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# CLOUD COMPUTING PRACTICES AND PERFORMANCE OF REAL ESTATE PROJECTS IN NAIROBI COUNTY, KENYA

# MUSAMALI JEREMIAH WANYONYI<sup>1</sup>, Dr. Muchelule Yusuf, Ph. D<sup>2</sup>

<sup>1</sup>MSc. Candidate, Jomo Kenyatta University of Agriculture & Technology [JKUAT], Kenya

<sup>2</sup>Ph.D., Lecturer, Jomo Kenyatta University of Agriculture & Technology [JKUAT], Kenya

# ABSTRACT

Technology is impacting everything all over the world both in developed and underdeveloped nations mostly in project management which prompted me to discuss cloud computing practices and the performance of real estate projects. Cloud computing practices influence the event of a rustic and have immeasurable costs to organizations. The overall objectives were to determine the cloud computing practices and performance of real estate projects in Nairobi County. The exact targets were; To examine the influence of Information management expertise on the cloud computing practices and performance of real estate projects in Nairobi Kenya, to determine the influence of service level agreement on cloud computing practices and performance of real estate projects in Nairobi Kenya, to examine the influence of project funding on cloud computing practices on the performance of real estate projects in Nairobi Kenya and to examine project integration influences cloud computing practices on performance of real estate projects in Nairobi Kenya. The extent of the review was Cloud Computing practices and the performance of real estate projects in Nairobi County. Significant writing was audited upheld the variable and related speculations summed up diagrammatically utilizing a calculated structure to widen the perspectives on the review. The research design deployed was a descriptive research design. The study used Census sampling technique which contained 200 respondents from real estate developers and real estate project managers. A closed and open-ended questionnaire was used to collect primary data. The questionnaires pilot test for reliability and validity. Both quantitative and qualitative approaches were used for data analysis. Quantitative data was summarized and analysed using descriptive statistics with the help of the statistical package of social sciences (SPSS) version 28 and findings presented using tables. Qualitative data adopted content analysis while inferential statistics was applied to identify a mathematical relationship between variables using multiple regression analysis which was used to establish the degree of statistical relationship between the study of variables. In summary, the four independent variables Information Management expertise, Service level Agreement, Project Funding and Project Integration had a positive impact on performance. The study recommends that there should be information management expertise usage to improve performance which will enable projects success. The study recommend that future research should be carried out to focus on other categories of projects which are essential in economic development. A similar study should be carried out to assesses other factors that could influence project performance since the independent variables of this study explain only 52.8% variation in project performance meaning 47.2% variation in project performance can be explained by other factors that have not been covered in this study.

**Key words**; Could computing, Information expertise, service level agreement, project funding and project integration

### **INTRODUCTION**

The real estate industry plays an important role in boosting the nation's economy and at the same time helping in meeting the daily or societal basic needs (Amutabi & Wambugu, 2020). In Kenya, a survey by the Kenya National Bureau of Statistics (2016) identified that real estate firms contribute about 30% of the GDP, over 50% of the jobs and account for 80% of the workforce (Kathambi & Obiero, 2021). Real estate firms have been made to embrace modern technologies especially cloud computing to improve efficiency in how they do their business. This involves the use of an integrated systems approach to systems and processes that mitigate costs and enhance information sharing which leads to improved project performance (Pulles and Schiele, 2016). Cloud computing is the ability to deliver on-demand computing services over the internet on a pay-as-you-go basis. Rather than managing files on a local storage device or organizational data Centre, cloud computing makes it possible to save them over the internet (Andrushchak, 2019).

Cloud technology in the construction industry enable the construction sector to save cost, to be able to build a better relationship with customers or clients, customization is easier, offers flexibility, collaboration and communication improved, and enables scalability (Rathnam, 2017). Reluctance to change or resistance to change is one of the essential boundaries that forestall cloud computing use in land projects in Kenya since real estate agents are afraid of being replaced by modern technology, other barriers include legal issues, investment, lack of skill, industry standards, and trust. Technologies such as cloud computing and BIM require effective usage and skill level (Ashworth and Perera, 2015).

Real-time access to information, project documentation, results, collaboration, budget status, and decision making are all made easy with the help of cloud computing and PMIS which lead to improved project performance (Sarkar and Jadhav, 2016). Lessons learned in different real estate projects could be managed with the help of mobile computing-based knowledge platforms. Knowledge management issues in real estate firms could be overcome with the help of knowledge management (Núñez et al., 2018). Cloud computing practices improves performance and enables management to achieve the target and reach a speculated performance in the region. Changes in the organization are essential to improve the operation (Priyadarshinee, 2017). Despite the many advantages that real estate sector may benefit from cloud computing, the practice rate is however relatively not embraced in some developing countries (Senarathna et al., 2016). Hence studying cloud computing practices is essential in unlocking project performance.

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

The real estate projects assume an essential part in supporting the country's economy and simultaneously helping in meeting the daily or society's basic needs (KNBS, 2016). The real estate firms have shifted to modern technologies to improve efficiency in how they do their projects which involves the use of integrated systems approaches, project funds usage and service level agreement, and enhancement of information sharing on project performance (Pulles and Schiele, 2016). However, 77% of organizations' CIOs have at least one type of cloud, however, 56% of them perceived the complexity of their IT infrastructure as the most significant barrier to usage (Phaphoom, Helmer & Abrahamsson, 2015). The real estate projects are facing plenty of challenges because of poor practices of could computing which have led to poor performance and lack of capacity to implement internal control which has resulted in quality assurance problem that has led to collapse of the building and stalled projects (Hass, 2016).

Despite the service of transport, foundation, lodging, and substantial advancement expressing that they need embraced cloud computing practices to supply top-notch choices, counsel, and administrations inside their tasks, some give unfortunate administrations through unfortunate documentation, poor data system, poor decisions, and time extension variation (Ministry of infrastructure, housing and concrete development, 2016). in step with KNBS 2016, 66.8 % of real estate haven't performed well due to cloud computing services knowhow challenges because of insufficient information management expertise and inadequate funds within the project management. Wambugu and Ndiege (2018) did an assessment on cloud computing reception in Kenya real estate projects. Kanake (2017) inspected the impact of cloud computing in real Estate development in Kenya and the findings established that the use of technology in Kenya real firms improves the performance of construction, lowered labour costs, minimized defects and wastes, and improves health and safety. Ameme and Wikero (2016) explored the link between technology and the performance of commercial banks in Ghana and the findings established that the use of technology by commercial banks improved efficiency, convenience, and cost savings. Despite the importance of cloud computing in the real estate projects, few investigations have adequately centred around cloud could be registering usage in the presentation of tasks particularly real estate projects in Kenya. Study will targets filling the current gap by considering Cloud computing practices and performance of real estate projects in Nairobi County, Kenya.

# **Objective of the Study**

The general objective was to examines the influence of cloud computing practices on performance of real estate projects in Nairobi County Kenya. The specific objectives were;

- To Examine the influence of Information management expertise on the cloud computing practices and performance of real estate projects in Nairobi Kenya.
- To determine the influence of service level agreement on cloud computing practices and performance of real estate projects in Nairobi Kenya.
- To examine the influence of project funding on cloud computing practices on the performance of real estate projects in Nairobi Kenya.
- To examine project integration influences cloud computing practices on performance of real estate projects in Nairobi Kenya.

# LITERATURE REVIEW

### **Theoretical Review**

# **Competency theory**

This theory guided the study investigating the link between cloud computing practice and further more the performance of real estate projects in Nairobi County in Kenya. Crafted by understudies McClelland and McBer inside the 1980s laid out the competency theory. Githenya & Ngugi (2014) supported this theory and defined competency because the underlying characteristics of a private that's casually associated with criterion-referred to successful as well as prevalent execution in an incredibly work or circumstance. When executing out project activities or tasks, Cloud service skills and training attained are indicators that contribute towards good information management which enhances project performance. However, in project management, we have other skills that are key to goal achievements like communication and problem-solving skills but technical expertise is the lifeblood in project management. SaaS is a cloud computing service model where application reside on the cloud infrastructure of service

providers and are delivered to users through web interfaces and programs. The main notion behind SaaS is to eliminate the practice of applications residing locally on devices of the individual user as the computing powers of these individual devices cannot be leveraged to provide high computing efficiency and performance to users.

### **Complexity theory**

Complexity theory was a subset of chaos theory (Jaafari, 2003). Complexity theory attempted to define how patterns evolved from chaos, structures, and behaviours (Rose, 2009). Hamm-Simmons (2019) agreed that complexity theory focus was to determine how to respond to unpredictable systems and situations when it was not possible to calculate the inevitability in project outcomes. The application of project management processes, tools, and methodologies had been thought to lead to well organized and predictable behaviour (Bakhshi, Ireland, & Gorod, 2016; Floricel et al., 2016). Although it was not possible to calculate the complexity that may occur within a project, it was however possible to study the implications of complexity theory in order to address the challenges of the unpredictable outcomes that were characteristic of projects (Rose, 2009; San Cristóbal, J. R., Carral, L., Diaz, E., Fraguela, J. A., & Iglesias, G.(2018). Complexity theory was originally applied to project management in the 1990s (Poveda-Bautista, Jose-Antonio Diego-Mas, & Leon-Medina, 2018). Project failure was directly related to complexity, and so was an important and often debated topic.

In project management, complexity was a source of uncertainty and risk that could affect project outcomes and performance (Floricel et al., 2016). All projects had a degree of complexity (Padalkar & Gopinath, 2016). Project management decision-making was based on the idea that projects were simple, complicated, complex, or chaotic (Poveda-Bautista et al., 2018; Bakhshi et al., 2016).

In the real world and to be more specific here in Kenya, people often deviate from the project. To this end performance standards and policy, regulations must be seriously considered for project goal achievement purposes.

### **Resource-Based View Theory (RBVT)**

The theory guided the study in investigating the connection between the project funding and the performance of property projects in Nairobi County Kenya. Baru & Moronge (2018) was of the identical opinion that it absolutely was initiated within the mid 1980s. Since then, the asset based view (RBV) became one among the predominant contemporary ways to deal with the investigation of supported upper hand (Barney, 2005).

Project performance is defined as meeting cost and time objectives while adhering to the product's specifications. The key indicators of project performance include time, cost, and quality (Karbolo, 2021). Sustainable project success requires enduring benefits through capabilities that are not easily imitated (Killen et al., 2012).

To this study, the source of funds and budget allocation to cloud computing practices is a critical key performance indicator for the performance of real estate projects and indeed money is a valuable and rare resource when related to Barney's argument. Project the board assets and abilities that have been modified to a particular climate and created over the long run are not handily imitated. Such abilities are continually connected with better execution, prompting seeing PM as key hierarchical capacities that can give suffering advantages. Following the Resource-based View of the task firm idea, the theoretical assets are bound to fulfill the necessity

of being uncommon and supreme (Killen et al., 2012). This proves that cloud project funding is the critical variable in the performance of real estate projects (Karbolo, 2021).

## System theory

The systems theory explains the dynamics of complex and dynamic systems. Many of the systems where humans are involved can be classified as (or rather will inevitably become) complex and dynamic systems. Kim (1999, p. 2) defined a system as "any group of interacting, interrelated, or interdependent parts that form a complex and unified whole that has a specific purpose." Based on this definition, a project itself can be considered a system.

Sankaran et al. (2010) suggested that project may have a boundary based on its initial scope but this boundary could change as the scope changes. The project teams inside the project boundary could have interactions with external stakeholders if they are considered to be part of the environment. A system takes inputs from its environment and transforms them into desired outputs. In a project the requirements could be considered as inputs that are transformed by the project team into products or services as outputs.

Prompt reactions are fundamental for property real estate agents more than in some other industry. Potential clients need to feel esteemed and liked with regards to picking either moderately equivalent strategic agreements and choosing, which is the best match to burn through a lot of cash on. Through this, immediate feedback is enhanced hence performance through Real-time Data Acquisition, Real-time reporting, Connects to many data sources, and Cloud Infrastructure and Service



## **Conceptual Framework**

Figure 1: Conceptual Framework

#### **Empirical Review**

Kasemsap (2018) argued that the fulfilment of IT and knowledge management was essential for modern firms that sought to serve its client, increase performance, strengthen competitiveness, and achieve constant success in global business. Therefore, it is crucial for modern firms to explore their IT and KM applications, establish a strategic plan to routinely inspect their functional advancements, and promptly respond to the IT and KM needs of clients. He further suggested that applying IT and KM in PM metrics has the potential to enhance a firm's performance and achieve strategic goals in this era.

Maina (2017) conducted a study on the impact of advanced showcasing apparatuses on the exhibition of the business in the land area in Nairobi district. His exploration is equipped towards laying out the impacts of innovation on the exhibition of the land area. The review zeroed in on the usage of digital marketing tools in Nairobi county by the real estate management industry, Knight Frank, and many communities and mini-cities that came up. These included the Kihingo village, Four-way Junction, Roslyn Heights, Eden Ville estate among others.

Kamau (2019) studied the effect of technological innovations on the performance of real estate firms in Kenya: the case of real estate in Nairobi county and the finding intimated that technological innovations impact efficiency, cost reduction, and value addition which are essential indicators of performance. There's a need for future researchers to do a study on how technological innovations affect competitive advantage then findings can be compared after which a plausible conclusion might be drawn. The study found that Real Estate firms should allocate more funds and resources to research and development to analyze ten technological trends to avoid absorption of fake or substandard resources or materials to ensure that they give out the achievement intended for. Real Estate firms should adopt better business models periodically to accommodate technological innovations to remain competitive and relevant in the industry. There was a great need for firms to put in resources to improve the operations and ensure the growth of organizations.

Mwaniki & Ondiek (2018) did a study on the evaluation of the effects of cloud (SaaS) on SMEs in Nairobi County Kenya. The purpose of the research was to evaluate the effects of SaaS on SMEs in Nairobi County, Kenya to find out if SaaS was affordable and if it improved the SMEs. The study then recommended that SMEs in Nairobi County, Kenya, should be encouraged to use the cloud (SaaS) as it would improve their performance.

### Methodology

The study employed both qualitative and quantitative data analysis methods. Qualitative research provided insights and understanding while quantitative data was used to generalize those insights to a population pattern. Quantitative data was edited, summarized and coded for easy classification in order to facilitate interpretation of the data expressed in the form of figures, tables and charts. The data was analyzed using SPSS. Qualitative data was analyzed by content analysis. ANOVA was used to test the significance of the fitted model. Data was presented in the form of charts, tables and figures. The data collected through the questionnaire was edited to eliminate common mistakes and cleaned to ensure consistency (Luck & Rubin, 2018). The researcher also physically checked for completeness and quality responses, accuracy, uniformity and consistency with facts. The processed data was then entered into the Statistical Package for Social Sciences (SPSS) for analysis and the results tabulated. Microsoft excel was used to

complement SPSS especially in production of figures and tables for data presentation. Descriptive statistics such as frequencies, percentages, means and standard deviations was used to summarise the data for further analysis (Malhotra, 2015). The summarised data was subjected to inferential analysis which constituted correlation and multiple regression analysis. Correlation was used to determine the relationship between the dependent and independent variables. Regression analysis is valuable for quantifying the effect of various simultaneous influences upon a single dependent variable (Faraway, 2012). The following model was used to establish the effect of work life balance practices (independent variables) on employee performance (dependent variable). The test for significance of coefficients of regression model was

 $Y = \beta_{0+} \beta_1 X_{1+} \beta_2 X_{2+} \beta_3 X_{3+} \beta_4 X_{4+} \mathcal{E},$ 

Where;

Y= Performance (dependent variable);

 $\beta_0$  = Constant (Coefficient of intercept);

X<sub>1</sub>= Information management expertise (Independent variable);

determined by use of t-statistics and 5 percent significance level.

X<sub>2</sub> = Service level agreement (Independent variable);

 $X_3$  = Project funding (Independent variable);

 $X_4$  = Project integration (Independent variable);

 $\mathcal{E} = \text{Error term};$ 

# FINDING AND DISCUSSION

The target population was 200 project mangers of real estate projects in Nairobi county However, 175 dully filled questionnaires were retuned translating to a response rate of 87.5%

# **Information Management Expertise**

Information management expertise as an element of cloud computing was measured using different sub-variables. The respondents were asked whether the real estate sector employ expertise teams. Majority of the respondents answered to the affirmative with 41% agreeing and 28% strongly agreeing. There was however a significant number who disagree with 15% strongly disagreeing and 8% disagreeing. The mean for the response was 3.587 out of maximum of 5 with 1.370 standard deviation from the mean. This shows an above average level of agreement that real estate sector employ expertise teams. The use of cloud model in the real estate was also tested. Majority of respondents agreed with its implementation in the sector with 53% strongly agreeing and 43% agreeing. The training attained regarding cloud model was also found to be important for the industry with a mean response of 3.917 where 46% strongly agreed and 28% agreed.

The real estate projects adherence to service level agreement was also tested and found to be moderately implemented. The mean response was 3.244 with 25% strongly agreeing and 33% agreeing. The disagreement with the statement was also significant at 24% strongly disagreeing and 10% disagreeing. Majority Respondents were of the view that too much project creep accept

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performance with the mean response of 4.15. Good project team integration was also found to be present with 30% of respondents strongly agreeing and 33% just agreeing. With a mean of 3.6 and standard deviation of 1.14, the performance of real estate was found to be realized by information management measures used.

### **Information Management Expertise**

Statements	Mean	STD	
Real estate sector employ expertise teams	3.587	1.370	
The real estate projects use the cloud model	4.446	.711	
Training attained about cloud model important is important for the industry	3.917	1.330	
Real estate project adheres to Service Level Agreement	3.244	1.523	
Too much project creep affect performance	4.151	1.189	
There is Good Project team integration	3.615	1.290	
Performance of real estate projects realized	3.631	1.410	

## Service Level Agreement

Service level agreement (SLA) was also assessed in relation to performance of real estate projects in Nairobi City country. One element that respondents highly agreed to the implantation was SLA being factored in projects with a mean response of 4.14. 50% of respondents strongly agreed with the statement with another 35% agreeing. Another element highly agreed by the respondents was existence of service provider agreement in the organization. A total of 33% strongly agreed and another 55% agreed.

The adherence of real estate projects to policy regulations was also high with a mean of 3.837. 27% of respondents strongly agreed with additional 27% agreeing. The standard deviation from the mean was 1.006.

The element with the lowest agreement was SLA contribution to project performance with a mean of 3.359. While 23% and 35% of respondents either strongly agreed or agreed that SLA lead to project performance, a significant number of respondents did not think so. For instance, 11% strongly disagreed with another 19% disagreeing. There was also high number of neutral responses at 31%.

### **Service Level Agreement**

Statements	Mean	STD
There is a sufficient and qualified technical team	3.583	1.452
There is a service provider agreement cooperation	4.074	.968
There is service standardization	3.715	1.262
Real estate project adheres to policy regulations	3.837	1.006
SLA contributes to project performance	3.359	1.322
SLA factored in projects	4.141	1.195
Service providers are SLA compliant	3.952	1.088
Designst Funding		

## **Project Funding**

The project funding and its impact on in relation to performance of real estate projects in Nairobi City county. The element that most respondents agreed with was the project team being paid well

at a mean of 4.112 and standard deviation of 0.873. This was followed by the statement that Project fast-tracking and project crushing needs more money at a mean of 4.058 and perception that real estate projects adheres to policy regulations at 4.035. Respondents also agreed that money is timely disbursed (Mean 3.769 std 0.971) and that lack of funds affect projects milestone (Mean 3.840 and std 1.296).

## **Project Funding**

Statements	Mean	std
Money is timely disbursed	3.769	.971
Lack of funds affects projects milestone	3.840	1.296
The budget has been done during the planning phase.	3.462	1.379
Real estate project adheres to policy regulations	4.035	.963
Project fast-tracking and project crushing needs more money	4.058	1.041
The project manager determines the money usage	3.894	1.229
The project team is paid well	4.112	.873

# **Project Integration**

As shown, project quality attainment was the most cited as positive by the respondent. A total of 62 % of respondents strongly agreed with another 23% agreeing. the mean was 4.311 with standard deviation of 1.138. Another element highly agreed with by the respondents was adherence to project scope with regards to software usage. The mean response was 4.010 with standard deviation of 1.166.

The respondents also highly agreed with the statement that feedback and report is instant. A total of 24% strongly agreed while another 50% agreed for a total of 74% agreement. The men response was 3.814 which is above average. Other elements that respondents highly agreed with include timely response affecting performance (mean 3.763) experience of less risk (mean 3.718 and project team possession of good communication skills (Mean 3.673).

### **Project integration**

Statements	Mean	STD
Feedback and report is instant	3.814	1.051
Project scope is adhered to in terms of software usage	4.010	1.166
Project integration is complex	3.484	1.410
Timely response affects performance	3.763	.956
The project team experience less risk	3.718	1.007
Project quality is achieved	4.311	1.138
The project team have Good Communication skills	3.673	1.152

### **Performance of Real estate projects**

The element that the respondent indicated as being achieved the most was percentage of project cost saved with a mean of 4.413. A total of 72% of respondents indicated their level of agreement is extremely high while another 14% indicated high level of agreement. Another performance measure that was highly achieved was team innovation level. A total of 27% of the respondents considered it as extremely high in terms of achievement while another 14%

considered it highly achieved. Stakeholder satisfaction was however not well attained with a mean of 2.965 with 23% if respondents indicating it was extremely lowly achieved and 22% considering it lowly achieved.

#### Performance of real estate project

Statements	Mean		STD
What is the level of quality of service delivery?		2.965	1.475
What is the level of project source of funds stability?		3.285	1.020
What is the level of deliverable quality?		3.279	1.355
What is the Percentage of the project cost saved		4.413	1.164
Team motivation level		3.926	1.063

## **Correlation Analysis**

Correlation among the variables used in the study were measured using Karl Pearson's Correlation coefficient. This coefficient measures the degree of the linear relationship between two variables.

The relationship between Information management expertise and performance of real estate projects in Kenya was found to be positive and significant (r=0.477; p=0.000). Thus, a change in information management expertise led to significant positive change in performance. The study therefore agrees with the existing literature. According to Heldman, (2018) information management fosters innovation and therefore performance.

The relationship between Service level Agreement and Performance is also positive and significant (r=0.424; P=0.000). Therefore, improvement in SLA lead to significant improvement in performance. The finding is supportive of that of Kituku (2012) who indicated that different elements influencing the reception of cloud in Kenya like protection, security hazard, and cancellation of information when clients need to pull out the SLA from the supplier and wish to erase the data and this led to performance.

The relation between project funding was positive and significant (r= 0.330; p=0.000). Thus, funding projects is important to ensure performance is attained. The finding support that of Watt (2014) and Kamau (2019) who indicate that project funding is essential for project continuation and performance.

		Information management expertise	Service level agreement	Project funding	Project Integration	Performance
Information management	Pearson	1				
expertise	Correlation					
	Sig. (2-tailed)	210				
	N	312 129*	1			
Service level agreement	Pearson Correlation	.138*	1			
	Sig. (2-tailed)	.001				
	N	.001	312			
Project funding	Pearson	.417	.514*	1		
Troject funding	Correlation	*	*	1		
	Sig. (2-tailed)	.000	.000			
	N	312	312	312		
Project Integration	Pearson	$.240^{*}$	$.355^{*}$	$.320^{*}$	1	
2	Correlation	*	*	*		
	Sig. (2-tailed)	.000	.000	.000		
	Ν	312	312	312	312	
Performance	Pearson	.477	.424 *	.330*	.717*	1
	Correlation		*	*	*	
	Sig. (2-tailed)	.001	.000	.000	.000	
	Ν	312	312	312	312	312
*. Correlation is significant a **. Correlation is significant						

# **Regression Analysis**

A multiple linear regression analysis was performed and showed that the independent variables explained 52.8% of the variation in performance of real estate projects as indicated by a coefficient of determination R2) value of 0.528.

Indicator	Coefficient		
R	.727		
R Square	.528		
Adjusted R Square	.522		
Standard Error	.3.31899		

# **Table 5: Model Fitness**

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Analysis of Variance was also performed to test for the significance of the whole model. The results revealed that the model was statistically significant. the regression model used fits the data since F-ratio is statistically significant(p=0.000). This shows that the four independent variables of cloud computing service are good predictors of performance.

. I able 0. Alla	lysis of variance				
	Sum of Squares	Df	Mean Square	F	Sig.
Regression	3781.788	4	945.447	85.827	.000b
Residual	3381.824	170	11.016		
Total	7163.612	174			

Table 6. Analysis of Variance

The model coefficients were established; coefficient of information management expertise is 0.394 which is statically significant at 0.002 significant level. This means a change in the management expertise by one unit while holding the other factors constant, there is improvement in performance with 0.394 units. Similarly, there is an increase in performance with 0.581 unit if service level quality is improved while holding other factors constant. This is because the regression coefficient for Service level agreement is 0.581 which is statistically significant at 0.000. The project funding variable is also positively related to performance. The regression coefficient is 0.102 which is significant at 0.000. Lastly, project integration had a correlation coefficient of 0.828. Thus, an increase in project funding would lead to 0.828 units' changes in performance.

 $Y = 2.417 + 0.394X_1 + 0.581X_2 + 0.102X_3 + 0.828X_4$  Where:

	В	Std. Error	Beta	t	р
(Constant)	2.417	1.732		1.395	.001
Information mgt expt	.394	.073	.125	4.148	.002
Service level agreement	.581	.062	.099	5.869	.000
Project funding	.102	.068	.076	1.504	.000
Project Integration	.828	.048	.745	17.292	.000

#### **Regression of Coefficients**

#### Conclusion

The information management expertise elements such as the use of cloud model in real estate projects, training on cloud model and reduced project creep were more implemented as compared to adherence to service level agreement were found to improve performance. Similarly, SLA facets including respondents' agreement of existence of sufficient and qualified technical team, service provider agreement cooperation, service standardization and adherence to policy regulations led to improved performance. It was also concluded that Project funding improve performance of real estate projects. Thus, money availability and ease of access by project managers can lead to success. Lastly, project integration was also found to impact performance.

### Recommendation

To succeed in the real estate projects information management expertise is required. In the era of technology, expertise in information management will help in providing useful intelligence data that can affect the performance of such projects.

Service levels agreement are also important and have been found to affect performance. Such agreements improve customer service, facilitates communication, defines procedures and can act as a written reference in case of disagreement. Therefore, they need to be adopted in Real estate projects.

Project funding have also been found to be important element of performance in real estate project. Therefore, there is a need for developing sources of revenues to fund projects. Organizations can write proposal to funding institution to secure finances and thus run their projects smoothly. Project also need to be integrated to succeed; this reduces costs.

#### **Areas for Further Studies**

The preset study considered the implementation of cloud computing services in projects in Nairobi. The value of R square 0.528 demonstrates that for real estate, Information management expertise, Service level agreement, Project funding, and Project Integration contribute 52.8 to their performance. The rest of the percentage (47.2) can be explained by other factors.

#### REFERENCES

- Amadi, A. (2021). Integration in a mixed-method case study of construction phenomena: From data to theory. *Engineering, Construction and Architectural Management, ahead-ofprint*(ahead-of-print). https://doi.org/10.1108/ECAM-02-2021-0111
- Amutabi, C., & Wambugu, A. (2020). Determinants of labor productivity among SMEs and large-sized private service firms in Kenya. *African Development Review*, 32(4), 591– 604.
- Armstrong, D., & Riemenschneider, C. (2011). The Influence of Demands and Resources on Emotional Exhaustion with the Information Systems Profession. *ICIS 2011 Proceedings*. https://aisel.aisnet.org/icis2011/proceedings/humancapital/4
- Cohen, M. W., & Palmer, G. R. (2004). Project risk identification and management. AACE International Transactions, IN11.
- Dan, V. (2017). Empirical and Non-Empirical Methods.
- Ericsson, K. A., & Harwell, K. W. (2019). Deliberate Practice and Proposed Limits on the Effects of Practice on the Acquisition of Expert Performance: Why the Original Definition Matters and Recommendations for Future Research. *Frontiers in Psychology*, 10. https://www.frontiersin.org/article/10.3389/fpsyg.2019.02396
- Gangwar, H., Date, H., & Ramaswamy, R. (2015). Understanding determinants of cloud computing adoption using an integrated TAM-TOE model. *Journal of Enterprise Information Management*, 28(1), 107–130. https://doi.org/10.1108/JEIM-08-2013-0065
- Ginger, L. (2018). Project Integration Management. In *PMP*® *Exam Preparation*. Auerbach Publications.
- Hamm-Simmons, T. L. (2019). Competencies as Contributors to Virtual Project Team Performance. Northcentral University.
- Hastjarjo, K. (2015). Strategic real estate development. Journal of Entrepreneurship, Business and Economics, 3(2), 65–85.
- Heldman, K. (2018). Developing Project Management Skills (pp. 33–54). https://doi.org/10.1002/9781119549109.ch2
- Hughes, L., Dwivedi, Y. K., Misra, S. K., Rana, N. P., Raghavan, V., & Akella, V. (2019). Blockchain research, practice and policy: Applications, benefits, limitations, emerging research themes and research agenda. *International Journal of Information Management*, 49, 114–129. https://doi.org/10.1016/j.ijinfomgt.2019.02.005

- Kamau, G. K. (2019). EFFECT OF TECHNOLOGICAL INNOVATIONS ON PERFORMANCE OF REAL ESTATE FIRMS IN KENYA: THE CASE OF REAL ESTATE IN NAIROBI COUNTY. 83.
- Karbolo, A. (2021). Factors influencing adoption of Information and Communication Technology in Real Estate firms in Kenya [PhD Thesis]. University of Nairobi.
- Karpook, D., Stillebroer, D., & Jaspers, E. (2020). New demands for resilience in real estate: Resilience and adaptability after the COVID-19 pandemic. *Corporate Real Estate Journal*, 10(1), 106–116.
- Kasemsap, K. (2018). The Roles of Information Technology and Knowledge Management in Project Management Metrics [Chapter]. Global Business Expansion: Concepts, Methodologies, Tools, and Applications; IGI Global. https://doi.org/10.4018/978-1-5225-5481-3.ch055
- Kathambi, B. E., & Obiero, L. (2021). Unseen barrier of water risks to sustainable consumption and production in micro, small and medium enterprises (MSMES) in Kenya. *East African Journal of Science, Technology and Innovation*, 2. https://eajsti.org
- Kavishe, N., Jefferson, I., & Chileshe, N. (2018). An analysis of the delivery challenges influencing public-private partnership in housing projects: The case of Tanzania. *Engineering, Construction and Architectural Management*, 25(2), 202–240. https://doi.org/10.1108/ECAM-12-2016-0261
- Killen, C. P., Jugdev, K., Drouin, N., & Petit, Y. (2012). Advancing project and portfolio management research: Applying strategic management theories. *International Journal of Project Management*, 30(5), 525–538. https://doi.org/10.1016/j.ijproman.2011.12.004
- Kim, H. A. H. H. A., & Barua, S. (2018). Service Level Agreement (SLA) for Cloud Computing Compilation with Common and New Formats. *International Journal of Scientific Research and Management*, 6(04), 2018–01. https://doi.org/10.18535/ijsrm
- Kituku, K. M. (2012). Adoption of cloud computing in Kenya by firms listed in the Nairobi Stock *Exchange*.
- Kivunja, C. (2018). Distinguishing between theory, theoretical framework, and conceptual framework: A systematic review of lessons from the field. *International Journal of Higher Education*, 7(6), 44–53.
- Kumar, V., M M, M., Rahman, Z., & Rajan, T. (2020). CLOUD COMPUTING COMPONENTS, SERVICES, TOOLS AND ITS ROADMAP TO ORGANIZATION.
- Lepori, B., Dinges, M., van der Besselaar, P., Mampuis, R., Potì, B., Reale, E., Slipersæter, S., Theves, J., & van der Meulen, B. (2006). Convergence versus national specificities in research policies. An empirical study on public project funding. *Conference Indicators* on Science, Technology and Innovation. Historyand NewPerspectives. Lugano.
- Maeser III, R. K. (2018). A Model-Based Framework for Analyzing Cloud Service Provider Trustworthiness and Predicting Cloud Service Level Agreement Performance [PhD Thesis]. The George Washington University.
- Maina, C. N. (2017). Effect Of Digital Marketing Tools On Performance Of Businesses In Real Estate Sector In Nairobi County [Thesis, KCA University]. http://41.89.49.13:8080/xmlui/handle/123456789/1241
- Makena, J. N. (2013). Factors that affect cloud computing adoption by small and medium enterprises in Kenya. *International Journal of Computer Applications Technology and Research*, 2(5), 517–521.
- Mallikharjuna, V., Ivatury, V. M. K., & Lemma, T. (2020). Critical Variables Influencing Project Performance in Real Estate Building Construction Sectors in Ethiopia, East Africa.

MUSAMALI & MUCHELULE Int. j. soc. sci. manag & entrep 6(1):184-198, May 2022

- Mat Nawi, F. A., Abdul Malek A.Tambi, Muhammad Faizal Samat, & Wan Masnieza Wan Mustapha. (2020). A REVIEW ON THE INTERNAL CONSISTENCY OF A SCALE: THE EMPIRICAL EXAMPLE OF THE INFLUENCE OF HUMAN CAPITAL INVESTMENT ON MALCOM BALDRIDGE QUALITY PRINCIPLES IN TVET INSTITUTIONS. Asian People Journal (APJ), 3(1), 19–29. https://doi.org/10.37231/apj.2020.3.1.121
- Mbugua, P., & Oduor, C. (2018). Evaluation of the Effects of SaaS on SMEs in Nairobi County, Kenya. Journal of Information Systems Engineering & Management, 3. https://doi.org/10.20897/jisem/2656
- Mell, P., & Grance, T. (2011). The NIST definition of cloud computing.
- Mohammed, J., & Bello, M. (2021). *Potentials of information and communication technology in real estate management and valuation practice.*
- Muczyński, A. (2015). An Integrated Approach to Real Estate (Porfolio) Management. *Real Estate Management and Valuation*, 23(2), 5–16.
- Mugenda, A. G., & Mugenda, A. G. (2012). Research methods dictionary. *Nairobi, Kenya: Applied Research & Training Services.*
- Mugenda, O., & Mugenda, A. (2003). Research methods: Quantitative and qualitative approaches. 2nd. *Rev. Ed. Nairobi*.
- Mugenda, O., & Mugenda, A. (2019). Research Methods; Qualitative and Quantitative and mixed methods approaches. Nairobi.
- Munene, M. W., & Achuora, J. (2018). Influence of Procurement Best Practices in Optimizing Procurement Performance among Parastatals in Kenya. *Journal of Procurement & Supply Chain*, 2(1), 40–64.
- Muthui Kasomo, R. (2018). Investigation and Comparison of Emulsified Diesel Oil and Flomin
  C 9202 as a Collector in the Beneficiation of Ultra-Fine Coal by Agglo-Flotation.
  *International Journal of Oil, Gas and Coal Engineering*, 6(4), 74.
  https://doi.org/10.11648/j.ogce.20180604.15
- Muumbi, C. M., & Chege, P. W. (2021). Effect of Technical Expertise Engagement in Monitoring and Evaluation on Performance of Residential Construction Projects in Kajiado County. *International Journal of Business Management, Entrepreneurship and Innovation*, 3(3), 72–81. https://doi.org/10.35942/jbmed.v3i3.217
- Muute, N. C., & James, R. (2019). Project planning practices and performance of construction projects in Nairobi City County, Kenya. Unpublished Masters Dissertation), Kenyatta University, Kenya.
- Mwaniki, P., & Ondiek, C. (2018). Evaluation of the effects of SaaS on SMEs in Nairobi County, Kenya.
- Nappi-Choulet, I., & Ribeiro, G. de C. (2018). New Technology and New Data in Real Estate. In *ERES* (eres2018\_86; ERES). European Real Estate Society (ERES). https://ideas.repec.org/p/arz/wpaper/eres2018\_86.html
- Nguti, V. N., & Mose, T. (2021). The role of E-recruitment and selection functions on the organizational outcomes in HELB, Kenya. *International Academic Journal of Human Resource and Business Administration*, 3(9), 554–565.
- Nguyen, M.-H. (2021). What are the fundamental meanings of money? https://doi.org/10.31235/osf.io/mdzn6
- Omwenga, B., Waema, T. M., & Omwansa, T. K. (2014). *Cloud Computing in Kenya A 2013 Baseline Survey.*
- Rani, A., Singh, R., Taneja, S., Prasad, A. B., & Dhiman, S. (2021). A Review on Key Performance Indicators for Measuring Real Estate Project Success. *International Journal*

of Sustainable Development and Planning, 16(4), 791–800. https://doi.org/10.18280/ijsdp.160420

- Sankaran, S., Haslett, T., & Sheffield, J. (2010). Systems thinking approaches to address complex issues in project management. *PMI*® *Global Congress*.
- Shenoy, M. A. (2019). Issues and benefits of cloud adoption and its current influence on commercial real estate sector of India [Dublin Business School]. https://esource.dbs.ie/handle/10788/3822
- Shrotryia, V. K., & Dhanda, U. (2019). Content validity of assessment instrument for employee engagement. *Sage Open*, *9*(1), 2158244018821751.
- Sunindijo, R. (2015). Project manager skills for improving project performance. International Journal of Business Performance Management, 16, 67–83. https://doi.org/10.1504/IJBPM.2015.066041
- Waga, D., Makori, E., & Rabah, K. (2014). Utilization of Cloud Computing in Education and Research to the Attainment of Millennium Development Goals and Vision 2030 in Kenya. Universal Journal of Educational Research, 2(2), 193–199. https://eric.ed.gov/?id=EJ1053854
- Whyte, J., & Davies, A. (2021). Reframing Systems Integration: A Process Perspective on Projects. *Project Management Journal*, 52(3), 237–249. https://doi.org/10.1177/8756972821992246
- Winnie, K. N., & Yusuf, D. M. (2021). PROJECT PLANNING PRACTICES AND SUCCESSFUL IMPLEMENTATION OF SLUM SETTLEMENTS UPGRADING PROJECTS IN NAIROBI CITY COUNTY, KENYA. 5(2), 18.
- Youssef, A. E. (2012). Exploring cloud computing services and applications. Journal of Emerging Trends in Computing and Information Sciences, 3(6), 838–847.
- Ziefle, M., & Schaar, A. K. (2010). Technical Expertise and Its Influence on the Acceptance of Future Medical Technologies: What Is Influencing What to Which Extent? In G. Leitner, M. Hitz, & A. Holzinger (Eds.), *HCI in Work and Learning, Life and Leisure* (pp. 513–529). Springer. https://doi.org/10.1007/978-3-642-16607-5\_40