more often the team members lack the requisite skills that matches the project needs. It further eludes that developed team results in improved teamwork, enhanced people skills and competencies, motivated employees, reduced staff turnover rates, and improved overall project performance. These skills impacts on projects and without their due consideration projects often struggles to achieve their deliverable successfully.

In Kenya, over the years, infrastructure projects have shown dismal performance in terms of either stalled, disbanded, or incomplete, overrun in cost and time, poor quality work (Government of Kenya, GoK, 2018). This is despite huge budgetary allocation of over US\$5trillion by the government and elaborate research conducted on project, training in project systems and processes (GoK, 2018). Though there has been evidence of rapid growth of infrastructure projects in Kenya, reports indicates that only 13% (87% time overrun) has been completed on time, 50% in-complete or stalled projects. This is notwithstanding the shortfall of these projects in meeting their economic growth and poverty reduction strategic goal, lower lifetime costs (improved quality of life), improved asset quality and improved service delivery.

Study Objective

The study sought to determine the influence of behavioral competence on performance of public infrastructure projects in Kenya.

Null Hypothesis

The study sought to test the null hypothesis:

H₀: There is no significant Influence on the relationship between behavioral competence and performance of publics Infrastructure project in Kenya.

Statement of the Problem

Infrastructures, including but not limited to railways, roads, energy generation and distribution, ports and harbors, airways, special economic zones etc., are key to sustained economic growth of any country. Due to its importance, the Government of Kenya has allocated significant funds for infrastructure development that includes Kshs 245billion for roads, rails and ports, 27billion for manufacturing, 35billion for housing and settlement. Despite all these investments, Kenyan's Infrastructure has remained significantly under-developed (African Development Bank Group, AfDB Group, 2014) and there is no substantial economic growth or impact realized. Consequently, the Government of Kenya has continued to publish huge financial loss related to failure in Infrastructure projects. This dismal performance has been associated with shortfall in soft skills of the project teams and lack of enough talent to manage the Infrastructure projects (PMI, 2013; Omonyo, 2018; Musembi et. al, 2018). People are the heart and the driving force of every projects though studies have concentrated more on the structures, tools and process, taking little cognizance of competence required by the project teams to deliver the final products. This study therefore tries to bridge the knowledge gap by establishing the importance of behavioral competence on performance of public infrastructure projects in Kenya.

LITERATURE REVIEW

The behavioral theory, also known as organization behavioral theory was conceptualized in the late 1920; when researchers sought to conduct a study of workers with a view to improve the productivity. The theory seeks to find out how people (individual and groups) interacts in a work setting with an aim of boosting productivity and team cohesion. The theory has evolved with time to play an important role in decision-making and restructuring business. Its study in the modern organizational theory now involve four main areas: individual behavior, group behavior, organizational structure, and organizational processes. This study anchors on behavioral theory that drives on the idea that an understanding of human behavior at work, such as group dynamics, motivation, creativity, reliability and ethics among elements (interpersonal skills, dependability, cooperation etc.) contributes to successful performances. It is the main key factor in the relationship and understanding between individuals in a group (Silva et al., 2016). The theory suggests that human behaviors are inherent to an individual who is a member of the project team and it influences the manner in which they communicate, engage and interact, carry out their activities and as well as their perception to project goals and performance.

Further, Henkin (2006) posits that understanding behavioral issues of the project team prevents them from engaging in conflicts which results in loss in momentum, time loss and effectiveness, hence reduced productivity/performance. Behavioral aspects inhibit how projects activities are carried out or executed (Silva et al., 2016). Giri and Jena (2017) asserted that project team behavior links performance with achievement of goals, hence, positive work behaviors translates to higher performance, productivity, goal and output. Therefore, it was important for this study to determine how the soft side of project management, human aspects (Liu et al., 2011) can be managed throughout the project life cycle. According to Georgia Competence Frameworks, behavioral competence was explained as observable and measurable behavior, knowledge, skills, characteristics that contributes to individual performance. A definition by Boyatzi (2009) states that behavioral competence is a set of characteristics, motivation and attributes which forms the behavior and reflects how to use and utilize knowledge and skills to achieve the desired results. As an important and highly ranked human competence in a work place, Haddad (2017) acknowledge that it leads to improvement of performance. Omonyo (2017) posits that human behavior significantly influence public infrastructure projects. They are pivotal point to the whole project; hence, careful determination should be conceptualized at early stages of the projects.

Project Management Institute (PMI) categorizes the competences into input competence, output competence and personal (or Behavior competence).The later is believed to include behaviors which contributes to greater success or performance at the work place. The model classify the personal (or behavior to four clusters namely: Problem solving, Managerial Identity, Achievement and Influence). Further, the model suggests that behavior can be part of daily job; hence, newly acquired competence can be part of project success. Knowledge Teams International Pty, (KTEP) identified critical success factors influencing team performance and concluded that trust, respect to individuals, conflict management, alignment of individuals and team values, appropriateness of pressure all which are behavioral factors can influence project success.

In a study by Gruden and Stares (2018) to determine the influence of behavioral competence on project performance concluded that the predictor significantly and positively had an impact on project performance. The study examined 15 behavioral competencies of project stakeholder in Slovenia Project Management Association, (PMA). The project performance evaluation was based on the triple constraints and work hours spent. The results revealed that behavioral competence influences 30% of delays in project, with a correlation factor of 0.548. The study also evaluated behavioral competence on spending of work hours by eliminating creativity, negotiations, reliability, and values appreciation. The results suggested that other competencies influence 27.8% of work hour increases, with a correlation of 0.528 (R), however the study failed to prove the

influence of behavioral competencies on project costs.

Haddad (2017) conducted a study to investigate the impact of behavioral competence on employees' performance involving and analysis of 100% response rate of research instrument. The results revealed a positive relationship between behavioral competence and employee performance and it ranked behavioral competence the highest compared to other variables of study. Further, the study evaluated multiple regression to test the significance of predictor variable where it proved that there was statistical significance effects of human behavioral competence on performance of an employee at level of significance ($\alpha \leq 0.05$). The variation in the independent variable was explained and accounted for 52.3%. To test the sub-hypothesis, behavioral competence analysis was conducted using simple linear regression (simple regression). The results posited that there was statistically significant impact of behavioral competence on performance at 0.05 confidence level. Haddad (2017) therefore concluded that organizational achievement could be measured by Behavioral competencies such as knowledge, attitudes, behaviors, skills and abilities. The empirical review on behavioral competence suggests that the predictor variable is highly rated and considered important both individual, organizational and project performance. The reviewed study proved the significance on the behavioral competence on project performance, therefore, with this in mind this study investigate the sub-construct of creativity, reliability, teamwork, engagement/motivation, and hypothesize that behavioral competence has no significant influence on performance of public infrastructure projects.

Conceptual Framework

The study theorized the connection between the behavioral competence and project performance. It predicts and explain the significant effects behavioral competence project performance (stakeholder satisfaction growth, improved quality of life, reduced income inequality, improved quality & reliable Infrastructure.

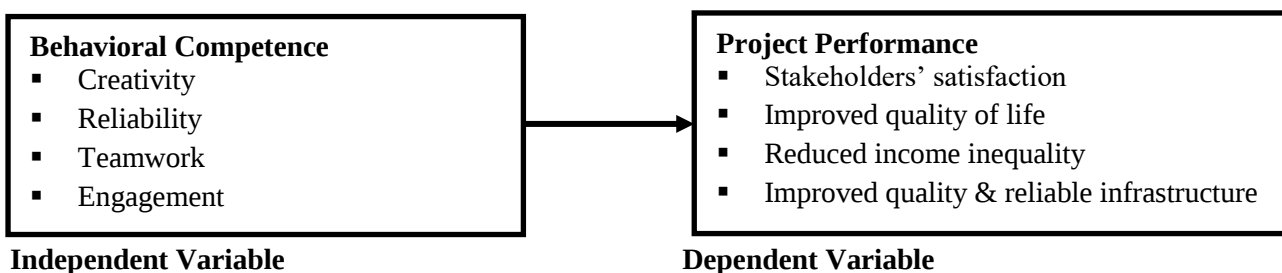


Figure 1: Conceptual Framework

METHODOLOGY

To achieve these objectives of the study, a positivism research philosophy was adopted. The choice of this paradigm was in the pretext of uniqueness and value addition (Saunders et al., 2015), its flexibility, reduction in biasness, use of more than one research method and various dimension of studying the subject. (Clark, 1998; Guba & Lincoln, 1994; Miller, 2000; Phillips & Burbules, 2000). The data and method were investigated (Ayiro, 2014) using null hypothesis. The population of study was thirty-three (33) projects in state corporations, under the Vision 2030, implemented between the periods 2014 – 2022. The target population include the project managers, project engineers, project consultants and project team members from which 140 samples were drawn. This study adopted purposive sampling technique, a non-probability sampling approach, which allowed free selection of particular respondents to represent the entire population (Kothari, 2014). In this study, the sampling frame was known, hence, a general assumption was made that if the sampling frame was known, so was the population which made data collection easier (Omonyo, 2018). The focus was on the cluster of people who are experienced, knowledgeable and drive project design, implementation, supervision and maintenance in state agencies.

RESULTS AND DISCUSSION

Descriptive Analysis:

Behavioral Competence

The findings in table 1 posit that majority of respondent strongly agree that behavioral competence in areas of creativity, reliability, teamwork, engagement and motivation greatly improves on the performance of projects if totally embraced and practiced by the state agencies. The results shows that promoting creativity throughout the project management workflow facilitate problem resolution (M=4.927, SD= 0.262), it enhances communication and improve its effectiveness (M= 4.927, SD= 0.262) and further, it can be useful in avoiding risks and resolving issues (M= 4.927, SD= 0.262). Likewise, reliability as a soft skill, help to deliver what is agreed to the required quality, on time and within budget (M= 4.642, SD= 0.482). It asserts that unreliability can cause productivity to decline significantly (M= 4.358, SD= 0.482). Most of the respondents agreed that it is important for the team overall performance (M= 4.927, SD= 0.262) as it helps team members to consistently demonstrate accountability for their actions (M= 4.927, SD= 0.262). On the findings on teamwork the respondents strongly agreed that it actively supports and contribute to the efforts of other team members (M= 4.927, SD= 0.262). It provides flexibility to working with wide variety of different people on different tasks (M= 4.642, SD= 0.482), enhances shared leadership roles by the team (M= 4.495, SD= 0.502) as they shares and pass all relevant project information that may be important to other team members (M= 3.844, SD= 1.073). Finally, it enables them to discusses, decides, and does real work together (M= 4.193, SD= 1.221). They also agreed that engagement and motivation of the project team member plays a crucial role in performance. The findings indicated that team members' needs to be motivated to believe in the project(s) they undertake (M= 4.780, SD= 0.416), it inspires a positive attitude held by the employees towards the organization and its values (M= 4.560, SD= 0.917). The respondents also concurred that there are program are available that seeks to motivate project team members to preform to their best (M= 4.560, SD= 0.498).

Table 1: Descriptive Analysis for Behavioral Competence

Statements	N	Mean	SD
Promoting creativity throughout the project management workflow facilitate problem resolution.	109	4.927	0.262
Creativity enhances communication and improve its effectiveness.	109	4.927	0.262
Creativity can be useful in avoiding risks and resolving issues	109	4.927	0.262
It help to deliver what was agreed to the required quality, on time and within budget	109	4.642	0.482
Reliability can cause productivity to decline significantly.	109	4.358	0.482
Reliability is important for project team performance	109	4.927	0.262
Team members consistently demonstrate accountability for actions; can be counted on to follow through and achieve results.	109	4.927	0.262
Everyone actively supports and contribute to the efforts of other team members	109	4.927	0.262
Team members are flexible and can work with a wide variety of different people on different tasks.	109	4.642	0.482
There is a shared leadership roles by the team	109	4.495	0.502
We shares and pass all relevant project information that may be important to other team members	109	3.844	1.073
We discusses, decides, and does real work together	109	4.193	1.221
Team members' needs to be motivated to be believe in the project(s) they undertake.	109	4.780	0.416
There is a positive attitude held by the employees towards the organization and its values.	109	4.560	0.917
Programs are available that seeks to motivate project team members to preform to their best.	109	4.569	0.498
Aggregate Score		4.6428	0.5096

Project Performance

The findings in table 2 depicts a mean of 4.11 and a Standard deviation of 0.64, suggesting that on average, the respondents agreed with the statements on project performance. Specifically, the respondents agree that projects are aligned with the business strategic business objectives (M=4.642, SD=0.482) and the existence of well qualified, multidisciplinary and teams ensures quality and reliable infrastructure projects (M=4.642, SD=0.482). The respondents also agreed that good governance is key to quality productivity of infrastructure (M=4.642, SD=0.482) as long as they embrace the culture of continuous improvement for project evaluations by reviewing them upon completion and 10 years after (M=3.431, SD=0.737), which the respondents acknowledged that is lacking. As much as there was above concurrence, it was unclear that the projects undertaken provided productive work to the locals (3.284, SD=0.963) or if they delivered fair income for the local (M=3.284, SD=0.963) as much as it was true that project need to offer better prospects for personal development (M=4.431, SD=0.906).

Further, the respondents strongly agreed that the project under evaluation generated positive economic value (M=4.716, SD=0.453) to the organization and that their economic benefits outweighed the investment by made by either the government or company (M=4.284, SD=0.453). Likewise, there was a strong concurrence that project outcomes conformed to the business strategy (M=4.716, SD=0.453, even though they were uncertain if such projects have provided positive impact on the community (M=3.578, SD=0.957). This could be attributed to inability for post-evaluation of public infrastructure projects to determine if customer are satisfied with the project result(s)(M=3.303, SD=0.957) or if the project met the customer requirements/real needs(M=3.578, SD=0.724). The respondents were unclear whether some of the implemented projects were effectively being utilized by the customers or intended persons (M=3.578, SD=0.724).

These findings corroborates with as study by Muchelule (2018) which posit that there was a clear doubt that the project by state agencies hardly meet their intended goal and objective. The study alluded that the finding resulted from lack of sufficient data and metrics to ascertain the facts by the state agencies charged with the responsibility of implementing public infrastructure projects.

Table 2: Descriptive Analysis for Project Performance

Statements	N	Mean	SD
Projects are aligned with the business strategic business objectives.	109	4.642	0.482
Well qualified, multidisciplinary and teams ensures quality and reliable infrastructure projects	109	4.642	0.482
Good governance are key to quality productivity of infrastructure.	109	4.642	0.482
There exists a culture of continuous improvement for project evaluations by reviewing them upon completion and 10 years after.	109	3.431	0.737
Project provided productive work to the locals	109	3.284	0.963
Project delivered fair income for the local	109	3.284	0.963
Project offered better prospects for personal development	109	4.431	0.906
The project objectives set by the stakeholders were satisfactorily met.	109	4.716	0.453
The performance measures for the project documented and agreed upon by the stakeholders were all achieved	109	4.716	0.453
Project are implemented to the prescribed schedule and without cost variance.	109	4.284	0.453
Project outcomes conformed to the business strategy.	109	4.716	0.453
The project provided positive impact on the community.	109	3.578	0.724
The customer are satisfied with the project result(s)	109	3.303	0.957
The project met the customer requirements/real needs.	109	3.578	0.724
Customers effectively utilized the projects.	109	3.578	0.724
Aggregate Score		4.1119	0.6448

Regression Analysis

The study used simple regression analysis to determine the effect of behavioral competence on

performance of public infrastructure projects in Kenya. The study tested the null hypothesis H_{03} against confidence level of 95%, and significance level, $P\text{-value} < .05$. The study tested the null hypothesis H_0 against confidence level of 95%, and significance level, $P\text{-value} < .05$. The null hypothesis tested predicted that behavioral competence had no significant influence on performance of public infrastructure projects in Kenya.

H_0 : There is no significant influence on the relationship between Behavioral competence and performance of public infrastructure projects in Kenya.

The results shown in table 3 depicts that the overall model had 16.1% predictive power ($R^2 = 0.161$). It portrays that 16.1%, $\beta_3 = .485$, of project performance is explained by behavioral competence. The simple regression model equation was represented as:

$\text{Project Performance}(Y) = 1.858 + 0.485X_3 + \mu \dots\dots\dots \text{Model effect of Behavioral competence}$

ANOVA results portrays that the overall model was significant with $F_{(1,107)} = 20.567$, $P\text{-value} .001 < .05$. From the ordinary least square (OLS) results, the Null hypothesis H_0 was rejected, hence, the conclusion was made that the behavioral competence had significant influence and positively correlated with project performance. The findings concurred with the study by Gruden and Stares (2018) which concluded that the predictor significantly and positively influenced project performance. Their results revealed that behavioral competence influences 30% of delays in project while the other competences influences about 27.8%. Further, the results are confirmed by Haddad (2017) where he investigated the behavioral competence on employee's performance and concluded that the effect of human behavior on performance was statistically significance ($p\text{ value} < .05$), and positively correlated. Lastly, Omonyo (2017) posited that human behavior significantly influence the performance of public infrastructure projects , hence, it was important that careful consideration needs to be made during conceptualization of the project is significant success was to be achieved.

Table 3: Effects of Behavioral Competence on Project Performance Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Square Change	F Change	df1
3	.402 ^a	.161	.153	.31343	.161	20.567	1

Change Statistics		
Model	df2	Sig. F Change
3	107	<.001

a. Predictors: (Constant), BC_IDV

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
3	Regression	2.021	1	2.021	20.567	<.001 ^b
	Residual	10.512	107	.098		
	Total	12.532	108			

a. Dependent Variable: PROJPF_DV, b. Predictors: (Constant), BC_IDV

Overall Regression Coefficients					
Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	1.858	.498		3.732	<.001
BC_IDV	.485	.107	.402	4.535	<.001

CONCLUSION AND RECOMMENDATIONS.

Behavioral competence was found to significantly influence project performance; hence, the study recommended that matters of creativity, reliability, teamwork, and frequent engagement/motivation of teams should be encouraged in public institutions when handling projects. Mega infrastructure projects usually include various engineering components that require the involvement of various experts throughout the project life cycle. Unless the engagement of such expertise is considered critical, and teamwork is embraced, it will be clear from the project onset that projects are planned to failure. The know-it-all behavior/attitude exhibited by some non-professionals who are politically assigned project roles in public institutions/state agencies is a recipe for the lousy projects. Such behaviors are costly as they end up in implementing non-performing projects at an inflated cost.

Project Management Institute, PMI reminds us that project management is a team activity with clearly defined mandate and the people running these projects are key for their success. It is therefore, a recommendation for this study that people or senior manager entrusted with responsibilities to assign such roles should critically re-evaluate and consider such soft skills (creativity, reliability, teamwork, engagement/motivation) if their ultimate goal or desire is the success of projects that the performance of the state-owned projects in Kenya.

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