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## Effect of Technical Expertise Engagement in Monitoring and Evaluation on Performance of Residential Construction Projects in Kajiado County

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### ABSTRACT

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*Performance of residential construction projects in Kenya has had a bumpy ride resulting to unfinished stalled buildings, cost and time overruns, low quality houses and lack of health and safety considerations. The research study pursued to ascertain the influence of technical expertise engagement on performance of residential construction projects in Kajiado County. The study used resource dependency theory. Moreover, the research utilized descriptive research methodology. The scope was residential construction projects completed in the year 2020 within Kajiado County. The target population consisted of 124 registered building works in Kajiado County that are 95% complete as a performance indication. A sample of 37 projects was considered which consists of 30% of the total population. Non probabilistic sampling techniques were employed. Research participants included clients, contractors as well as consultants involved during project implementation. Questionnaires were deployed to obtain data. The researcher delivered them and collected later. Results of the study established a positive correlation between technical expertise engagement and residential construction projects' performance. The study gave a conclusion that M&E practices had impact on residential construction projects' performance. The study recommends that stakeholder engagement sessions should be carried out to ensure all the interested parties play their roles efficiently especially in project scope, identification, and implementation to avoid delays. Experienced and competent project managers should be hired to ensure the project is delivered on time and with the best quality.*

**Key Words:** Schools Monitoring & Evaluation practices, Project Performance, Technical expertise engagement

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### 1.0 Introduction

Monitoring and Evaluation is a fundamental aspect in implementation and performance of projects, through tracking project processes to ascertain whether what is being done is in line with the project intended goal. Monitoring ascertains the capacity of project resources, their utilization, adequacy and effectiveness towards achieving the planned goal. Evaluation on the other hand is conducted periodically to access the changes in the project results, outcome and impact (Ochola 2018). Hobson, Mayne, & Hamilton (2014) incorporated M & E planning, involvement of all stakeholders, logical reporting, effective and efficient resource allocation and continuous learning for better decision making, communicating of reports as part of M & E practices influencing project performance. Community engagement, resource availability, technical knowhow, planning

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processes, analysis of M & E collected data enhances performance of projects (Melat 2018). According to PMBOK (2017), Monitoring and evaluation incorporates several coordinated aspects like stakeholder involvement, time management, good communication of findings, auditing, and proper allocation and utilization resources to support continuous improvement in project performance. According to Khan (2013) failure is due to problems linked to managerial aspects, lack of stakeholder management, poor structural organizational designs, budget overruns, organizational structure failure, poor communications and interrupted identification of projects and start-ups as well as postponement of activity implementation. Monitoring and evaluation practices should not be left for the consultants and top management rather, analysis of different interest groups at the initiation stages create more understanding, sustainability and improved quality through awareness and capacity building (Khan 2013). This research strived to understand practices of M & E identified within the knowledge of project management entities including: stakeholder participation, management involvement, technical expertise engagement and communication and their impact on performance of residential construction projects.

Construction industry in developing countries is not automated hence relying heavily on human resources to implement the activities geared towards achieving the set goals. An effective M & E implementation process requires technical expertise engagement in terms of expert skills set, technical know-how, and specialist skills. To enhance the reliability of expertise Cedep, (2014) insisted partnership and participation of all stakeholders when sourcing external technical experts directed and supervised by project managers. Callistus & Clinton (2016) identified lack of technical capacity in terms of poor skills and lack of knowledge within the M & E staff as a major contributor of project failures.

### **1.1 Project Performance**

Construction companies operate on project-oriented activities distinctive with a start and a finish point, this call for the need for project M and E throughout the project lifecycle. According to PMBOK (2017) quality, time and cost are the performance dimensions of projects. Further, performance of a project is measured through a documented agreement between project stakeholders and project managers addressing the nature of project, performance and the factors impacting performance. It is through M and E that we are able to know whether a project is completed in time, met its goals, spent the allocated budget effectively and also give recommendations for further funding (Mwangu, 2015). The dimensions of measurement in the performance of projects are decided at the project conception period to act as a guide and direction of all project activities for stakeholders to focus on the same objectives.

Garbharran & Govender, (2012) recommended construction projects to be undertaken in comfortable setting, by competent people with a clear communication plan and commitment from all stakeholders to ensure success. A project is considered successful when it has achieved technical performance specifications, fulfilled its goal and satisfied the stakeholder's expectations on the project outcome (Nasir, Noor, Musir, & Nasir, 2017). Their study further posited time, cost (budget), quality and management as Critical Success Factors (CSFs) of a project. Different performance metrics related to client satisfaction, quality health and safety, customer changes and business performance are also used as performance evaluators. In their study, Tengan & Aigbavboa, (2018) concluded that a project can be successful if it is finished in time, achieved project budget, conformed with set standards, satisfied stakeholders, environmental health as well as safety conformity, brings value for money, client and user satisfaction all which can be achieved



though the effective utilization of M & E practices. This study considered time, budget, quality and safety as the performance indicators driven by stakeholder participation, management involvement, technical expertise engagement and communication as the practices of M and E on projects of residential constructions in Kajiado County.

### **1.1.1 Residential Construction Projects within Kajiado County**

The County of Kajiado visions itself being “a globally competitive county offering quality for life”(Integrated County Development Plan, 2018). The county hosts several fast-growing towns linked to Nairobi Metropolitan area that include; Ongata Rongai, Kiserian, Kitengela and Ngong. The past few years have witnessed the county’s tremendous growth and rapid increase in urban population. As stated by the KNBS, (2018) Kajiado county’s inhabitants grew by 5.5% caused by migration from neighbouring counties attracted by employment opportunities and land for settlement. The urban population stands at 35% ranked as the most populated part of the County. This statistic created urgent need for monitored and evaluated structures that are affordable, quality and safe residential units to better the citizen’s life.

The KNBS (2019) census reported 50% increase in the county’s population compared to only 6% growth in the real estate market posing deficiency in the real estate construction projects. The lack of solutions to better housing has attracted mushrooming of informal settlements inform of slums, unregulated structures, occupied unfinished buildings and other projects stalled at the foundation levels. According to Kajiado County Integrated 61% of the County’s urban population live in informal settlements. Currently the county has an urgent need for robust vigorous and reliable contractors to aid the success of cost effective, timely and quality residential real estate housing projects. The county is a hot spot investment area as highlighted by the NCA 2018/2019 report that out of the 5,156 project submissions in the fiscal year, 572 were from Kajiado county ranking second after Nairobi County (HASS 2019). The rapid urban development characterised by huge housing structures has pushed by pressure from Nairobi City County. Republic of Kenya (2018) construction policy draft posited impediment in performance of construction projects due to longer time to complete, poor practices in healthy and safety standards, inadequate and lack of competent human resources and poor-quality construction materials in the process, creating quality issues that sometimes lead to collapsed structures and hence unsafe for occupation.

### **1.2 Statement of the Problem**

The status of construction projects is not at its best as highlighted by the draft National Construction Policy (Republic of Kenya, 2018). Approximately 30% projects are not completed on time, while in other instances over 21% have been reported to have quality problems, and yet over 40% have ended up costing more than their initial budget estimates. A similar percentage has also been associated with health and safety challenges. The Kenya National Bureau of Statistics Economic Survey (2019) reported annual deficit of 21% in housing with only 6% growth in residential real estate compared to 27% urban population increase. The projects’ performance is significantly shaped by M & E variables through tracking the project process and measuring the level of performance against the targeted goals. Through M & E, inconsistencies and deviations are identified early in the processes and vindicated or controlled increasing the chances of success (Mwangu 2015).

Work performance reports that involving status and progress reports in monitoring create awareness and aid in decision making hence supporting project performance. The lack of effective



M&E makes it difficult for one to know if outcomes are achieved and whether positive contributions are witnessed towards achieving the ultimate intended goals (Hobson et al., 2014). Stakeholder participation, management engagement, Technical expertise engagement and communication increase the chances of project success hence improved performance levels. Extant literature on this subject area generally collaborate the existence and need for academic attention to M & E practices in residential construction projects. Most of the literature on M & E practices and performance of construction projects is conducted on public projects funded by the national and county governments with little attention on private residential construction projects. Maendo, James, & Kamau, (2018) researched on effects of M & E on local firms' projects' performance in the area of road infrastructure. Jeremiah (2018) sought to find out the factors influencing completion of building and construction projects by County Government in Kajiado County, Mwangi, (2015) study sought to find out M & E effects CDF outcome in Kenya, while Lempakarish, (2017) researched M & E influence and completion of construction of Nairobi Pipeline. Despite the academic consensus that M& E practices increase chances of better project performance, many of the residential construction projects are not thriving. Against this backdrop, this research strived in determining how technical expertise engagement in M & E impacted on successful accomplishment of construction of residential projects within Kajiado County.

### **1.3 Objective of the Study**

The objective of the study was to assess influence of technical expertise engagement on residential construction projects' performance in Kajiado County Kenya.

## **2.0 Literature Review**

### **2.1 Theory of Expectancy**

Developed by Victor H. Vroom in 1964 the Expectancy Theory proposed that human beings are highly motivated to put an effort to work because of the expected performance that yields rewards. The theory proposes that workplace motivation is based on the outcome and performance and thus people adjust their behaviour based on the perceived and expected outcomes. The expectancy theory gives special importance to individual expectation of the surrounding and following interaction arising as an upshot of individual presumption. Vroom further stated that more effort could lead to better performance given the right resources, the required skill set and support from the leaders. Expectancy theory has three components namely; instrumentality and valence as the three components of expectancy theory. Expectancy refers to the belief that better performance is brought by increased effort while instrumentality is the thought that better outcome is as a result of better performance. Valence on the other hand is the value of the desired outcome.

This model is important in this study because it brings out a basis of assessing construction projects' performance. The complex nature of construction industry creates an entire need for able managers who are well equipped to motivate, train and ensure the health and safety of the workers. Through M & E practices; provision of necessary resources, technical skill set, provision of information and management motivation and support brings out the performance of projects. Better effort and skill set leads to better performance hence great rewards for successful completion. Thus, expectancy is promoted; instrumentality and dispositions are incorporated as expectancy theory components hence important for the study.



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## 2.2 Empirical Review

A well-equipped M & E in terms of finances, human capital and technological resources enables smooth project implementation as well as the project performance. Shihemi, (2016) ; Gathenge (2019) & Wanjala (2016) pointed that hiring of skilled M & E technicians, adequate M & E budget allocation and regular training of the project workforce increased the performance of projects. Project implementers should have transparent description of work matching their prowess and extended training conducted to cement skill set and professionalism. Wanjala (2016) recommended that organizations should invest sufficiently in M & E to cater for development of M & E systems and training team members to enhance performance goals of the project. Successful M & E is characterised by skilful, experienced and capable team players equipped with the necessary tools and systems for it to contribute to project performance. Prerequisite budgetary allocation of funds for conducting M & E enables project managers to recruit experienced and skilled M & E professionals to monitor and evaluate the project process in accordance with the set goals and enhance performance of the project.

Research done by (Faith, 2014) aimed in determining academic qualification and employee performance on project implementation. The study employed descriptive research design targeting 48 employees of Mukuru Slums Development Projects and collected data using questionnaires from 40 of the 48 employees. Illustrative descriptive was conducted to analyse the data inform of mean and percentiles then the results were summarized in tables. The outcome results disclosed that academic qualifications were perceived to have positive relationship with employee performance and recommended assigning project activities the relevant required skill set for the specific job. This study focused on one variable academic qualification in relation to employee performance leaving out relationships of academic qualification with experience and system application. This research bridged academics through considering academic qualification in relation to other variables and the influence of residential construction projects in Kajiado County.

A survey conducted by Wachaiyu (2016) in Starehe Sub-County sought to determine M & E factors affecting projects' success. The work looked to ascertain the level in which M & E players' strength, allocation funds, M & E plan, as well as selection of tools affect the development projects. The study deployed descriptive research targeting 231 respondents and analysed the data using SPSS to find the correlation between M & E factors to successful development projects in Starehe area. The findings revealed that selection of M & E team, tools as well as techniques were key aspects to the performance and success of projects. This study specifically focused on development projects funded by the county government of Starehe Sub-County Nairobi. The current study will fill the project development gap by focusing on residential construction projects by private companies in Kajiado County.

In his study (Kihuha 2018) investigated the routine of monitoring and Evaluation at United Nations Environment Programme in Kenya and its contribution on completion of projects. Study outcome communicated optimal utilization of technical expertise engagement enhanced project performance and highlighted minimal control mechanisms in tracking project processes weakened organizational capacity. The study highlighted technical expertise engagement on monitoring and evaluation of UNEP GEP using a census study design. This study utilised explanatory methodology and employed purposive sampling method to examine the influence of M & E practices in domestic premises projects in Kajiado zone.



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### **3.0 Research Methodology**

The study used descriptive approach. Kothari (2004) described descriptive research as comparison to what is happening or has happened in correlation to the expectation. The study targeted 124 residential construction projects in Kajiado County that included flats, apartments, and gated community constructed by private companies. The respondents were drawn from key participants in construction industry that included; Clients, Contractors and consultants from 124 registered building works in Kajiado County. The non-probabilistic aspect involved purposively selecting projects that are 95% complete from a population of 124 residential construction projects in Kajiado County. Thirty-seven (37) projects were selected from the metropolitan areas of Kajiado because of the rapid growth in population and increased urbanization in the last five years. The sampling technique minimised the constraint of time and resources.

The study deployed primary data collection procedure. The researcher and the assistants physically presented the questionnaires by dropping then picked them later enabling the respondents to give accurate and reliable information without fear of contradiction or influence of the researcher. The researcher acquired the necessary permission and introduction letters from Kenyatta University Graduate School and NACOSTI as a proof that the study is genuinely for academic purpose for easier consent of the respondents. Descriptive statistics was performed using measures of central tendency to aid in summarizing variables. Correlation and also regression were employed to elucidate the linkage within variables. Qualitative and quantitative data from closed questions was analysed and data presented by employing frequency tables and percentages. Regression analysis evaluates the strength of association between variables. Regression analysis was deployed in examining the effect of technical expertise engagement in M&E on residential construction projects' performance in Kajiado County Kenya. The study employed ordinal logistic regression analysis

### **4.0 Research Findings**

#### **4.1 Technical Expertise Engagement in Monitoring and Evaluation**

Technical expertise is a backbone of any project. It ensures that the project is delivered on time and also meets its desired standards. It is therefore crucial to ensure that project team members are skilled. The participants were required to point out their agreement with technical expertise engagement through engagement of technical experts in M & E, regular training, setting aside financial kitty for M & E, flexibility of the project and utilization of M & E tools in regards to performance of construction projects. Respondents indicated that technical expertise in project implementation influenced successful completion of building projects represented by a mean of 4.30. This concedes with Shihemi *et al.*,(2016) who pointed that hiring of skilled M & E technicians, adequate M & E budget allocation and regular training of the project workforce increased the performance of projects.

Separate financial kitty for M & E practices was also noted to have affected project performance resulting to 4.29 mean score. Having separate financial kitty for M&E ensures that money is not embezzled and thus being used maximum for its indented purpose. Moreover, flexibility of the project implementation process also influenced project performance with a mean of 4.14 as shown in Table 1 below. Project team should ensure that there is always a room for change to capture any uncertainties that comes along with a project. Moreover, the respondents felt that regular training exercise and review of tools demonstrated minimal effect on project accomplishment showing



average of 2.97. Table 1 shows the respondents findings on technical expertise engagement and project performance.

**Table 1: Technical Expertise Engagement and Project Performance**

<b>Statement</b>	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
Engagement of technical experts in Project implementation exercise	66	4.30	.463
Regular training exercise and review of tools	66	2.97	1.052
Separate financial kitty for M & E exercises	66	4.29	.519
Flexibility of the project implementation process	66	4.14	.605
Utilization of M & E tools like the logical framework	66	3.98	.690
Valid N (list wise)	66		

#### 4.2 Projects Performance.

According to PMBOK (2017) quality, time and cost are the performance dimensions of projects further; performance of a project is measured through a documented agreement between project stakeholders and project managers addressing the nature of project, performance and the factors impacting performance. (Mwangu 2015) stated that M &E enables the project team to know if a project was completed on time, met its goal and utilised the allocated resources. The researcher focused in establishing the level in which time, cost and quality indicated the performance of residential construction projects. Findings were shown in Table 2 below. Project being completed to the desired quality had a mean of 4.21 while project being completed within a specified time had a mean of 4.03. This concurred with PMBOK (2017) discoveries which states that quality, time and cost are the performance dimensions of projects. We can therefore deduce that these factors were seen as indicators of project performance.

**Table 2: Indicators on Project Performance**

<b>Statement</b>	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
Projects completed within the specified time	66	4.03	.744
Utilised the allocated Budget/cost with no additional expenses	65	3.92	.714
Project is completed to the desired quality	66	4.21	.512
Valid N (list wise)	65		



**Table 3: Correlation Coefficients**

		Project performance	Technical skills
Technical expertise	Correlation Coefficient	.845**	1
	Sig. (2-tailed)	0.023	.
	N	66	66

The results showed a significant correlation associating technical expertise to project performance with  $r=0.845$ . This, therefore, implies technical expertise engagement contributed positively to the performance of residential construction projects.

An ordinal regression analysis was utilised to identify strengthens highlighting dependent variables on a dependent variable. The main purpose of ordinal regression analysis is to help us understand how much dependent variable will change when predictor variables is changed. Technical expertise showed main predictor in performance of residential constructions. For every one unit increase in technical expertise, there is a predicted 0.361 in the low odd of 0.000.

**Table 4: Parameter Estimates**

Parameter	B	Std. Error	95% Wald Confidence Interval		Hypothesis Test			
			Lower	Upper	Wald Chi-Square	df	Sig.	
								Technical expertise
(Scale)	1 <sup>a</sup>							

*Dependent Variable: project performance*

## 5.0 Conclusions and Recommendations

### 5.1 Conclusions

The study concluded that technical expertise engagement influenced construction projects' performance as findings showed a considerable association between the two with  $r= 0.845$ . The study finalised that construction projects' effectiveness depends to higher extent on technical expertise linked to the project team.

### 5.2 Recommendations

Experienced and competent project managers should be hired to ensure the project is delivered on time and with the best of quality. Besides, there should be regular supervision and inspection of the team members to ensure they are doing what is expected of them hence ensuring successful project delivery. Key project players should be trained on the key metrics of a successful project. This will ensure they understand what to watch out for to ensure the project is implemented successfully.

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