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KNOWLEDGE APPLICATION AND PERFORMANCE OF AFFORDABLE HOUSING PROJECTS IN NAIROBI METROPOLITAN AREA,KENYA

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ABSTRACT

Knowledge management is a systematic process whose purpose is to acquire and organize both tacit and implicit knowledge to enable other employees use the same so as to be more effective, productive and able to sustain competitive advantage. The general objective of this study was to explore the relationship between knowledge application and performance of affordable housing projects in Nairobi Metropolitan Area, Kenya. The study was guided by Strategic Knowledge Management Theory. This study employed a cross-sectional research design. It targeted senior employees of the ongoing affordable housing projects being implemented in Nairobi metropolitan area who were 128 in number. As such, the study opted for a convenience sampling approach, where a senior employee of each identified AHP was visited and given a questionnaire to fill. Descriptive and inferential statistics were used in the data analysis with the results presented in forms of tables and charts. The results of the regression analysis show a strong relationship between knowledge management practices and the performance of affordable housing projects in the Nairobi Metropolitan Area, with an R-square value of 0.766. Knowledge application, had a significant positive impact on project performance, with p-values less than 0.05 and the standardized beta coefficient for knowledge application was $\beta = 0.377$). The model's overall fit is supported by a low standard error of estimate (0.10429), indicating reliable predictions. These findings highlight the critical role of effective knowledge management in enhancing the success of affordable housing projects. The study concludes that knowledge application has a significant effect on performance of affordable housing projects in Nairobi Metropolitan Area, Kenya. . This study recommends that organizations should integrate structured processes for applying knowledge gained from past projects into new project planning and execution. This can be achieved through regular project reviews, case study analysis, and the development of standardized frameworks that incorporate best practices. Furthermore, project teams should be trained on how to effectively utilize lessons learned to improve efficiency, reduce errors, and enhance the overall success of affordable housing initiatives.

Key Words: Knowledge management, Knowledge Application, Performance, Affordable Housing Projects, Nairobi Metropolitan Area.

Background of the Study

Becerra-Fernandez and Sabherwal (2019) defined knowledge management as the creation, storage, application and acquisition of an organization's intellectual capital. According to Al-Tit (2018), knowledge management (KM) is the ability of an organization to manage, store, value, and distribute knowledge. It enables an organization to learn from its corporate memory, grow, succeed, and innovate. Knowledge management involves identifying and leveraging collective knowledge. It also helps organizations to gain insight and understanding from their own experiences, more so promoting an integrated approach to identification, capture, evaluation, retrieval and sharing all of an organizations information assets which include databases, documents, policies and procedures and previously un-captured expertise and experience of individual workers.

Knowledge management is increasingly becoming an important resource contributing to all aspects of organizational performance (Xue, 2017). Just as it can lead to organizational success, knowledge management can lead to the failure of organizations. According to Mahdi et al. (2019) knowledge management is the key factor that enables enterprises to successfully compete globally. Effective knowledge management is now a major concern of contemporary business managers (Hislop, Bosua & Helms, 2018).

The importance of KM in organizations cannot be overstated and some of the rewards of managing knowledge as cited by Mutula and Wamukoya (2017) include: enhancement of productivity, competitiveness and low cost of operation; enables harnessing of aging and exiting staff knowledge in order to preserve institutes knowledge; facilitation of capacity building plans; helps managers to manage knowledge resources effectively; improves trust and working relations in an organization; innovation and teamwork are enhanced; enables organizations to demonstrate accountability in resource management and facilitates adaptation to and technology transfer.

Being able to afford decent housing is a fundamental human necessity. According to Kenya's Constitution, everyone has the right to decent, easily accessible housing (Article 43). Additionally, building high-quality, reasonably priced housing for Kenyans with low incomes is a top objective under the social pillar of Kenya Vision 2030. Furthermore, the government intends to address the housing gap by supporting the delivery of 250,000 houses annually through the Bottom-Up Economic Transformation Agenda. The government's Affordable Housing Programme is a top priority project designed to make it easier for Kenyans to find adequate, secure, and reasonably priced homes (Boma Yangu, 2024). Consequently, affordable housing addresses fundamental social and economic challenges, fosters community development, encourages innovation, and requires collaboration across sectors to ensure that housing remains accessible and affordable for all segments of society.

In accordance with the Affordable Housing Act 2024, an affordable housing unit includes a social housing unit which is a home intended for someone with a monthly income of less than KES 20,000, residence intended for a person whose monthly income falls between KES 20,000 to KES 149 000, a middle-class, reasonably priced apartment building aimed for middle-class to upper-class individuals earning more than KES 149,000 a month or dwelling intended for anyone residing in any region that is not an urban area which is referred to as a rural affordable housing unit. The Affordable Housing Programme (AHP), which was introduced in 2017 as a component of the "Big Four" strategy, lays out the policy framework for affordable housing. The AHP Development Framework Guideline 2018 outlines the procedures for putting the AHP into practice. Both the supply- and demand-side are covered by the policy framework, which fosters the delivery of housing and provides incentives for it.

Recent policies and legislative frameworks in Kenya have focused on enhancing affordable housing. Firstly, the Sessional Paper No. 3 of 2016 on National Housing Policy 2016 presents the issues and policy recommendations that have been identified, analyzed and agreed upon by the stakeholders in line with the requirement of the Constitution. Additionally, the Housing Fund is established by Housing Act Cap 117 and is managed by the National Housing Corporation (NHC). The Housing Fund is crucial in encouraging private developers to construct more affordable housing and acts as a conduit between the low- and middle-class populations need for such dwellings. Furthermore, the National Housing Development Fund Regulations, 2020 specify the requirements for eligibility and distribution in relation to affordable housing initiatives. Apart from that, the establishment of the Kenya Mortgage Refinance Company (KMRC) aims to provide long-term funding to primary mortgage lenders, including banks and Saccos, to increase the availability of affordable home loans. Ultimately, these policies and laws collectively ensure a conducive environment for affordable housing through various mechanisms. They provide a legal and regulatory framework, establish institutions for implementation, and promote public-private partnerships to mobilize resources and expertise. They also ensure that housing projects adhere to minimum safety and quality standards, protecting the right to adequate housing for all, including low-income and vulnerable groups. Ultimately, these policies and laws aim to address the housing deficit in Kenya, ensuring sustainable urban development and decent living conditions for its citizens. However, many of these policies are not known by many citizens, creating an information gap that has left many Kenyans struggling to understand how the AHP is being implemented in Kenya.

Problem Statement

The construction sector in Kenya, particularly the delivery of affordable housing projects, faces persistent challenges in managing and leveraging knowledge effectively. With the sector generating vast amounts of data from diverse stakeholders, such as contractors, subcontractors, site workers, and suppliers, the absence of structured knowledge management systems has become a critical bottleneck. Studies reveal that approximately 80% of construction-related data is unstructured and categorized as "dark data," leading to its underutilization and contributing to inefficiencies, project delays, and increased costs (Musa, 2018).

Despite the growing need for affordable and sustainable housing, especially in the Nairobi Metropolitan Area, the adoption of formal knowledge management practices remains limited. Ndege (2021) found that only 40% of construction organizations have implemented knowledge management systems, with many projects still relying on outdated manual processes and fragmented data storage methods. Concerns about technological disruption, job security, and reliance on traditional business models (Muhoya, 2016) have further slowed the transition toward more effective knowledge management approaches.

Li et al. (2023) highlight that approximately 96% of development information remains unused, illustrating the magnitude of inefficiency in knowledge storage and retrieval. Within the Nairobi Metropolitan Area, surveys by Nairobi Metropolitan Services (2020) indicate that only 35% of affordable housing projects have formalized knowledge management systems, and a significant proportion continue to operate through ad-hoc and informal knowledge-sharing mechanisms. As a result, up to 40% of these projects suffer from delays, cost overruns, or compromised quality standards (Kenya National Bureau of Statistics, 2019).

Moreover, while existing research has extensively explored knowledge management practices in sectors such as telecommunications (Karani, 2015), state corporations (Chebii, 2017), public services (Wanyama, 2018), auditing (Mweru, 2016), and banking (Gakuo & Rotich, 2017), there remains a notable contextual gap in understanding how knowledge application influence the performance of affordable housing projects. The lack of empirical evidence specific to the affordable housing sector hampers efforts to design effective strategies for improving project

outcomes through better knowledge management. Therefore, this study seeks to bridge this knowledge gap by investigating the relationship between knowledge application and project performance, the study aims to offer actionable insights for enhancing efficiency, reducing project risks, and improving the overall success rate of affordable housing initiatives.

The objective of the study was to establish the relationship between knowledge application and performance of affordable housing projects in Nairobi Metropolitan Area, Kenya.

Theoretical Framework

Strategic Knowledge Management Theory

Strategic Knowledge Management Theory (SKMT) was popularized in the 1980s by Peter Drucker, who emphasized the importance of creating, archiving, managing, and utilizing knowledge within organizations to improve performance. Drucker underscored that the generation and application of high-quality information are essential for enhancing decision-making and gaining a competitive advantage.

Strategic knowledge management (SKM) refers to the deliberate processes and infrastructure used by organizations to generate, store, share, and apply knowledge in alignment with strategic goals (Zack, 2002). It ensures that organizational knowledge—both tacit and explicit—is utilized to support decision-making, drive innovation, and achieve performance objectives. According to Heisig et al. (2016), SKMT integrates intellectual and technological resources, positioning knowledge as a strategic asset. This theory bridges the gap between traditional business models and the modern era of global knowledge networking, encouraging organizations to use available knowledge in ways that are both scientifically valid and practically effective.

SKMT is highly applicable to the implementation of affordable housing projects in Nairobi Metropolitan Area. These projects involve numerous stakeholders, dynamic regulatory environments, and high-performance expectations concerning cost, quality, and timelines. SKMT provides a framework that enables project teams to capture and leverage experiential knowledge from past housing initiatives—such as design practices, risk mitigation, and regulatory navigation—to inform current and future developments. By embedding knowledge application into project cycles (e.g., through debriefs, benchmarking, or planning templates), housing developers can improve project outcomes and reduce inefficiencies. Moreover, applying SKMT supports continuous improvement and sustainable construction practices by institutionalizing learning across projects, thereby enhancing organizational performance and increasing the overall success of affordable housing initiatives.

Conceptual Framework

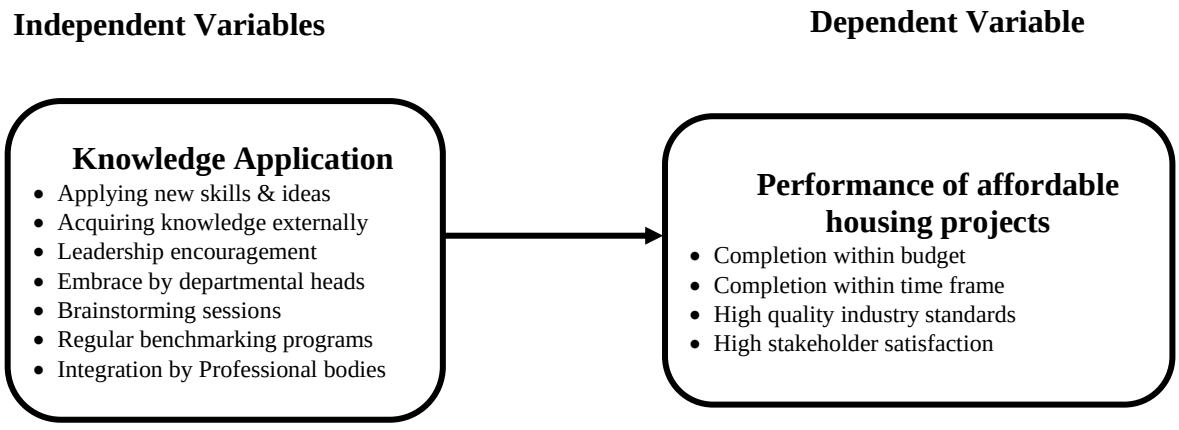

Figure 0.1: Conceptual Framework

Knowledge Application

Application of knowledge is the process of using existing information to guide decisions and carry out activities. Additionally, Bharadwa et al., (2015) carried out research to develop an efficient model of knowledge management from the standpoint of organizational capacities. According to this viewpoint, the knowledge process architecture of acquisition, conversion, application, and protection together with a knowledge infrastructure made up of technology, structure, and culture are necessary organizational capacities or prerequisites for efficient knowledge management. According to Yasir and Majid (2017), knowledge management is made up of 44 procedures for managing knowledge and enablers, or capabilities that help these processes work. Additionally, they contend that corporate culture, structure, personnel, and information technology support are knowledge management enablers.

Muathe et al. (2015) used a 7-point Likert scale, correlation analysis, and regression analysis to conclude that knowledge application positively influences performance. They also demonstrated a statistically significant positive link between perceptions of high adoption of KM practices and perceptions of high organizational performance. However, due of the low response rate of 38%, the findings of Yusoff and Daudi's study cannot be broadly applied. In the International Design Conference, Miguel, Saavedra, and Lindemann (2016) examined the variables affecting the application of knowledge. This went against the notion that the majority of research focused on the acquisition, archiving, and dissemination of information while disregarding the question of whether knowledge is ultimately used.

After conducting a review of pertinent literature in the field of knowledge management, they gathered 364 factors that were identified by the authors of 31 journal papers. These factors were then analyzed and divided into the four categories of the Work Centered Model (WCM), which are knowledge, strategic, infrastructure, and psychosocial factors. The report summarized several, barely comparable research findings that were in line with a single, distinctive paradigm. Additionally, they suggested that the WCM might now serve as a foundation for the creation of fresh strategies to aid in the application of information and identify the elements that new strategies favorably or unfavorably impact.

A literature review was undertaken by Saratchandra and Shrestha (2022) in order to identify any gaps in the existing body of knowledge management literature. In order to determine the present state, ongoing projects, and future directions of knowledge management research, they examined 80 papers on the topic from seven carefully chosen journals in the fields of information systems, business, management, and operations research. Since decisions about the adoption of knowledge management are heavily influenced by the expected performance of knowledge management, they recommended that further research be done on the evaluation of knowledge management performance. A survey of the literature was done on knowledge management in Pakistan by Mahmood and Shah (2015). The main goal of this study was to provide an overview of knowledge management efforts and initiatives in Pakistan.

Information about knowledge management was gathered by searching the literature on websites, in the archives of research journals, and in library catalogues. The study concluded that knowledge management is closely related to organizational goals of increased production, creativity, and productivity and suggested that academics and business collaborate to properly develop knowledge management in Pakistan. The researchers found that there are significant gaps in the theoretical and practical implications of knowledge management because the field is still developing in Pakistan. Several research investigations were carried out for scholarly purposes as opposed to meeting industry demands.

Wang and Yang (2016) conducted an empirical investigation into how knowledge management

practices that are suggested in organizations to facilitate knowledge generation, storage, and transfer can increase organizational success. In particular, they offered five strategies for improving organizational performance through knowledge management practices: creating a knowledge repository, holding informal knowledge fairs for staff members, encouraging communities of practices (CoP), and having 46 R&D employees present about their ongoing projects. However, a wide range of circumstances, including geographic location, technical sophistication, and national economic standing, affect the requirement for expertise in industry.

Performance of Affordable Housing Projects

The high demand for property ownership in Kenya, as indicated by the Center for Affordable Housing Finance Africa (CAHF), underscores the critical need for effective management of affordable housing projects. The Kenyan government's Affordable Housing Program (AHP), launched in 2017 with the ambitious goal of delivering 500,000 low-cost housing units within five years, has faced significant challenges, including escalating construction costs, inadequate supply of serviced land, and prolonged regulatory processes (State Department for Housing and Urban Development, 2018). For instance, the average construction cost per square meter rose by 27.0% in 2023 due to increased prices of key materials like cement and steel (Kenya National Bureau of Statistics, 2023). Moreover, the shortage of affordable land with necessary infrastructure, such as water and electricity, has compromised project quality, and the lengthy property registration process, averaging 159 days at a cost of 2.8% of construction expenses, further delays project timelines (Kenya National Bureau of Statistics, 2023).

Knowledge management practices can substantially mitigate these challenges by improving the efficiency and effectiveness of affordable housing projects. Effective knowledge management involves capturing and sharing critical information related to construction costs, material sourcing, and regulatory requirements (Adi et al., 2021). By leveraging digital platforms to document best practices and lessons learned, stakeholders can streamline processes and reduce costs. For example, knowledge management systems can provide a centralized database of material suppliers and cost trends, helping project managers anticipate and budget for price increases. According to Boamah et al. (2022), standardized documentation and streamlined communication channels can reduce the time and cost associated with regulatory approvals. By fostering a culture of continuous learning and adaptation, construction firms can more effectively navigate the complexities of land acquisition and regulatory compliance, ensuring that projects meet quality standards and are completed within budget and on time. Overall, the integration of robust knowledge management practices is crucial for overcoming the constraints that hinder the success of affordable housing projects in Kenya.

In this research, the assessment of performance revolves around evaluating quality, cost, and timeliness. Quality metrics gauge whether housing units meet safety standards, offer adequate amenities, and adhere to environmental considerations. Cost analysis focuses on affordability relative to household incomes, assessing the effectiveness of financial mechanisms like subsidies or loans. Timeliness examines the efficiency of project delivery, measuring adherence to construction schedules and responsiveness to external factors. Together, these assessments provide a comprehensive view of how well housing initiatives meet the needs of target populations and inform strategies for enhancing affordability, sustainability, and efficiency in future housing developments. Consequently, knowledge management in affordable housing involves systematically collecting and analyzing data on quality, cost, and timeliness of housing projects. Quality assessments inform best practices in construction and design, ensuring safety and sustainability standards are met. Cost evaluations guide efficient resource allocation and funding strategies, while timeliness analysis enhances project management practices for more effective implementation of future housing initiatives. Through these processes, knowledge management facilitates continuous improvement and innovation in addressing housing needs affordably and sustainably

RESEARCH METHODOLOGY

This study employed the use of a cross-sectional research design which allows for the collection of data at a single point in time to analyze the relationship between the variables. According to Bryman (2012), cross-sectional studies are useful for examining patterns, associations, and variations across different variables without requiring long-term observation. This design was appropriate for the study because it enabled the researcher to capture the state of knowledge management practices and their impact on housing project performance across several housing projects at a given time in the project lifespan, providing valuable insights into existing trends. Furthermore, the approach facilitated the use of both quantitative and qualitative methods, ensuring a broad yet detailed analysis while maintaining feasibility in terms of time and resources.

Yin (2017) defined a population as a group of related items or observations that are of interest to the researcher. As such, the target population in this study comprised of senior employees in charge of the affordable housing projects being implemented within the Nairobi Metropolitan Area, specifically in Nairobi, Machakos, and Kiambu counties, that were 128 in number. These senior employees comprised of the project manager, engineer, architect or quantity surveyor, based on their availability on the project site during the data collection phase. These representatives were selected because they possess firsthand experience and insights into the operational aspects of AHP, ensuring the data collected is both relevant and accurate.

Table 01: Population of the Study

Type of senior employee	Number in all 32 AHPs
Project manager	32
Engineer	32
Architect	32
Quantity surveyor	32
Total	**128**

This study adopted a convenience sampling technique to select respondents from various project sites (Stratton, 2021). This approach ensured that each response was both informed and representative of the project site's leadership perspective. Additionally, purposive sampling was used to identify key informants for the interviews which were done to representatives of the SDHUD and the NHC. In this case, 2 key informants were selected from the SDHUD and 3 key informants selected from NHC. The inclusion of key informants from the SDHUD and NHC was essential due to their direct involvement in the policy formulation, regulation, and implementation of affordable housing projects in Kenya. The informants from SDHUD provided insights into government policies and strategic planning, while those from NHC contributed practical experiences on project execution and knowledge management in housing development.

A questionnaire was used in this study to collect data from the senior employees in the AHP projects in the Nairobi Metropolitan Area. Key informants were also interviewed to provide qualitative data in line with the objectives of the research. Quantitative data collected from the questionnaires was organized, tabulated and analyzed using SPSS Version 28. Descriptive and inferential statistics were used. The descriptive statistics included frequencies, percentages, and measures of central tendency, while inferential statistics included correlation and regression.

RESEARCH FINDINGS AND DISCUSSIONS

Out of 32 questionnaires which were distributed to the project representatives of AHP projects in Nairobi Metropolitan Area, 30 were duly filled and returned indicating a response rate of

93.75%. According to Babbie (2017), a response rate of 75% is adequate for analysis as well as making conclusions and inferences about a population. In addition, Kumar (2019) indicates that a response rate of 60% and above is acceptable for analysis. Further, Egbert (2015) indicates that a response rate of 50% should be considered average, 60% to 70% considered adequate while a response rate of above 70% should be regarded as excellent. This implies that the response rate of 93.75% was considered adequate for analysis, drawing conclusions and reporting. For the interviews, all 5 interviewees were available and participated in the study, representing a response rate of 100%.

Descriptive Analysis

Descriptive analysis was undertaken to summarize and interpret the data to identify patterns, trends, and relationships within a dataset. The results were presented in forms of tables, means and standard deviations.

Knowledge Application and Performance of Affordable Housing Projects

The specific objective of the study was to establish the relationship between knowledge application and performance of affordable housing projects in Nairobi Metropolitan Area, Kenya. The respondents were requested to indicate their level of agreement on various statements relating to knowledge application and performance of affordable housing projects in Nairobi Metropolitan Area, Kenya. The results were as shown in Table 2 below.

The survey highlights that acquiring new knowledge from external sources (Mean = 3.899, Std. Dev. = 0.845) is the most impactful factor in enhancing affordable housing project outcomes. Conversely, brainstorming sessions to address complex issues (Mean = 3.699, Std. Dev. = 0.659) received the lowest rating, indicating its relatively lesser perceived effectiveness. The aggregate mean of 3.817 and standard deviation of 0.808 indicate a positive perception of knowledge application practices, with external knowledge acquisition and leadership encouragement standing out as key drivers of performance improvement.

Table 2: Knowledge Application and Project performance

Statement	Mean	Std. Deviation
New ideas and skills are embraced and applied at work, enhancing the performance of affordable housing projects.	3.878	0.769
A significant amount of new knowledge is acquired from external sources, which positively impacts affordable housing project outcomes.	3.899	0.845
The construction company leadership encourages employees to apply the acquired knowledge in their daily activities, leading to improved project performance in affordable housing.	3.779	0.958
Departmental heads are responsible for embracing new technologies, contributing to the successful execution of affordable housing projects.	3.793	0.797
Brainstorming sessions help staff solve complex issues affecting project performance, leading to better project results.	3.699	0.659
Regular benchmarking programs are in place to borrow and apply existing ideas and skills on construction projects, enhancing their success.	3.786	0.976
The professional body encourages functional heads to champion the embracing of new technologies and the creation of new knowledge, which drives the performance of affordable housing projects.	3.888	0.654
Aggregate	**3.817**	**0.808**

A key informant indicated that their organization ensures the effective application of

knowledge from previous projects through structured processes, such as project debriefs and the integration of lessons learned into project planning templates.

> "*We make sure to learn from past projects by holding debrief sessions and adding key lessons to our planning templates. Before starting a new project, the team goes through previous case studies and best practices to see what worked well and what can be improved. This way, we avoid past mistakes, manage resources better, and make sure each project runs more smoothly*." (Officer 2b)

It was highlighted that during the initial stages of a new project, teams review past case studies and best practices to identify strategies that can be replicated or adapted. Consequently, this response emphasizes the importance of knowledge application as a key driver for improving affordable housing project performance. It illustrates how systematically reviewing and applying past experiences can lead to tangible benefits, such as enhanced resource management and project execution.

The above results align with the findings of Lee et al. (2016), who noted that organizations that systematically integrate past experiences into their decision-making processes tend to achieve better outcomes. Further, it also aligns with the findings of Goldberg and Steven-Waiss (2020), who emphasized that structured application of knowledge reduces project risks and improves efficiency. Additionally, the study findings confirm that project teams leverage debrief sessions and planning templates to integrate lessons learned, which resonates with Omotayo (2015) findings of knowledge creation theory, highlighting the importance of transforming knowledge into action.

Project performance

The respondents were requested to indicate their level of agreement on various statements relating to performance of affordable housing projects in Nairobi Metropolitan Area, Kenya. The results were as shown in Table 4.5 below. The findings indicate that completing affordable housing projects within the set budget (Mean = 3.848, Std. Dev. = 0.988) is the highest-rated factor, emphasizing its critical role in the success of these projects. In contrast, the quality of construction meeting or exceeding industry standards (Mean = 3.675, Std. Dev. = 0.891) received the lowest rating, suggesting room for improvement in this area. The aggregate mean of 3.781 and standard deviation of 0.810 reflect a positive perception of project performance, with budget adherence and stakeholder satisfaction being key strengths.

Table 2: Project performance

	Statement	Mean	Std. Deviation
1.	The affordable housing projects are completed within the set budget, contributing to the overall success of the projects.	3.848	0.988
2.	The affordable housing projects are completed within the scheduled time frame, ensuring timely delivery of housing units.	3.797	0.642
3.	The quality of construction in affordable housing projects meets or exceeds industry standards, leading to higher customer satisfaction.	3.675	0.891
4.	Stakeholder satisfaction, including that of residents, government authorities, and investors, is high in the affordable housing projects.	3.805	0.719
	Aggregate	**3.781**	**0.810**

A key informant indicated that several factors are considered when they asses their performance in the projects including aspects of time, cost, and quality.

> "*We look at several factors, whether the project meets its targets, stays within budget, and maintains good quality. Sustainability is also a big focus, so we check if the housing remains affordable and functional over time. Regular monitoring and feedback always help us adjust as needed to keep everything on track."* (Officer 2c)

As such, it was notable that effective project performance ensures that housing developments remain viable, meet demand, and adhere to construction standards. Therefore, by continuously assessing and improving execution strategies, organizations can enhance efficiency, reduce risks, and deliver better housing solutions.

These findings are in line with the assessment that project performance in the affordable housing sector is influenced by multiple factors, including cost, time, quality, and sustainability. Boamah et al. (2022) emphasize that performance metrics should align with project goals to ensure successful delivery. Similarly, Adi et al., (2021) notes that evaluating project performance through continuous monitoring and assessment helps organizations identify areas for improvement. As such, the study findings confirm that organizations assess performance based on target achievement, budget adherence, and sustainability, aligning with the framework proposed by Kerzner (2017), which highlights the importance of measuring key performance indicators to drive project success.

Correlation Analysis

The present study used Pearson correlation analysis to determine the strength of association between knowledge application and the dependent variable (performance of affordable housing projects in Nairobi Metropolitan Area, Kenya). Pearson correlation was used because it measures the strength and direction of a linear relationship between continuous variables, making it ideal for statistical modelling (Schober et al., 2018). It further provides a standardized coefficient ranging from -1 to +1, helping to assess positive, negative, or no correlation while ensuring the data is normally distributed.

Knowledge Application and Performance of AHP

Lastly, the results also revealed that there was a strong relationship between knowledge application and performance of affordable housing projects in Nairobi Metropolitan Area, Kenya ($r = 0.500$, p value $=0.004$) as shown in Table 3 below. The relationship was significant since the p value 0.004 was less than 0.05 (significant level). The findings are in line with the results of Boateng and Agyemang (2015) who revealed that there is a very strong relationship between knowledge application and project performance.

Table 3: Correlation between Knowledge application and Performance of AHP

		Project Performance
Knowledge Application	Correlation	.500**
	Sig. (2-tailed)	.004
	N	30

**. Correlation is significant at the 0.01 level (2-tailed).

Linear Regression Analysis

Knowledge Application and Performance of AHP

The objective of the study sought to establish the relationship between knowledge application and performance of affordable housing projects in Nairobi Metropolitan Area,

Kenya. The results of the regression are presented in Table 4.22 below. Regression results revealed that knowledge sharing accounts for 25.0% of the variance in project performance ($R^2 = 0.250$), meaning that 75.0% of the variation in project performance is influenced by other factors outside this model. The R value of 0.500 suggests a strong and positive correlation between effective knowledge application practices and the performance of affordable housing projects.

Table 4: Model summary for knowledge application and performance of AHP

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.500	.250	.248	.13922

a. Predictors: (Constant), knowledge application

Additionally, ANOVA was also undertaken and the results shown in table 5 below. The results show that the F-statistic (45.412) was significant at $p < 0.05$, confirming that knowledge application is a statistically significant predictor of project performance. This means that the observed relationship between knowledge application and project performance is unlikely to have occurred by chance, and the linear regression model is a good fit. The findings imply that appropriate knowledge application structures, contribute meaningfully to the improvement of affordable housing projects in the Nairobi Metropolitan Area.

Table 5: ANOVA table for knowledge application and performance of AHP

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	87.894	1	87.894	45.412	.000[b]
	Residual	49.441	28	1.766		
	Total	137.335	29			

a. Dependent Variable: performance of affordable housing projects
b. Predictors: (Constant), knowledge application

Conclusions

The study concludes that knowledge application has a significant effect on performance of affordable housing projects in Nairobi Metropolitan Area, Kenya. The study findings revealed that leadership application, technology application and strategy application influences performance of affordable housing projects in Nairobi Metropolitan Area, Kenya. The above results align with the findings of Lee et al. (2016), who noted that organizations that systematically integrate past experiences into their decision-making processes tend to achieve better outcomes. Further, it also aligns with the findings of Goldberg and Steven-Waiss (2020), who emphasized that structured application of knowledge reduces project risks and improves efficiency.

Recommendations

The study also found that knowledge application has a significant effect on performance of affordable housing projects in Nairobi Metropolitan Area, Kenya. This study recommends that organizations should integrate structured processes for applying knowledge gained from past projects into new project planning and execution. This can be achieved through regular project reviews, case study analysis, and the development of standardized frameworks that incorporate best practices. Furthermore, project teams should be trained on how to effectively utilize

lessons learned to improve efficiency, reduce errors, and enhance the overall success of affordable housing initiatives.

Recommendations for Further Studies

This study was limited to the relationship between knowledge management practices and performance of affordable housing projects in Nairobi Metropolitan Area, Kenya, hence the study findings cannot be generalized to performance of other projects in Kenya. The study therefore suggests further studies on the relationship between knowledge management practices and performance of other projects in Kenya, especially in the private sector.

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